UNIVERSITY OF SALERNO



DOCTORAL PROGRAMME IN LEGAL SCIENCES
PUBLIC LAW CURRICULUM

PH.D. THESIS

IN

ADMINISTRATIVE LAW

Agentic AI: The New Artificial Bureaucrat

Doctoral Programme Coordinator
Prof. Angela Di Stasi

Supervisor
Prof. Carmencita Guacci

Ph.D. Candidate
Tommaso Cesareo
Student ID 8861000001

ACADEMIC YEAR 2024-2025

To Hasret,
who made me a better person

« La lutte elle-même vers les sommets suffit à remplir un coeur d'homme. Il faut imaginer Sisyphe heureux. »

Albert Camus, *Le Mythe de Sisyphe*

Table of Contents

Introduction ____ *17*

Chapter I ____ *21*

Technical aspects and the legal, definitional, and regulatory framework of artificial intelligence ____ *21*

1. Technical and IT notions for jurists ____ **22**

2. Deterministic algorithms and probabilistic machine learning algorithms ____ **22**

3. The engines of the AI revolution: the convergence between Big Data and computing power (GPU and TPU) ____ **27**

4. The heart of complexity: neural networks, deep learning and the problem of the so-called black box ____ **30**

5. Defining artificial intelligence for law: Narrow AI as a present reality and the evolution of normative definitions ____ **36**

6. The definition of «AI system» in Regulation (EU) 2024/1689 on artificial intelligence (AI Act) and in the European Commission Guidelines ____ **39**

7. The architecture of Regulation (EU) 2024/1689 ____ **44**

8. The search for transparency: the so-called Explainable AI (XAI) ____ **47**

Chapter II ____ *53*

The principles and rules of administrative law put to the test of artificial intelligence ___ ***53***

1. The legal nature of deterministic algorithms within the scope of administrative law ___ **56**

1.1. The theory of the algorithm as a digital administrative act ___ 56

1.2. The theory of the algorithm as a regulation ___ 59

1.3. The theory of the algorithm as a procedural instrument and organisational tool ___ 60

1.4. The eclectic theory ___ 62

2. The legal nature of artificial intelligence systems within the scope of administrative law ___ **64**

2.1. The distinction between traditional algorithms and AI systems in administrative case law ___ 64

2.2. The extension of the instrumental nature to AI systems: the judicial evolution in judgements no. 4297/2023 and no. 4929/2025 of the Council of State 65

2.3. The statutory codification of the instrumental function of AI in art. 14 of Law 23 September 2025, no. 132 ___ 66

3. Artificial intelligence and administrative discretion ___ **67**

3.1. Discretionary and non-discretionary activity: classic definitions ___ 67

3.2. The case law evolution: from the restrictive approach to the opening for the use of automation in discretionary activities ___ 71

3.3. The placement of the discretionary choice: "upstream" self-binding and "downstream" decision ___ 76

4. The principle of administrative transparency and its algorithmic application ___ **78**

4.1. The obligation to give reasons for administrative acts using artificial intelligence ___ 98

4.1.1. Art. 3 of Law no. 241/1990 and the multifaceted nature of the statement of reasons 98

4.1.2. Statement of reasons based on deterministic algorithms 105

4.1.2.1. The theory of the simplified statement of reasons for non-discretionary activity and the debate on the applicability of Art. 21-octies, paragraph 2, Law 241/1990 to automated administrative acts 105

4.1.2.2. The theory of the Council of State on the obligation to translate the technical formula into a legal rule 109

4.1.3. Statement of reasons based on artificial intelligence systems 110

4.1.3.1. The theory of the black box as an absolute obstacle to the fulfilment of the duty to give reasons 111

4.1.3.2. The theory of the functional human standard 112

4.1.3.3. The theory of the enhanced statement of reasons 114

4.1.3.4. The theory of the generative statement of reasons 115

4.1.4. The relationship between the right to an explanation under Art. 86 of the AI Act and the duty to give reasons under the Italian legal system 119

4.1.5. An operational proposal: incorporating Explainable AI (xAI) techniques into the duty to give reasons for administrative acts 121

4.2. The right of access to administrative documents: from the disclosability of the source code of traditional software to the complex technical documentation of AI systems 123

4.2.1. Access to the source code of deterministic algorithms: the balancing between the right of defence and intellectual property in administrative case law 128

4.2.2. The distinction between *decisione amministrativa algoritmica* and *algoritmo di mero supporto* in judgement no. 4857/2025 of the Council of State: critical issues and aporias 139

4.2.3. The object of the right of access in AI systems: beyond the source code, towards the technical documentation (art. 11 AI Act) and the Fundamental Rights Impact Assessment (FRIA) 149

4.2.4. The problems connected to the use of proprietary software and the question of Open-Source AI 153

5. The principle of non-exclusivity of the artificial administrative decision: human oversight **160**

5.1. The genesis of the principle: from Art. 22 GDPR to the Council of State's triptych of algorithmic legality 160

5.2. Human oversight in Art. 14 of the AI Act and its transposition in Art. 14 of Law 23 September 2025, no. 132 162

5.3. The intensity of human oversight: from the detailed verification to the review of manifest defects 168

5.3.1. The theory of the gradation of supervision based on the discretionary or non-discretionary nature of the administrative power 170

5.3.2. The theory of the deferred right to be heard: human oversight as a subsequent instance activated by the private party's objection 172

5.3.3. The theory of the integral automation of favourable administrative decisions 172

5.3.4. The theory of human oversight limited to manifest defects 173

6. The principle of non-discrimination of the artificial administrative decision **174**

6.1. The phenomenology of algorithmic bias: direct and indirect discrimination 175

6.2. Bias in data, in the algorithm and in the interaction: taxonomy of technological biases 178

6.3. The regulatory framework: from the GDPR to art. 10 of the AI Act on data governance 183

6.4. The role of public officers' training: prompt engineering as a tool for bias control 189

7. The participation of private parties in artificial administrative proceedings 191

7.1. The communication of an administrative procedure's commencement 192

7.1.1. The function of the legal concept and the inadequacy of the current art. 8 of Law no. 241/1990 in the automated context 192

7.1.2. A reform proposal: the obligation of disclosure of the use of AI and of the methods of supervision at the initiation of the proceeding 198

7.2. The communication of reasons preventing the acceptance of an application, or advance notice of rejection 199

7.2.1. The notice of rejection as a key moment for the right to be heard on algorithmic output 203

7.2.1.1. The critical theory of incompatibility 203

7.2.1.2. The theory of "subsequent participation": the algorithmic output as an administrative "decision proposal" 204

7.2.2. A reform proposal: the obligation of autonomous human review following the written submissions of the interested party 206

8. The (possible) conflicts between the AI Act and Italian Law no. 132/2025: the risk of "gold plating" 207

9. The liability of the public administration for damage caused by AI systems 213

9.1. Civil liability 214

9.1.1. The legal nature of the liability of the Public Administration for the unlawful exercise of public functions: the debate between the theory of *contatto sociale qualificato* and the tortious nature pursuant to Article 2043 of the Italian Civil Code. 215

9.1.2. The elements of the tort: the conduct, the unlawfulness of the damage due to the violation of legitimate interests, and the notion of *colpa d'apparato* 219

9.1.3. The relationship between the liability of the Administration and the liability of the public officer: the provisions of Presidential Decree No. 3/1957 and the limitation to gross negligence for public officers 222

9.2. Administrative liability 224

9.2.1. Constitutional foundation and legal nature of administrative liability 224

9.2.2. The elements of administrative liability 226

9.3. In search of the meaning of the concepts of "fault" and "causal link" in liability for damages caused by artificial intelligence 232

9.3.1. The reconfiguration of the concept of 'fault' in the age of automation 232

9.3.1.1. Software selection: the *culpa in eligendo* theory 233

9.3.1.2. Articles 2047 and 2048 of the Civil Code: the *culpa in vigilando* theory 234

9.3.1.3. The *colpa d'apparato* theory 236

9.3.1.4. Articles 2049, 2050, 2051 and 2052 of the Civil Code: the strict liability theory 237

9.3.2. The crisis of the causal link 240

9.3.2.1. The strict approach 240

9.3.2.2. The *causa causae est causa causati* theory 241

9.3.3. The impact of European Union law: the Product Liability Directive (EU) 2024/2853 and the proposal for an AI Liability Directive 242

CHAPTER III ***248***

Judicial protection against artificial administrative action ***248***

1. The allocation of jurisdiction between the ordinary courts and the administrative courts in actions against administrative acts **249**

1.1. The allocation of jurisdiction with respect to artificial administrative decisions 253

1.2. The impact of Art. 17 of Law no. 132/2025 on the allocation of jurisdiction 255

1.3. The allocation of jurisdiction over the acts of the national AI Authorities: Agenzia per l'Italia Digitale (AgID) and Agenzia per la Cybersicurezza Nazionale (ACN) 256

2. The defects of artificial administrative acts: new horizons or old categories? **258**

2.1. The failure to give reasons for artificial administrative acts 268

2.2. The artificial administrative act adopted in violation of the principle of human oversight 270

2.3. The discriminatory artificial administrative act 276

3. Fact-finding activity, burden of proof, and judicial review of artificial administrative acts **278**

3.1. Some guidance from case law on the burden of proof: from full proof of the algorithm's legality to the distinction between «decisione amministrativa algoritmica» and «algoritmo di mero supporto» 288

3.2. The burden of proof in tenders concerning AI systems 291

3.2.1. Judicial review of technical discretion: from "extrinsic" control to "intrinsic" review of the tender commission's evaluations 294

3.2.2. An operational proposal: constraining technical discretion through the incorporation of AI Act standards into the tender *lex specialis* 299

4. The means of proof **302**

4.1. Documentary evidence and the judge's fact-finding powers: order for production and request for clarifications (Articles 63, 64, and 65 c.p.a.) 303

4.2. The role of scientific expertise in administrative court proceedings: verification (Art. 66 c.p.a.) and court-appointed expert opinion (Art. 67 c.p.a.) 304

4.3. The key role of court-appointed expert opinion with respect to artificial administrative acts 309

CHAPTER IV Agentic AI: the New Artificial Bureaucrat ***311***

1. What is Agentic AI? **312**

2. Does the concept of "Agentic AI" fall within the definition of «AI system» established by the AI Act? **316**

3. Four reasons why the current regulatory framework is not adequate to regulate the use of Agentic AI in public administration **319**

3.1. The AI Act was made for GenAI, not for Agentic AI 319

3.2. The unique risk profile of Agentic AI systems 320

3.3. The limits of human oversight 322

3.4. Emerging challenges in causation and liability 324

4. Ensuring compliance with the principle of algorithmic legality in the Agentic AI era **325**

4.1. Enhancing the role of humans as designers 326

4.2. Enhancing the role of humans as supervisors: four scenarios of attribution of liability for damages 331

4.2.1. First scenario: defective Agentic AI system and absence of fault of the public officer 332

4.2.2. Second scenario: a non-defective Agentic AI system and fault on the part of the public officer 342

4.2.3. Third scenario: concurrent causes involving an Agentic AI system defect and fault on the part of the public officer 348

4.2.4. Fourth scenario: non-defective Agentic AI system and absence of fault of the public officer 352

5. An operational proposal for the governance of Agentic AI in public administration **354**

6. Frontiers of Agentic AI: legal personhood, administrative delegation, and open questions **361**

6.1. Agentic AI and the question of legal personhood 361

6.1.1. Early theoretical foundations 361

6.1.2. The rise of autonomous agents and the agency model 362

6.1.3. The European Parliament's "electronic personhood" proposal 363

6.1.4. Moral patiency and the "tool" argument 364

6.1.5. Refining the frameworks: bundles, gradients, and the peculium 364

6.1.6. Agency, historical analogues, and the rise of LLMs 367

6.1.7. Agentic AI, systemic risk, and the "potential people" argument 369

6.1.8. The unresolved tension in defining AI status 371

6.2. The delegation conundrum in administrative law: transferring administrative power to Agentic AI systems 371

Conclusions ***376***

Bibliography ***381***

Scholarship **381**

Case Law **452**

Other Works Mentioned **466**

Introduction

The idea of writing this doctoral thesis arises from the profound union of two distinct yet increasingly intertwined passions of mine: computer science and law.

In the contemporary era, the advent and rapid proliferation of Artificial Intelligence (AI) are profoundly redefining the traditional paradigms of interaction among individuals, society, and public institutions. What was once considered a subject of exclusive interest to computer scientists and engineers has rapidly become a pervasive enabling force influencing almost every sphere of human activity, introducing unprecedented shifts in the realm of administrative law. The integration of these advanced computational tools into the public sector promises extraordinary gains in terms of efficiency, cost-effectiveness, and speed of administrative proceedings, but simultaneously challenges the foundational principles of administrative legality, accountability, and the protection of fundamental rights.

The primary object and purpose of this doctoral thesis is to rigorously investigate the complex intersection between artificial intelligence systems and administrative law, examining how traditional legal categories withstand the stress test of technological automation. In particular, it is crucial to establish from the outset that the primary focus of this thesis is not on traditional, deterministic algorithms, which operate based on predefined, static logical rules – typically structured on "if-then-else" programming – where the machine merely executes instructions exactly as conceived by a human programmer, producing a predictable output without execution errors. Instead, this study is dedicated to the legal implications of Artificial Intelligence systems, particularly those founded on probabilistic machine learning and deep learning models. These systems learn inductively from vast datasets (Big Data), autonomously develop their own inference criteria, and possess some degree of opacity that gives rise to the so-called "black box" problem. The thesis aims to explore how this shift from deterministic logic to probabilistic reasoning impacts the rule of law and the exercise of public authority.

The methodology adopted for this research is intrinsically multidisciplinary. Addressing artificial intelligence from a legal perspective requires a solid technical and computing foundation; it is a necessary condition for jurists to discern the true nature of these algorithms, their capacities, and

their structural limitations. Without transforming the jurist into an engineer, this thesis blends technological literacy with a rigorous doctrinal analysis of Italian administrative law, European Union frameworks, and the evolving administrative case law. This dual approach allows for a comprehensive evaluation of how existing normative definitions must adapt, and how the newly established Regulation (EU) 2024/1689 (the AI Act) interacts with domestic procedural guarantees.

Structurally, the thesis is divided into four chapters that guide the reader from the foundational technological concepts to the most advanced frontiers of artificial administration.

Chapter I is dedicated to providing the necessary technical aspects and the preliminary legal, definitional, and regulatory framework of artificial intelligence. It begins by outlining the ontological differences between deterministic algorithms and machine learning models, exploring the enabling factors of the AI revolution, such as the convergence of Big Data and immense computing power. The chapter deeply analyzes the heart of algorithmic complexity – neural networks and deep learning – and the resulting "black box" phenomenon, categorizing the various forms of opacity (intrinsic, intentional, and arising from technical illiteracy) that impede the understanding of automated decision-making. Furthermore, it examines the normative evolution of AI definitions, focusing on the legal notion of an "AI system" as codified in the AI Act and interpreted by the European Commission Guidelines. The chapter concludes by exploring the architecture of the AI Act and the critical role of Explainable AI (XAI) techniques in mitigating opacity and ensuring the traceability of algorithmic decisions.

Chapters II and III assume Generative Artificial Intelligence (GenAI) as their principal technical reference to examine the substantive and procedural impacts of AI on public administration. Chapter II investigates how the traditional principles and rules of administrative law are put to the test by artificial intelligence. It traces the evolution of case law concerning the legal nature of algorithms, moving from early definitions of the algorithm as a digital administrative act to the current prevailing thesis that classifies the AI system as an organisational module and a procedural instrument of the fact-finding phase (*istruttoria procedimentale*). The chapter critically assesses the compatibility of AI with administrative and technical discretion before delving into the algorithmic application of the principle of administrative transparency. This involves a detailed analysis of the obligation to give reasons for AI-driven

administrative acts, exploring theories ranging from the "enhanced" to the "generative" statement of reasons, and the complexities surrounding the right of access to the source code and the technical documentation of AI systems. Crucially, Chapter II explores the consolidation of the "triptych of algorithmic legality": the principles of knowability and comprehensibility, the principle of non-exclusivity of the algorithmic decision (the requirement for human intervention), and the principle of algorithmic non-discrimination. It also proposes necessary reforms for citizen participation in AI-driven proceedings and analyzes the complex civil and administrative liability frameworks for damages caused by automated systems.

Chapter III complements this by focusing on the judicial protection available against artificial administrative action. It addresses the allocation of jurisdiction between ordinary and administrative courts in the context of digitalized public power, and categorizes the specific defects of artificial administrative acts – such as the failure to give reasons, violations of human oversight, or algorithmic discrimination – within the classic paradigms of nullity and voidability. A significant portion of this chapter is dedicated to the severe challenges surrounding the burden of proof in administrative litigation involving AI, where information asymmetries risk creating a *probatio diabolica* for the private party. To resolve this, the chapter highlights the indispensable role of the court-appointed expert opinion (*consulenza tecnica d'ufficio*, CTU) and the judge's fact-finding powers as fundamental mechanisms to introduce specialised technological science into the courtroom and guarantee effective judicial review.

Finally, Chapter IV ventures beyond the current capabilities of GenAI to analyse the disruptive phenomenon of Agentic AI, which this thesis expressly defines as "The New Artificial Bureaucrat". While Generative AI is fundamentally reactive – functioning primarily to generate text, predictions, or recommendations upon human prompting – Agentic AI marks a profound technological and legal paradigm shift, as it is characterised by proactive, goal-oriented autonomy, and the ability to manage complex, multi-step workflows with persistent memory and external tool use. Agentic AI systems are capable not only of generating content but of acting directly and persistently in the physical or virtual environment to achieve complex objectives without constant human mediation. This chapter argues that the current regulatory framework, including the AI Act, was inherently designed for the passive, reactive paradigm of GenAI and is structurally inadequate to govern the autonomous

execution capabilities of Agentic AI. The profound autonomy of these new artificial bureaucrats stretches the traditional limits of human oversight, rendering real-time "human-in-the-loop" supervision obsolete and demanding a transition to "human-on-the-loop" macro-governance and "Law-Following AI" architectures designed to embed strict legal constraints directly into the agent's logic. Furthermore, the chapter confronts the emergent legal challenges surrounding causation, attribution of liability for damages, and the controversial question of whether delegating administrative power to an autonomous AI system requires the recognition of a new form of electronic legal personhood. Ultimately, Chapter IV prefigures the potential emergence of a new form of artificial public power, proposing operational frameworks – such as the synergy of Small Language Models (SLMs) and Retrieval-Augmented Generation (RAG) – to ensure that this technological revolution enhances governmental efficiency without abdicating the democratic and constitutional responsibilities of the modern State.

Chapter I

Technical aspects and the legal, definitional, and regulatory framework of artificial intelligence

Summary: 1. Technical and IT notions for jurists – 2. Deterministic algorithms and probabilistic machine learning algorithms – 3. The engines of the AI revolution: the convergence between Big Data and computing power (GPU and TPU) – 4. The heart of complexity: neural networks, deep learning and the problem of the so-called black box – 5. Defining artificial intelligence for law: Narrow AI as a present reality and the evolution of normative definitions – 6. The definition of «AI system» in Regulation (EU) 2024/1689 on artificial intelligence (AI Act) and in the European Commission Guidelines – 7. The architecture of Regulation (EU) 2024/1689 – 8. The search for transparency: the so-called Explainable AI (XAI)

This chapter aims to provide the technical-legal coordinates indispensable for understanding the phenomenon of artificial intelligence, starting from the assumption that solid technological literacy constitutes the necessary prerequisite for facing the legal challenges posed by administrative automation. The analysis will begin with the fundamental ontological distinction between deterministic algorithms, which operate based on predefined logical rules, and machine learning algorithms, which are characterised by inductive and probabilistic logic. It will then examine the enabling factors of the current technological revolution, specifically the convergence of massive data availability (Big Data) and the exponential increase in computing power provided by GPUs and TPUs. Next, the investigation will focus on the complex structures of deep learning and neural networks, addressing the fundamental issue of the "black box" and the various forms of opacity – intrinsic, intentional, and arising from technical illiteracy – that impede understanding of automated decision-making procedures. The discussion will continue by outlining the regulatory framework of AI traced by Regulation (EU) 2024/1689 (AI Act), with particular attention to the normative definition of «AI system» – especially in relation to the European Commission Guidelines – and the risk-based approach. Finally, the chapter will conclude with an examination of Explainable AI (XAI) techniques, which

are essential for mitigating AI opacity and ensuring the intelligibility and traceability of algorithmic decisions.

1. Technical and IT notions for jurists

The advent and rapid spread of Artificial Intelligence (AI) are profoundly redefining the paradigms of interaction among individuals, society, and public institutions. What might have been considered in the past a subject of exclusive interest to computer scientists and engineers has rapidly transformed into an enabler and a pervasive force that influences almost every sphere of human activity, from scientific research and education to logistics and transport, from health and industry to finance and law[1].

Understanding the fundamental technical notions underlying AI is a necessary condition for jurists, especially those working in administrative law, to address the complex legal challenges that arise. It is not a matter of transforming the jurist into a technician but of providing him with the conceptual instruments to discern the nature of the algorithms, their capacities, and their limits, so that he can interpret, adapt, and, if necessary, innovate the existing normative framework. Only with a solid base of technical knowledge will it be possible to develop effective and balanced legal solutions that maximise the benefits of AI while minimising risks, such as discrimination, privacy violations, and opaque decision-making, while ensuring that man remains at the centre of technological progress.

This section aims – without claims of technical exhaustiveness – to provide an indispensable base of technical knowledge, clarifying definitions and key concepts that will then be useful for analysing the implications in administrative procedures and administrative court proceedings.

2. Deterministic algorithms and probabilistic machine learning algorithms

Understanding the intrinsic nature of algorithms is fundamental for distinguishing the different legal implications that derive from them. At a first level of analysis, it is possible to draw a clear distinction between two main categories of systems: deterministic algorithms and machine learning algorithms. The substantive difference lies in their operational logic: deterministic algorithms are based on rules predefined by humans, while machine learning algorithms rely on inductive and probabilistic inferences derived from data.

---

[1] H.A. Kissinger, E. Schmidt, D. Huttenlocher, The Age of AI and Our Human Future, John Murray Press, London, 2021, p. 4.

In particular, a deterministic algorithm is «any well-defined computational procedure that takes some value, or set of values, as input and produces some value, or set of values, as output». Thus, an algorithm is a «sequence of computational steps that transform the input into the output». This type of algorithm, therefore, operates on a set of instructions and logical rules explicitly programmed by humans. In this approach, the programmer precisely codes every step that the machine must execute, every condition and every expected result (if-then-else). The system's knowledge is entirely predefined and static: the machine limits itself to executing the algorithms as they were conceived and implemented. If the input is exactly as predicted, the algorithm will produce a precise, predictable output without execution errors[2].

Historically, much of artificial intelligence's early development focused on this paradigm, aiming for rational intelligence and the ability to achieve specific objectives according to predefined optimality criteria. Examples include the first expert systems, which simulated a human expert's reasoning using a knowledge base containing data and rules, and an inference engine to draw conclusions from those rules[3]. For example, a simple thermostat or a speed camera can be considered as a deterministic system, in which a specific condition (temperature above a threshold or speed exceeded) corresponds to a precise action (activate the heating system or take a photograph of the vehicle). An intrinsic advantage of these systems is their transparency and interpretability: it is possible to dissect the code and understand exactly the reason for every decision, since every logical step is explicit and traceable[4]. However, this approach presents significant limits: 1) it is not scalable and lacks the flexibility necessary to manage unforeseen inputs or chaotic and unstructured data, with the consequence that the machine cannot go beyond what has been explicitly programmed, limiting its capacity for adaptation to

---

[2] T.H. Cormen, C.E. Leiserson, R.L. Rivest, C. Stein, Introduction to Algorithms, The MIT Press, Cambridge, Massachusetts, 2009, p. 5 ff.

[3] On the architecture of the first expert systems, see B.G. Buchanan, E.H. Shortliffe (eds.), Rule-Based Expert Systems: The MYCIN Experiments of the Stanford Heuristic Programming Project, Addison-Wesley, Boston, 1984; E.A. Feigenbaum, B.G. Buchanan, J. Lederberg, On Generality and Problem Solving: A Case Study Using the DENDRAL Program, in Machine Intelligence, vol. 6, 1971, pp.165-190.

[4] On the transparency and interpretability of expert systems, see A. Adadi, M. Berrada, Peeking Inside the Black-Box: A Survey on Explainable Artificial Intelligence (XAI), IEEE Access, vol. 6, 2018, pp. 52138-52160, spec. pp. 52144-52145

dynamic scenarios[5]; 2) any bias in manual programming will be directly reflected in the output[6].

In sharp contrast, machine learning algorithms represent a paradigmatic leap. Machine learning is a subset of artificial intelligence that focuses on developing algorithms that, rather than being explicitly programmed with fixed rules for every possible scenario, learn directly from data, identifying patterns and hidden relationships in vast archives of information[7]. Their functioning is based on the method of induction, by virtue of which a general rule or an inference is discovered from observations[8], to be then used to generalise and operate on data never seen before[9].

---

[5] On such limits, see P. Greene, S.F. Smith, Automated Knowledge Acquisition: Overcoming the Expert System Bottleneck, in Proceedings of the Eighth International Conference on Information Systems (ICIS 1987), Pittsburgh, 1987, pp. 107-121; J. Fox, The scope and limitations of first generation expert systems, in Future Generation Computer Systems, vol. 3, n. 1, 1987, pp. 1-10; Y. Duan, J.S. Edwards, M.X. Xu, Web-based expert systems: benefits and challenges, in Information & Management, vol. 42, n. 6, 2005, pp. 799-811; S. Murugesan, Considerations in Development of Expert Systems for Real-Time Process Control Applications, in NASA Technical Memorandum 100581 , 1988.

[6] As Cathy O'Neil affirms, «models are opinions embedded in mathematics», in the sense that algorithms are opinions incorporated within codes (C. O'Neil, Weapons of Math Destruction. How Big Data Increseased Inequality and Threatens Democracy, Crown, New York, 2016, p. 21). On this point, see also B. Friedman, H. Nissenbaum, Bias in Computer Systems, in ACM Transactions on Information Systems, vol. 14, n. 3, 1996, pp. 330-347, who highlight that the "preexisting bias" category directly addresses how manual programming bias is reflected in output. Preexisting bias «has its roots in social institutions, practices, and attitudes» and occurs when «computer systems embody biases that exist independently, and usually prior to the creation of the system» (p. 333). Particularly, «individual bias» originates from «individuals who have significant input into the design of the system, such as the client commission the design or the system designer» (p. 334).

[7] A. Banafa, Introduction to Artificial Intelligence, River Publishers, Gistrup, 2024, pp. 3-4. As stated in S.J. Russell, P. Norvig, Artificial Intelligence. A Modern Approach, Pearson, London, 2022, p. 669, «an agent is learning if it improves its performance after making observations about the world. (…) When the agent is a computer, we call it machine learning: a computer observes some data, builds a model based on the data, and uses the model as both a case about the world and a piece of software that can solve problems». On this point, see also P. Domingos, A few useful things to know about machine learning, in Communications of the ACM, 55(10), 2012, pp. 78-87; T. M., Machine Learning, McGraw Hill, New York, 1997

[8] S.J. Russell, P. Norvig, op. cit., p. 670.

[9] N.J. Nilsson, The Quest for Artificial Intelligence: A History of Ideas and Achievements, Cambridge University Press, Cambridge, 2010, p. 398, who observes that «most machine learning methods construct hypotheses from data. So (to use a classic example), if a large set of data contains several instances of swans being white and no instances of swans being of other colors, then a machine learning algorithm might make the inference that "all swans are

Learning can occur in different modalities. The first is "supervised learning", which is the most common type of machine learning in practice. In supervised learning, the algorithm is given a collection of training examples, each labelled with the correct output[10]. The goal is to learn a function that accurately maps new inputs to their correct outputs[11]. The model then uses this training data to make predictions on new, unseen data[12]. Supervised learning is typically used for task-driven problems, such as classification[13] and regression[14].

The second machine learning technique is called "unsupervised learning", where an agent learns patterns in the input data without receiving any direct feedback. The most frequent unsupervised learning task is clustering, which involves detecting potentially useful groups of input examples. For instance, when a computer vision system is presented with

---

white." Such an inference is "inductive" rather than "deductive". Deductive inferences follow necessarily and logically from their premises, whereas inductive ones are hypotheses, which are always subject to falsification by additional data. (…) inductive inferences, based on large amount of data, are extremely useful. Indeed, science itself is based on inductive inferences»

[10] S.J. Russell, Human compatible. Artificial Intelligence and the Problem of Control, Penguin Random House, New York, 2019, p. 285.

[11] D. Jurafsky, J.H. Martin, Speech and Language Processing. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition with Language Models, Online manuscript released on 12 January 2025, p. 57.

[12] A. Banafa, op. cit., p. 5.

[13] Classification is a task focused on predicting discrete, categorical labels. The aim is to assign each input to one of a finite number of predetermined categories (C. Bishop, Pattern Recognition and Machine Learning, Springer, New York, 2006, p. 3). Common applications include spam detection (where an e-mail is categorized as "spam" or "not spam") and text classification (where the aim is to predict the class label or sentiment of a piece of text, like a tweet or a product review). To solve a classification problem, a learning algorithm takes a collection of labeled examples as input and constructs a model, which can then either directly output a label for an unlabeled example or provide a numerical value, such as a probability, from which an analyst can infer the label (A. Burkov, The Hundred-page Machine Learning Book, Andriy Burkov, Quebec, 2019, p. 19). The process typically involves extracting useful features from an observation and then classifying it into one of the available discrete classes (D. Jurafsky, J.H. Martin, ult. loc. cit.).

[14] Regression is specifically «a problem of predicting a real-valued label (often called a target) given an unlabeled example» (A. Burkov, ult. loc. cit.). Unlike classification, which predicts finite sets of values or categories (e.g., sunny/cloudy/rainy or true/false), regression deals with numerical outputs, such as temperature on a given day, measured either as an integer or a real number. This allows the agent to make predictions for previously unobserved input values.

millions of images from the internet, it can identify a large cluster of similar images that an English speaker would classify as "cats".[15]

The third machine learning technique is called "self-supervised learning", which is a specific subset of unsupervised learning[16] that is designed to enable learning without explicit supervision by creating supervised signals automatically from the data itself[17]. This process typically involves withholding part of the data and training the model to predict it, such as by reconstructing samples or parts of them[18].

The fourth and final machine learning technique is called "reinforcement learning," in which an agent learns by receiving a sequence of feedback signals, known as rewards and punishments. For instance, after a chess match, the agent receives information indicating victory (a reward) or defeat (a punishment). The agent's task is, then, to identify the actions that most likely led to this outcome and adjust their future behaviour to maximise positive reinforcement[19].

---

[15] S.J. Russell, P. Norvig, op. cit., p. 671.

[16] L. Jing, Y. Tian, Self-Supervised Visual Feature Learning With Deep Neural Networks: A Survey, in IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 43, no. 11, 2021, p. 4038.

[17] B. Jia, J. Brandt, R. Mech, B. Kim. D. Manocha, LPaintB: Learning to Paint from Self-Supervision, in Pacific Graphics, available at arXiv, 21 September 2019, p. 3.

[18] B. Hadad, S. Froim, E. Yosef, R. Giryes, A. Bahabad, Deep learning in optics—a tutorial, in Journal of Optics, 25, 2023, p. 11. The key distinction between unsupervised and self-supervised learning lies in their objectives and methodology. While traditional unsupervised learning methods like clustering concentrate on mining data patterns, self-supervised learning aims to generate supervision signals from the data itself and train models in supervised settings to solve tasks traditionally addressed through supervised learning, such as classification and regression (M. Jing, Y. Zhu, T. Zang, K. Wang, Contrastive Self-supervised Learning in Recommender Systems: A Survey, in ACM Transactions on Information Systems, vol. 42, no. 2, article 59, November 2023, p. 3). This allows self-supervised learning to leverage advancements and breakthroughs from supervised learning while still operating on unlabeled data (H.H. Mao, A Survey on Self-supervised Pre-training for Sequential Transfer Learning in Neural Networks, available at arXiv, 1 July 2020, pp. 4-5).

[19] Ibidem.

3. The engines of the AI revolution: the convergence between Big Data and computing power (GPU and TPU)

The recent and extraordinary acceleration of AI, particularly in machine learning, is the result of a powerful convergence of technological factors, which has been defined as a «new computing era»[20].

A fundamental pillar of this revolution is the immense and growing availability of data, often referred to as «Big Data». The advent and pervasiveness of the Internet, with the creation of billions of texts, images, and videos, have made possible a new, continuous availability of this information, whose exponential growth continues without pause, reaching zettabytes of information, most of which has been created since the 1990s[21]. In machine learning, data is essential: without it, algorithms cannot learn to solve the problem at hand. Machine learning systems, as seen, learn directly from data, identifying patterns and hidden relations in vast archives of information. The success of machine learning, therefore, depends on the capacity to train algorithms on large quantities of data[22]. Users contribute significantly to this process, generating data on their use of the applications or producing content (images, videos, comments) that the algorithms are trained on[23]. It was precisely this vast availability of data that allowed the

---

[20] This is the definition of Jensen Huan, CEO and founder of NVIDIA, given during the presentation of the second quarter results of fiscal year 2024, which was announced on 23 August 2023. For the complete announcement, see https://nvidianews.nvidia.com/news/nvidia-announces-financial-results-for-second-quarter-fiscal-2024

[21] According to the most recent projections of the experts in the sector, in 2025 it is predicted that approximately 181 zettabytes of data will be generated at a global level. To understand the extent of this growth, it is useful to consider that it is an increase of approximately 50.8% compared to the 120 zettabytes generated in 2023. This figure highlights the exponential acceleration in the production of digital data that characterizes our time. To put these impressive numbers in perspective: a single zettabyte is equivalent to 1 trillion gigabytes or 1 billion terabytes. On this point, see the following statistical investigations: https://explodingtopics.com/blog/data-generated-per-day; https://keywordseverywhere.com/blog/data-generated-per-day-stats/.

[22] K. Grolinger, M. Hayes, W.A. Higashino, A. L'Heureux, D.S. Allison, Challenges for MapReduce in Big Data, in Proceedings of the 2014 IEEE World Congress on Services (SERVICES), June 2014, p. 184.

[23] A prime example is ImageNet, an archive of fifteen million images divided into twenty-two thousand distinct categories, which has enabled algorithms to learn subtle but essential distinctions between similar categories, thanks in part to manual work distributed via Amazon Mechanical Turk.

overcoming of the limits of previous approaches, such as deterministic ones, which were constrained by the rigidity of manually coded human knowledge[24].

The exponential growth of computing power, particularly that provided by Graphics Processing Units (GPUs), is the other side of the AI boom. Originally conceived for graphics applications such as online games, GPUs were hundreds of times faster than traditional CPUs for machine learning training thanks to their parallel computing architecture[25]. The computing power used to train machine learning systems has grown exponentially (for example, from 2012 to 2018, by 300,000 times), with a doubling every approximately 100 days, far exceeding Moore's Law; in other words, what in 2014 required an entire day of training, in 2018 needed only 2 minutes[26]. Jensen Huang, CEO of NVIDIA, has even coined the term «Huang's Law» to describe this super law of acceleration[27]. Companies like NVIDIA, guided by Huang's vision, have had a central role. The introduction of the CUDA (Compute Unified Device Architecture) platform in 2006 enabled developers to harness GPU computing power for scientific and artificial intelligence

---

[24] F.L. Leeuw, M. Bamberger, Artificial Intelligence and Big Data: Lessons from Evaluations of the Rule of Law and Development, Edward Elgar Publishing, Cheltenham, 2025; C. Kerrigan (ed.), AI, Machine Learning & Big Data 2024, Global Legal Insights, London, 2024; D. J. Hand, AI, big data, and quest for truth: the role of theoretical insight, in Data & Policy, 6, 2024, e44, pp. 1-10; Y. Duan, J.S., Edwards, Y.K. Dwivedi, Artificial intelligence for decision making in the era of big data – Evolution, challenges and research agenda, International Journal of Information Management, 48, 2019, pp. 63-71; C. O'Neil, Weapons of Math Destruction. How Big Data Increseased Inequality and Threatens Democracy, cit.; V. Mayer-Schönberger, K. Cukier, Big Data: A Revolution That Will Change How We Live, Work, and Think, Houghton Mifflin Harcourt, Boston, 2013.

[25] Current GPUs can provide tens to hundreds of times better performance than CPUs for floating-point operations and parallel computing tasks (R. Mu, Z. Zeng, A Review of Deep Learning Research, in KSII Transactions on Internet and Information Systems, vol. 3, n. 4, 2019, p. 1757). At similar costs, GPU computing efficiency may increase 10-100 times compared to CPU implementations (Z. Huang, N. Ma, S. Wang, Y. Peng, GPU computing performance analysis on matrix multiplication, in The Journal of Engineering, 23, 2019, p. 9043). AI accelerators including GPUs are typically 10x-1000x faster and more energy efficient than CPUs for both training and inference applications (S.M. Khan, A. Mann, AI Chips: What They Are and Why They Matter. An AI Chips Reference, in Center for Security and Emerging Technology, available at Center for Security and Emerging Technology (CSET), April 2020, p. 23).

[26] S.J. Russell, P. Norvig, op. cit., p. 33.

[27] Jensen Huang introduced this definition during the GPU Technology Conference (GTC) of 2018 in San Jose, declaring that the performance of NVIDIA GPUs had become 25 times faster compared to five years earlier, well above the doubling predicted by Moore's Law. For an in-depth study, see C. Mims, Huang's Law Is the New Moore's Law, and Explains Why Nvidia Wants Arm, in The Wall Street Journal, 19 September 2020.

applications[28]. The watershed event was Alex Krizhevsky's victory at the ImageNet Challenge in 2012 with AlexNet, a model trained on two NVIDIA processors in about a week (a time that, without GPUs, would have required almost a year), demonstrating the effectiveness of GPUs in deep learning[29]. At the same time, research such as Andrew Ng's on the use of GPUs in deep learning at Google Brain, including experiments to recognise cats on the Internet, has further solidified the role of these computing units[30].

Alongside the reconfiguration of GPUs, Google has pursued a complementary path by developing a hardware architecture designed for AI: the Tensor Processing Unit (TPU)[31]. Unlike GPUs, which are suitable for multiple tasks, TPUs are application-specific integrated circuits (ASICs) that act as precision scalpels, optimised exclusively for the tensor algebra of deep neural networks. This extreme specialisation has produced remarkable results: analysis of performance in data centres found that the first-generation TPU was, on average, 15 to 30 times faster for inference tasks than contemporary GPUs and CPUs, while also offering clearly superior energy efficiency (TOPS/Watt)[32]. Other actors, such as Microsoft with its Azure platform and its collaborations with OpenAI[33], have contributed significantly to this AI "factory".

The combination of immense quantities of data and powerful computers, joined with new algorithms and the evolution of development platforms and open-source software, has allowed AI, in particular machine learning and deep learning, finally to become a usable technology. Thanks to such synergy, it is now possible to analyse volumes of data in fractions of a second, far exceeding human capabilities, and to identify correlations and patterns that would otherwise escape direct observation. It is this convergence

---

[28] See https://www.gamesindustry.biz/nvidia-unveils-cuda-the-gpu-computing-revolution-begins

[29] For an in-depth study, see A. Krizhevsky, I. Sutskever, G.E. Hinton, ImageNet Classification with Deep Convolutional Neural Networks, in F. Pereira, C.J. Burges, L. Bottou, K.Q. Weinberger, Advances in Neural Information Processing Systems 25 (NIPS 2012), pp. 1-9.

[30] See D. Hernandez, Now You Can Build Google's $1M Artificial Brain on the Cheap, https://www.wired.com/2013/06/andrew-ng/.

[31] K. Sato, C. Young, An in-depth look at Google's first Tensor Processing Unit (TPU), available at Google Cloud, 13 May 2017.

[32] N. Jouppi, Quantifying the performance of the TPU, our first machine learning chip, https://cloud.google.com/blog/products/gcp/quantifying-the-performance-of-the-tpu-our-first-machine-learning-chip/

[33] Microsoft, Foundry Models sold directly by Azure, https://learn.microsoft.com/en-us/azure/ai-foundry/openai/overview.

that has unlocked the untapped potential of AI, leading it to its current pervasiveness and making it an indispensable engine for the growth of productivity and the resolution of complex problems in almost every sector.

4. The heart of complexity: neural networks, deep learning and the problem of the so-called black box

The extraordinary acceleration of AI, and in particular of machine learning, is intrinsically linked to the development and diffusion of specific computational models: neural networks and deep learning. These instruments, despite being at the root of unprecedented successes, present a complexity that often makes them opaque, giving rise to the so-called black box problem.

Artificial Neural Networks (ANNs, or just Neural Networks for short) are powerful AI tools designed to emulate the human brain's structure and function, enabling them to learn from data and make predictions or decisions based on that learning[34]. In information technology, a neural network is conceptualised as a system comprising programs and data structures that approximate the brain's operations. These networks typically involve numerous processors working in parallel, each possessing a limited scope of knowledge and access to local data[35].

At their core, neural networks are composed of interconnected units, often called neurones, organised into layers[36]. In a fully connected feedforward network, each unit in one layer connects to every unit in the subsequent layer, without any cyclical connections. The strength of neural networks stems from the capacity of their initial layers to learn representations that later layers can then utilise[37].

Neural networks are initially "trained" by being fed vast quantities of data and rules defining relationships within that data. For example, a rule might state that “a grandfather is older than a person’s father.” Once trained, a program can instruct the network to respond to external stimuli, such as user input, or it can initiate activity autonomously within its operational limits[38]. The process of finding the optimal weights for each layer to achieve accurate predictions is known as *training* the network. During this training, data batches are processed through the network, and the predicted output is compared to the actual “ground truth”. The prediction error is then

---

[34] A. Banafa, op. cit., p. 11.

[35] Ibid., pp. 45-46.

[36] D. Jurafsky, J.H. Martin, op. cit., p. 132.

[37] Ibid., p. 156.

[38] A. Banafa, op. cit., p. 46.

propagated backwards through the network, slightly adjusting the weights in a direction that improves future predictions, a process known as "backpropagation". This iterative adjustment allows each unit to become proficient at identifying specific features that ultimately enhance the network's predictive capabilities[39]. Backpropagation specifically provides a computationally efficient method for evaluating the derivatives of the error function with respect to the weights[40].

Deep learning is a specialised subset of machine learning that primarily employs neural networks with multiple "hidden" layers[41]. The term "deep" refers to the numerous layers of neural networks, enabling greater abstraction and depth in processing[42]. While deep learning is often equated with deep neural networks, any system that utilises many layers to learn high-level representations of input data falls under the umbrella of deep learning[43].

---

[39] D. Foster, Generative Deep Learning. Teaching Machines to Paint, Write, Compose, and Play, O'Reilly Media, Sebastapol, 2019, p. 34.

[40] C. Bishop, op. cit., p. 241. Neural networks have a broad array of applications. In speech recognition, they can be trained to identify individual phonemes that constitute words, then use this information to transcribe spoken words into text. For natural language processing, a neural network can learn to understand the meaning of words and sentences to perform tasks like language translation or sentiment analysis. Beyond language, they are widely used in image recognition, autonomous robot driving, credit card fraud detection, vending machine currency recognition, and data mining. More specialized applications include digital pathology and detecting reduced left ventricular ejection fraction (rLVEF) using electrocardiogram (ECG) data in healthcare. For further information, see M. Madhiarasan, M. Louzazni, Analysis of Artificial Neural Network: Architecture, Types, and Forecasting Applications, in Journal of Electrical and Computer Engineering, 2022, pp. 1-23; O.I. Abiodun, A. Jantan, A.E. Omolara, K.V. Dada, N.A. Mohamed, H. Arshad, State-of-the-art in artificial neural network applications: A survey, in Heliyon, vol. 4 (11), 2018, pp. 1-41.

[41] D. Jurafsky, J.H. Martin, op. cit., p. 132.

[42] S.J. Russell, P. Norvig, op. cit., p. 801. The concept of deep learning dates back to the 1940s, evolving through different eras and names, including "cybernetics" (1940s-1960s) and "connectionism" (1980s-1990s), before its current resurgence began around 2006 (I. Goodfellow, Y. Bengio, A. Courville, Deep Learning, MIT Press, Cambridge, Massachusetts, 2016, p. 13). A significant turning point in its popularity and effectiveness occurred around 2012, when these "juiced-up" neural networks, rebranded as "deep learning," began to outperform older models in various tasks like speech and object recognition (K.F. Lee, AI Superpowers: China, Silicon Valley, and the New World Order, Harper Business, New York, 2018, p. 9). The availability of large datasets and increased computational power, particularly with GPUs, played a crucial role in this resurgence (S.J. Russell, P. Norvig, op. cit., p. 837). Architectural improvements, such as the adoption of the ReLU activation function, also contributed significantly (Y. LeCun, Y. Bengio, G. Hinton, Deep learning, in Nature, 521, 2015, p. 438).

[43] D. Foster, op. cit., p. 33.

Unlike traditional machine learning methods that might require significant human intervention to define problem features, deep learning eliminates this need by using multi-layered neural networks that automatically learn relevant features from unstructured data, such as images or natural language. This capacity for automatic feature learning, or "representation learning", is a crucial focus of deep learning research in natural language processing[44]. Deep learning models excel at tasks with high-dimensional inputs such as images, video, and speech signals, outperforming other purely machine learning approaches that typically require manual feature engineering[45]. The increased depth of these networks allows simpler concepts to be composed into more complex ones, forming a nested hierarchy of representations[46]. This hierarchical learning enables deep networks to discover meaningful intermediate representations, such as edges, corners, and faces, when learning to recognise objects in images[47].

Despite their successes and pervasiveness, deep learning models are often described as "black boxes" because their internal processes are opaque and difficult to understand or explain, even for their creators. In particular, AI systems based on deep learning and on deep neural networks manifest an intrinsic characteristic known as "epistemic opacity"[48], a term that indicates a metaphor to denote a system whose internal functioning is mysterious: one can observe the inputs and the outputs, but not the process through which one transforms into the other[49].

---

[44] D. Jurafsky, J.H. Martin, ult. loc. cit.

[45] S.J. Russell, P. Norvig, op. cit., p. 820.

[46] I. Goodfellow, Y. Bengio, A. Courville, op. cit., pp. 5, 160.

[47] S.J. Russell, P. Norvig, p. 810.

[48] S. Buijsman, M. Klenk, J. van den Hoven, Ethics of AI, in N.A. Smuha (ed.), The Cambridge Handbook of The Law, Ethics and Policy of Artificial Intelligence, Cambridge University Press, Cambridge, 2025, p. 61.

[49] The term "black box" was used for the first time by Frank Pasquale, who defined it as «a system whose workings are mysterious; we can observe its input and outputs, but we cannot tell how one becomes the other» (F. Pasquale, The Black Box Society. The Secret Algorithms That Control Money and Information, Harvard University Press, Cambridge (Massachusetts), 2015, p. 3). On the "black box" nature of AI systems and the related legal problems, see *ex multis* M. Almada, Technical AI Transparency: A Legal View of the Black Box, available at SSRN, 16 January 2025, pp. 1-8; B. Brożek, M. Furman, M. Jakubiec, B. Kucharzyk, The black box problem revisited. Real and imaginary challenges for automated legal decision making, in Artificial Intelligence and Law, 4 April 2023, pp. 1-14; A: de Streel, A. Bibal, B. Frenay, M. Lognoul, Explaining the Black Box: When Law Controls AI, in cerre.eu, 2020; R. Yu, G. Spina Alì, What's Inside the Black Box? AI Challenges for Lawyers

The opacity of AI systems, which makes it difficult to identify the reasoning process and reasons that led the machine to produce a certain result, can be divided into at least three causal categories[50]. The first is the "intrinsic opacity", also defined as "technical black box"[51], which derives from the technical complexity of AI models, in particular of deep learning algorithms and deep neural networks, which process complex mathematical functions finding statistical correlations derived from large volumes of training data, with an internal logic so intricate as not to be easily translatable into human semantic terms[52]. Often, not even the programmers themselves can explain the specific outcome[53] with precision. From a strictly technical point of view, this intrinsic opacity is fuelled by three main factors. The first concerns the intrinsic complexity and dispersed knowledge. The opacity of deep learning models stems significantly from their intrinsic complexity. Deep neural

---

and Researchers, in Legal Information Management, 19, 2019, pp. 2-13; Y. Bathaee, The Artificial Intelligence Black Box and the Failure of Intent and Causation, in Harvard Journal of Law & Technology, vol. 31, no. 2, 2018, pp. 889-938.

[50] For such tripartition, see M. Ebers, P. Krõõt Tupay, Artificial Intelligence and Machine Learning Powered Public Service Delivery in Estonia, Springer, Cham, 2023, pp. 104-105; M. Fink, M. Finck, Reasoned A(I)dministration: Explanation Requirements in EU Law and the Automation of Public Administration, in European Law Review, 47(3), 2022, pp. 383-386; E. Chevalier, E.M. Menéndez Sebastián, Digitalisation and Good Administration Principles, in European Review of Digital Administration & Law, 3(1), p. 19; pp. J. Cobbe, Administrative law and the machines of government: judicial review of automated public-sector decision-making, in Legal Studies, 39, 2019, pp. 638-639. See also J. Cobbe, M.S.A. Lee, J. Singh, Reviewable Automated Decision-Making: A Framework for Accountable Algorithmic Systems, in FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, p. 600, who maintain that another form of opacity exists, the "unwitting opacity", «where those responsible for designing, developing, deploying, and using systems simply don't think to record relevant organisational aspects of ADM processes (perhaps unaware of their relevance for meaningful accountability)»; the same authors also point out the possible risks associated with providing too much information, giving rise to a "transparency paradox", «where too much visibilituy actually reduces transparency. That is, opacity can result from providing too much or the wrong kind of information to obscure ('strategic opacity') or because the forum's needs haven't been considered ('inadvertent opacity')».

[51] H.W. Liu, C.F. Lin, Y.J. Chen, Beyond State v. Loomis: Artificial Intelligence, Government Algorithmization, and Accountability, in International Journal of Law and Information Technology, 0, 2019, pp. 14-15.

[52] J. Burrell, How the machine 'thinks': Understanding opacity in machine learning algorithms, in Big Data & Society, January-June 2016, p. 10.

[53] O. Mir, Algorithms, Automation, and Administrative Procedure at EU Level, in H.C.H. Hofmann, F. Pflücke (eds.), Governance of Automated Decision-Making and EU Law, Oxford University Press, Oxford, 2024, p. 59.

networks comprise numerous interconnected layers and a vast number of numerical weights, making it impossible for humans to trace every single calculation or connection[54]. The knowledge within these networks is not localised but distributed across millions of artificial synaptic connections, making it challenging to pinpoint specific learned information[55]. Optimising circuits with billions or trillions of parameters makes it difficult, if not impossible, to determine exactly where specific errors occur[56]. The second factor is the non-linear and adaptive nature of calculations: while the elementary mathematical operations within a neural network may be clear, the combination of these operations across numerous layers and the autonomous adjustment of weights make the network's overall reasoning incomprehensible. These machine learning algorithms dynamically alter their decision-making logic by generating new sets of rules during the learning process itself, complicating efforts for developers to maintain a detailed understanding of the specific changes made by the system[57]; consequently, even though the internal mechanics of a network are understood, the specific path and reason for a particular decision become unclear. Finally, there is the lack of human-like causal reasoning: deep learning, particularly in large language models, operates more like a syntactic engine than a semantic one; it does not "understand" or "comprehend" in the human sense. Instead, it excels at identifying deeply hidden patterns and complex correlations within massive datasets. However, it often cannot explain why it reached a specific conclusion or decision[58]. For example, even after discovering new molecular properties with antibiotic activity, researchers could not precisely explain why they worked, because the AI had identified relationships that humans had not perceived or were perhaps unable to define or express as rules[59]. This means that while AI can predict outcomes with high accuracy, it cannot provide a causal explanation for its observations beyond statistical associations between

---

[54] M. Coeckelbergh, AI Ethics, MIT Press, Cambridge, Massachusetts, 2020, p. 72.

[55] On this point, see G.E. Hinton, J.L. McClelland, D.E. Rumelhart, Distributed Representations, in D.E. Rumelhart, J.L. McClelland (eds.), Parallel Distributed Processing: Explorations in the Microstructure of Cognition, Vol. 1: Foundations, MIT Press, Cambridge (MA), 1986, pp. 77-109.

[56] T. Zhang, C. Gao, L. Ma, M.R. Lyu, M. Kim, An Empirical Study of Common Challenges in Developing Deep Learning Applications, in 2019 IEEE 30th International Symposium on Software Realiability Engineering (ISSRE), 2019, p. 111.

[57] L. Floridi, The Ethics of Artificial Intelligence. Principles, Challenges, and Opportunities, Oxford University Press, Oxford, 2023, p. 98.

[58] G. D'Acquisto, Intelligenza artificiale, Giappichelli, Torino, 2021, pp. 198-199.

[59] H.A. Kissinger, E. Schmidt, D. Huttenlocher, op. cit., p. 11.

measured quantities. The scientific community is currently exploring «causal machine learning» as a future frontier to address this limitation, aiming to enable AI to identify causal relationships rather than just correlations[60]. The second category is the "intentional opacity", also defined as "legal black box"[61], which stems from deliberate choices of non-disclosure, often to protect trade secrets, intellectual property (IP), or to prevent the system from being "gamed"[62]. Therefore, opacity is not only a technical consequence but also a business choice to hide the calculation's complexity (or sometimes its simplicity) behind a black box[63]. In the public context, it can also be justified by national security[64] concerns. The third category is the "illiterate opacity", which occurs when the system's functioning is technically comprehensible to experts in coding and computing but not to the end user, such as a public officer who uses the instrument or an applicant interested in the decision[65].

The main consequence of the black box phenomenon is the creation of an accountability gap[66] and a significant limitation on individuals' ability to contest decisions[67] effectively. Such a gap manifests in various practical critical issues. In the first place, difficulties of explanation and trust arise, as it

---

[60] On «causal machine learning», see, *inter alia*, J. Kaddour, A. Lynch, Q. Liu, M.J. Kusner, R. Silva, Causal Machine Learning: A Survey and Open Problems, available at arXiv, 21 July 2022, pp. 1-191.

[61] Ibid., pp. 16-17.

[62] M. Ebers, P. Krõõt Tupay, op. cit., p. 104.

[63] On the intentional opacity as a business strategy, where companies hide algorithmic details to protect their interests, see K. Dowding, B.R. Taylor, Algorithmic Decision-Making, Agency Costs, and Institution-Based Trust, in Philosophy & Technology, 37(68), 2024, pp. 1-26, esp. 7-8; A.K. Rai, I. Sharma, C. Silcox, Accountability, secrecy, and innovation in AI-enabled clinical decision software, in Journal of Law and the Biosciences, 7(1), 2020, pp. 1-26.

[64] N. Lasbleiz, L. Obrecht, Le droit d'accès aux codes sources dans des systems algorithmiques utilises par l'administration publique, in sui generis, 2025, p. 9.

[65] M. Fink, M. Finck, op. cit., p. 383.

[66] E. Bracci, The loopholes of algorithmic public services: an "intelligent" accountability research agenda, in Accounting, Auditing & Accountability Journal, 36(2), 2023, according to whom «An accountability gap is the distance between the quest for accountability and the capability/willingness to provide an account and to achieve legitimacy» (p. 746). «The accountability gaps in AI algorithm decision making can be found along the three accountability phases: (…) informational, explanation/answerability and consequences». In particular, «The AI accountability phase also refers to the possibility of opening the black box to see inside the algorithm to understand its functioning and whether there are any biases related to the inputs and/or outputs» (p. 747).

[67] M. Finck, Automated Decision-Making and Administrative Law, in P. Cane, H.C.H. Hofmann, E.C. Ip, P.L. Lindseth (eds.), The Oxford Handbook of Comparative Administrative Law, Oxford University Press, Oxford, 2021, pp. 664.

becomes extremely difficult, if not impossible, to explain to a user the exact reason for a decision (for example, in high-risk contexts such as health or justice), undermining public trust in AI. Second, inheritance of bias occurs: since deep learning algorithms learn from historical data, they can inadvertently reinforce biases, discrimination, and prejudices present in that data[68]. Without transparency (opening of the black box), it is difficult to identify and correct them.

5. Defining artificial intelligence for law: Narrow AI as a present reality and the evolution of normative definitions

To address artificial intelligence from a legal perspective, it is fundamental to have a clear, operational definition that accounts for its current capabilities and distinguishes it from more speculative or science-fictional conceptions. Unlike other engineering subjects, AI raises many controversies, often due to vague declarations or optimistic predictions by experts, or because it touches on deep themes of human uniqueness. However, the definitions useful for legal purposes focus on what AI does and how it operates.

In this sense, it is necessary as a preliminary matter to specify the distinction between Narrow AI (or Weak AI), Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI).

Narrow AI is an AI system designed to perform a single task or a set of tasks, often with a well-defined scope. These systems rely on machine learning algorithms trained on large datasets to recognise patterns and make predictions within their specific domain. A key advantage of Narrow AI is its capacity to perform tasks faster and more accurately than humans[69]. Some of the most relevant branches of Narrow AI, in addition to the aforementioned machine learning and deep learning, include Natural Language Processing (NLP), which focuses on the ability of machines to understand, interpret, and generate human language in a way that is meaningful and useful

[68] On the relationship between fairness and bias, see S.J. Russell, P. Norvig, op. cit., pp. 1043-1047.

[69] A. Banafa, op. cit., p. 52. Specific examples of complex tasks where AI systems have met or exceeded human-level performance include chess, Go, poker, Pac-Man, Jeopardy!, ImageNet object detection, limited-domain speech recognition, restricted-domain Chinese-to-English translation, and various medical diagnostic tasks involving the skin, the prostate, or diabetic retinopathy.

to humans[70], as well as Computer Vision. This field focuses on enabling computers to understand and interpret visual data, essentially allowing machines to see and interpret the world as humans do[71].

AGI, also known as strong AI or human-level AI, is defined as an AI system capable of performing «any intellectual task that a human can do». It would be the ability to «reason, learn, and understand complex concepts, just like humans». The goal is to create a machine that can «think and learn in the same way that humans do»[72]. More specifically, it means «the ability to accomplish any goal at least as well as humans»[73]. Although some argue that current models are already AGI[74], most experts agree that AGI remains a distant, utopian goal[75]. Historically, the initial goal of AI research was AGI, but it soon focused on the more achievable Narrow AI[76]. Indeed, "scaling", the increase in computing power and data, does not directly translate into human-level intelligence[77].

Artificial Super Intelligence is an AI system that surpasses human intelligence in all areas. It would be capable of performing any intellectual task with ease, far beyond the level of any human being[78]. Unlike Narrow AI, which is designed for specific tasks, or General AI, which aims for human-level performance across many tasks, ASI would be able to solve problems

---

[70] Ibid., p. 15. Examples include automatic translation (Google Translate and DeepL), the synthesis and classification of texts and the creation of chatbots like ChatGPT, whose Transformer model has revolutionized the field.

[71] Ibid., p. 22. A fundamental example is ImageNet, for which algorithms have been trained to distinguish subtle details among similar categories and which forms the basis of systems for facial recognition, medical diagnosis and industrial monitoring.

[72] Ibid., p. 52.

[73] M. Tegmark, Life 3.0: Being Human in the Age of Artificial Intelligence, Penguin Random House, New York, 2017, p. 52.

[74] https://orbitaltoday.com/2024/12/13/openai-employee-claims-agi-has-been-achieved/

[75] A comprehensive 2025 survey by the Association for the Advancement of Artificial Intelligence (AAAI) of 475 AI researchers revealed that 76% consider it "unlikely" or "very unlikely" that scaling up current AI approaches will lead to AGI. For further information, see AAAI 2025 Presidential Panel on the Future of AI Research, March 2025, available at Association for the Advancement of Artificial Intelligence.

[76] M. Mitchell, Debates on the nature of artificial general intelligence, in Science, vol. 383, iss. 6689, 21 March 2024.

[77] In this regard, there's a debate between the "scaling camp" (who believe AGI will emerge from larger models with more data and compute) and another camp who believe new theory and new ideas are needed (J.M. Tomcza, Deep Generative Modeling, Springer, Cham, 2024, p. ix).

[78] A. Banafa, op. cit., p. 32.

instantaneously in various domains at a rate that far exceeds human intelligence[79].

The distinction just traced is essential: Narrow AI is the only form of artificial intelligence that exists today, whereas AGI and ASI are speculative categories that do not yet exist.

At the legal level, the European Parliament made the first attempt to define AI in 2017, within the scope of what were then called «smart robots», which may, however, be useful to report. In particular, it proposed to define AI taking into account the following characteristics: 1) the capacity to acquire autonomy through sensors and/or by exchanging data with its environment (inter-connectivity) and the analysis of those data; 2) the capacity to learn through experience and interaction; 3) the form of the robot's physical support; 4) the capacity to adapt its behaviour and actions to the environment[80].

Subsequently, the European Commission proposed various definitions of AI. In 2018, it stated that AI refers to «systems that display intelligent behaviour by analysing their environment and taking action — with some degree of autonomy — to achieve specific goals. AI-based systems can be purely software-based, operating in the virtual world (e.g., voice assistants, image analysis software, search engines, and speech and face recognition systems), or embedded in hardware devices (e.g., advanced robots, autonomous cars, drones, or Internet of Things applications)[81].

This definition was expanded in 2019, establishing that «Artificial intelligence (AI) systems are software (and possibly hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition,

---

[79] The concept of ASI is closely linked to the "singularity". This term, coined by mathematician John von Neumann in the 1950s, refers to a point in time when machine intelligence would rapidly gain intelligence and pass out of human control, leading to dramatic changes in civilization that humans might no longer understand. The rapid and incomprehensible growth in intelligence is often attributed to the process of "recursive self-improvement", meaning that an AI could design an improved version of itself, which in turn designs an even smarter version, and so on, leading to an "intelligence explosion" (M. Coeckelbergh, op. cit., p. 12). The development of the first ultraintelligent machine is thus seen as the «last invention that man need ever make» (M.A. Boden, Artificial Intelligence: A Very Short Introduction, Oxford University Press, Oxford, 2018, p. 131).

[80] European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).

[81] COM/2018/237. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Artificial Intelligence for Europe.

interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal»[82].

A definitional attempt in a normative source was also carried out in the United States, which, in the National Defense Authorization Act for Fiscal Year 2019, defines AI as «1) any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets; 2) an artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action»[83].

Italy, in its Programma Strategico per l'Intelligenza Artificiale for the three-year period 2022-2024, describes it as «modelli digitali, algoritmi e tecnologie che riproducono la percezione, il ragionamento, l'interazione e l'apprendimento»[84]. More recently, Art. 2, paragraph 1, letter a), of Law No. 132 of 23 September 2025, containing «Disposizioni e deleghe al Governo in materia di intelligenza artificiale», refers to the aforementioned definition offered by Regulation (EU) 2024/1689 on artificial intelligence, establishing that by «sistema di intelligenza artificiale» is meant «il sistema definito dall'articolo 3, punto 1), del regolamento (UE) 2024/1689».

Therefore, the jurist's analysis must focus on the legal definition established by the aforementioned European Regulation.

6. The definition of «AI system» in Regulation (EU) 2024/1689 on artificial intelligence (AI Act) and in the European Commission Guidelines

The heart of the regulatory framework for artificial intelligence lies in the definition of «AI system» in Art. 3, par. 1, point 1), of Regulation (EU) 2024/1689, which was elaborated to be «technology-neutral»[85] and «future-

---

[82] Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, A definition of Artificial Intelligence: main capabilities and scientific disciplines, available at European Commission, 8 April 2019, Brussels, p. 6.

[83] John S. McCain National Defense Authorization Act for Fiscal Year 2019, Section 238.

[84] Ministero dell'Università e della Ricerca, del Ministero dello Sviluppo Economico e del Ministro per l'Innovazione Tecnologica e la Transizione Digitale (ed.), Programma Strategico Intelligenza Artificiale 2022-2024, available at innovazione.gov.it.

[85] According to Recital 119 of the Regulation, «Considering the quick pace of innovation and the technological evolution of digital services in scope of different instruments of Union law in particular having in mind the usage and the perception of their recipients, the AI

proof»[86], aligning with the indications of the OECD to guarantee international convergence[87] and aiming to resolve the so-called Collingridge dilemma, namely the difficulty of regulating a technology whose impacts are not yet fully understood[88]. According to the text of the Regulation, an AI system is defined as «a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments»[89]. This notion is distinguished from traditional software by its inferential capacity and autonomy, elements that allow the system to map the relationship between input and output and to learn, going beyond the mere execution of pre-programmed rules.

The Guidelines on the definition of an artificial intelligence system, published by the European Commission in 2025, provide an essential

---

systems subject to this Regulation may be provided as intermediary services or parts thereof within the meaning of Regulation (EU) 2022/2065, which should be interpreted in a technology-neutral manner».

[86] On this point, see the press release of the European Commission of 9 December 2023, titled «Commission welcomes political agreement on Artificial Intelligence Act», available at European Commission.

[87] OECD C/MIN(2019)3/FINAL, Recommendation of the Council on Artificial Intelligence, 22 May 2019, according to which «An AI system is a machine-based system that can for a given a set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy». Such definition was subsequently subject to revision in December 2023, when it was modified into the following text: «An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment» (OECD, C/MIN(2024)16/FINAL, Revised Recommendation of the Council on Artificial Intelligence, 3 May 2024).

[88] D. Collingridge, The Social Control of Technology, Frances Pinter (Publishers) Ltd., London, 1980, p. 19, who states that «The dilemma of control may now be summarized: attempting to control a technology is difficult, and not rarely impossible, because during its early stages, when it can be controlled, not enough can be known about its harmful social consequences to warrant controlling its development; but by the time these consequences are apparent, control has become costly and slow».

[89] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act)

interpretive analysis of that definition. Given the nature of a regulation, which applies only to systems that satisfy the definition of «AI system» just mentioned, the European Commission has fulfilled the mandate conferred upon it by Article 96, paragraph 1, letter f), of the AI Act to assist providers and other stakeholders in determining whether systems qualify as AI systems and, consequently, to facilitate the effective application of the regulation itself. Nonetheless, it is important to note that they do not have binding force, and the definitive interpretation of the AI regulation belongs exclusively to the Court of Justice of the European Union (CJEU)[90].

The definition of «AI system» in Article 3, paragraph 1, point 1) of the AI Act adopts a life-cycle perspective, including both the development phase (before deployment) and the use phase (after deployment)[91]. This definition, as clarified by the Guidelines, is structured into seven principal elements that outline its scope of application and was elaborated to guarantee the flexibility necessary in the face of rapid technological developments; therefore, it is not possible to provide an exhaustive list of potential systems, nor to apply the definition mechanically[92].

The first fundamental element is that an AI system must be automated. Automation implies the development and use of machines, understood as hardware and software components, extending this conception to include advanced systems, such as emerging quantum computing or biological/organic systems, provided they provide computational capacities[93].

The second element, essential to the distinction, is that the system is designed to operate at variable levels of autonomy. Recital 12 of the regulation on AI specifies that this refers to «some degree of independence of actions» with respect to human involvement and the capacity to operate without human intervention. The notions of autonomy and inference are interconnected, as inferential capacity is crucial for achieving autonomy. In this regard, a system that requires manual inputs to be activated but can then generate an output without being controlled or specified explicitly and precisely by a human being is considered endowed with some degree of

---

[90] Communication from the European Commission C(2025) 5053, 29 July 2025, Guidelines on the definition of an artificial intelligence system established by Regulation (EU) 2024/1689 (AI Act), § I, (7).

[91] For an overview of the phases of the AI system, the Commission guidelines refer to OECD, Explanatory Memorandum on the updated OECD definition of an AI system, OECD Artificial Intelligence Papers, n. 8, OECD Publishing, Paris, https://doi.org/10.1787/623da898-en, 2024, p. 7.

[92] Guidelines on the definition of an artificial intelligence system, cit., § I, (6).

[93] Ibid., § II, 2.

independent action. On the contrary, systems designed to function exclusively with full human involvement and manual intervention are excluded from the definition of «AI system».

The third element characterising AI systems is their adaptiveness after deployment. Adaptability is the self-learning capacity that enables a system to modify its behaviour during use. The use of the term «may» is important, as it indicates that such self-learning capacity or post-deployment adaptation is not a decisive or mandatory condition to qualify a system as AI[94].

The fourth element concerns the AI system's objectives, which can be explicit (clearly coded by the developer) or implicit (inferred from its behaviour or training data)[95]. The internal objectives of the system, such as optimising a cost function, must be distinguished from its intended purpose, which has external value and refers to the use the provider intends for the system[96].

The fifth element, inferential capacity, is the distinctive aspect par excellence: the system must infer from its input how to generate output. This capacity is fundamental and indispensable, distinguishing AI systems from traditional software or simpler programming approaches. Inference refers both to the process of obtaining outputs (use phase) and to the capacity to derive models or algorithms from input or data (construction phase). The techniques that enable inference are classified into two broad categories: machine learning approaches that learn from data (such as supervised, unsupervised, self-supervised, and reinforcement learning), and approaches based on logic and knowledge that draw inferences from knowledge encoded by human experts[97].

The sixth element of AI systems focuses on the output and its impact: the system determines how to generate outputs such as predictions, content,

---

[94] Ibid., § II, 3.

[95] Ibid., § II, 4, (24).

[96] Ibid., § II, 4, (25).

[97] Ibid., § II, 5. The Guidelines further clarify which systems, despite being automated, fall outside the regulatory definition. Among these there are: 1) systems for improving mathematical optimization, which, even if they use approximations based on machine learning, are excluded if they do not go beyond «basic data processing» and aim principally to improve the computational performance of consolidated methods; 2) basic data processing systems, which execute predefined instructions without resorting to AI techniques such as learning or reasoning; 3) systems based on classic heuristics, which focus on approaches based on rules or trial and error strategies to find approximate solutions and do not possess the adaptability and generalization capacity of systems that learn from experience; 4) simple prediction systems, whose performance can be achieved through a basic statistical learning rule.

recommendations, or decisions[98]. AI systems are distinguished from other software by their ability to handle complex data models and generate more detailed outputs. The categories of output include: 1) predictions, i.e., estimates of unknown values, typically produced with low human involvement[99]; 2) content, i.e., generation of new material[100]; 3) recommendations, i.e., suggestions for actions or services[101]; 4) decisions, i.e., conclusions or choices implemented through a completely automated process that produces a result in the surrounding environment without human intervention[102].

Finally, the seventh element of AI systems clarifies that the influence of such outputs can concern both tangible physical objects (physical environments) and digital spaces and data flows (virtual environments)[103].

In conclusion, notwithstanding the wide spectrum of systems covered by the definition, the EU Commission Guidelines underline that the majority of systems qualified as AI pursuant to Article 3, point 1), will not be subject to normative requirements, given the presence of the risk-based approach of the regulation on AI, which implies that the normative obligations and supervision measures (prohibitions, high-risk regimes, transparency

---

[98] Ibid., § II, 6.

[99] For example, deep learning algorithms are used in autonomous vehicles to predict the trajectories and driving intentions (e.g. lane change) of other road users. The output of the system is a probabilistic prediction (e.g. vehicle X will move to the left within 2 seconds), which serves as a base for automated navigation with no or minimal human involvement during the operation. For an in-depth study, see S. Mozaffari, O.Y. Al-Jarrah, M, Dianati, P. Jennings, Al. Mouzakitis, Deep Learning-Based Vehicle Behavior Prediction for Autonomous Driving Applications: A Review, in IEEE Transactions on Intelligent Transportation Systems, vol. 23, no. 1, 2022, pp. 33-47.

[100] Such as texts, images, music, etc. On this point, see Z. Sordo, E. Chagnon, D. Ushizima, A Review on Generative AI For Text-To-Image and Image-To-Image Generation and Implications To Scientific Images, available at arXiv, 10 March 2025, pp. 1-16.

[101] We think, for example, of personalized recommendation systems used by Netflix or Amazon, in which the output of the system is an ordered list of items (films, products) that the system believes the user will appreciate. Such systems are distinguished from decisions because the final action (the click or the purchase) rests with the user. For an in-depth study, see S. Raza, M. Rahman, S. Kamawal, A. Toroghi, A. Raval, F. Navah, A. Kazemeini, A comprehensive review of recommender systems: Transitioning from theory to practice, in Computer Science Review, 59, 2026, pp. 1-42.

[102] This occurs, for example, in high-frequency algorithmic trading or in specific industrial control systems where the AI implements the choice instantaneously. For an in-depth study, see A.K. Boos, Conceptualizing Automated Decision-Making in Organisational Contexts, in Philosophy & Technology, 37:92, 2024, pp. 1-30.

[103] Communication from the European Commission C (2025) 5053 of 29 July 2025, cit., § II, 7.

obligations) apply only to systems that carry the most significant risks for fundamental rights and freedoms[104].

7. The architecture of Regulation (EU) 2024/1689

Regulation (EU) 2024/1689 represents a turning point in the European Union's legislative strategy, serving as the first comprehensive legal framework worldwide to regulate the development, deployment, and use of artificial intelligence systems. It pursues a dual objective: on the one hand, to harmonise rules to favour the functioning of the internal market and promote the adoption of human-centric and reliable AI; on the other hand, to guarantee a high level of protection for health, safety and fundamental rights enshrined in the Charter of Fundamental Rights of the European Union, including democracy, the rule of law and environmental protection[105].

The architecture of the AI Act is based on a graduated, risk-based approach that classifies AI systems into four distinct categories according to the intensity of the risk they pose to fundamental rights and freedoms: unacceptable risk, high risk, limited risk, and minimal risk[106].

---

[104] Ibid., § III, (63).

[105] For a first commentary on the AI Act, see L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act. A Systematic Commentary, Editoriale Scientifica, Napoli, 2025; A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025; H. Graux, K. Garstka, N. Murali, J. Cave, M. Botterman, Interplay between the AI Act and the EU digital legislative framework, European Parliament, Brussels, 2025; B. Raue, A. von Ungern-Sternberg, L.K. Kumkar, T. Rüfner (eds.), Artificial Intelligence and Fundamental Rights. The AI Act of the European Union and its implications for global technology regulation, Institute for Digital Law Trier (IRDT), Trier, 2025; A. Bensoussan, J. Bensoussan, V. Bensoussan-Brulé, Le règlement européen sur l'intelligence artificielle, Larcier, Bruxelles, 2025; N.S. Silva, The Artificial Intelligence Act: Critical Overview, in Journal of Intellectual Property, Information Technology, and Electronic Commerce Law, 16(1), 2025, pp. 1-23; A. Engelfriet, The Annotated AI Act. 2025/26 Edition, ICTRecht, Amsterdam, 2025; C.N. Pehlivan, N. Forgó, P. Valcke, (eds.), The EU Artificial Intelligence (AI) Act: A Commentary, Wolters Kluwer Law International, Alphen aan den Rijn, 2024; C. Novelli, L'Artificial Intelligence Act Europeo: alcune questioni di implementazione, in federalismi.it, 2, 2024, pp. 95-113; F. Ferri (ed.), L'Unione europea e la nuova disciplina sull'intelligenza artificiale: questioni e prospettive, Editoriale Scientifica, Napoli, 2024; G. Cassano, E.M. Tripodi (eds.), Il Regolamento Europeo sull'Intelligenza Artificiale. Commento al Reg. UE n. 1689/2024, Maggioli, Rimini, 2024; M. Iaselli (ed.), AI Act. Principi, regole ed applicazioni pratiche del Reg. UE 1689/2024, Maggioli, Santarcangelo di Romagna, 2024;

[106] In 2021 the European Commission devised a four-level pyramid to illustrate the logic at the base of the proposal for a regulation on AI, underlining its approach based on risk.

At the top of the pyramid are the prohibited AI practices (unacceptable risk), regulated by Article 5, as they are considered contrary to the values of the Union. Falling into this category are systems that use subliminal or manipulative techniques to distort human behaviour, systems that exploit the vulnerabilities of specific groups (such as minors or people with disabilities), social scoring practices by public authorities, as well as the use of remote biometric identification systems in real time in publicly accessible spaces for law enforcement purposes (subject to specific and narrow exceptions linked to public safety and the prevention of serious crimes), the use of systems for emotion recognition in the workplace and in educational institutions, as well as biometric categorization based on sensitive data such as political opinions or sexual orientation.

The central category is represented by high-risk AI systems (High-Risk AI Systems - HRAIs), regulated by Title III and identified according to two criteria: either because they constitute safety components of products already subject to *ex ante* conformity assessment (Annex I), or because they fall within specific critical sectors listed in Annex III, such as biometry, critical infrastructures, education, employment, access to essential public services, law enforcement activities, migration management and administration of justice. For these systems, the Regulation imposes a rigorous compliance regime and obligations throughout the entire value chain. Providers must establish a risk management system (Art. 9), guarantee adequate governance of training data to avoid bias (Art. 10), draft detailed technical documentation (Art. 11), allow for technical automatic logging of events («log») (Art. 12), ensure transparency and provide instructions to deployers (Art. 13), design and develop the AI system in such a way as to be effectively supervised by deployers (Art. 14) as well as guarantee robustness, accuracy and cybersecurity of the system (Art. 15). Furthermore, for public entities and certain private deployers that use high-risk systems, the obligation to perform a Fundamental Rights Impact Assessment (FRIA) is provided before putting them into service.

For systems with limited risk (Art. 50), such as chatbots or systems that generate synthetic content (so-called deepfakes), specific transparency obligations are provided, in the sense that users must be informed that they

---

Besides having been used by members of the Commission in various workshops for the presentation of the legislation (such as for example within the scope of the CEPS webinar – European approach to the regulation of artificial intelligence, 23 April 2021, available at CEPS), the pyramid is published on European Commission.

are interacting with a machine, and artificially generated content must be marked in such a way as to be detectable as such.

Finally, systems with minimal risk, which constitute the majority of current applications (e.g. spam filters, video games), are not subject to specific obligations. However, the adoption of voluntary codes of conduct is encouraged.

The AI Act introduces a specific regulatory framework for general-purpose AI models (General-Purpose AI Models – GPAIs), defined as «AI model, including where such an AI model is trained with a large amount of data using self-supervision at scale, that displays significant generality and is capable of competently performing a wide range of distinct tasks regardless of the way the model is placed on the market and that can be supplemented into a variety of downstream systems or applications, except AI models that are used for research, development or prototyping activities before they are placed on the market» (Art. 3, par. 63). Such models are subject to technical documentation obligations and compliance with copyright legislation. A critical subcategory is represented by «general-purpose AI models with systemic risk» (GPAISR models) (Art. 51), identified based on high impact capacity (presumed if the computing power for training exceeds 10^25 FLOPS). For these models, providers must evaluate and mitigate systemic risks, perform adversarial testing, monitor serious incidents, and guarantee an adequate level of cybersecurity.

The governance system established by the AI Act is multilevel. At the European level, the «AI Office» is established within the Commission, with the task of monitoring the application of the rules, supervising GPAI models and coordinating national authorities. Furthermore, a «European Artificial Intelligence Board», an «advisory forum» and a «scientific panel of independent experts» are established. At the national level, Member States must designate notifying and market surveillance authorities responsible for implementing the regulation.

The penalty regime is particularly stringent and dissuasive. Violations of the prohibitions related to AI practices (Art. 5) can lead to administrative fines of up to 35 million euros or 7% of the total global annual turnover. Non-compliance with obligations for high-risk systems is subject to fines of up to 15 million euros or 3% of turnover. In comparison, the supply of incorrect information can attract fines of up to 7.5 million euros or 1.5% of turnover. For SMEs and start-ups, more proportionate maximum limits are provided. The Commission has the exclusive power to impose fines on providers of GPAI models, up to 15 million euros or 3% of turnover.

8. The search for transparency: the so-called Explainable AI (XAI)

To mitigate the risks and the issues linked to the opacity of AI systems that, as stated, create a "black box", as well as to respond to the regulatory imperative of ensuring a "trustworthy AI", a multidisciplinary field of research named Explainable AI (xAI) has emerged, dedicated to the development of techniques and instruments that aim to make opaque AI systems transparent and understandable[107] and to provide explanations related to their functioning to certain individuals[108]. As scholars have observed, xAI is not a single technology but a set of approaches for generating understanding[109].

The main objectives of XAI include intelligibility, to answer the question "how does it work?": even though the internal processes of deep learning systems are mathematically transparent, their complexity makes them difficult for humans to understand[110]; accountability, to answer the question "who is responsible for how it works?", which is crucial for attributing responsibility to the designers and users of AI systems[111]; user comprehensibility, so that explanations are understandable and convincing to the end user, adapting to the context and the recipient, which may involve providing information on both the general functioning of the system and the reasons for a specific decision[112]; and protection of human autonomy, to enable humans to understand how an AI system arrives at a conclusion in order to

---

[107] C. Zednik, Solving the Black Box Problem: A Normative Framework for Explainable Artificial Intelligence, in Philosophy & Technology, 34, 2021, p. 266; M. Mitchell, Artificial Intelligence. A Guide for Thinking Humans, Penguin Random House, London, 2020, p. 128.

[108] A. Palma Ortigosa, Remedies (Chapter IX, Section 4), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, cit., p. 513.

[109] D. Danks, Governance Via Explainability, in J.B. Bullock, Y.C. Chen, J. Himmelreich, V.M. Hudson, A. Korinek, M.M. Young, B. Zhang (eds.), The Oxford Handbook of AI Governance, Oxford University Press, New York, 2025, p. 185.

[110] Even though the underlying mathematical operations of deep networks are clear, their complexity makes it difficult for humans to fully grasp how these systems arrive at their answers, leading to what has been termed a "dark secret" in AI due to this inherent impenetrability (W. Knight, The Dark Secret at the Heart of AI, in MIT Technology Review, 11 April 2017, available at www.technologyreview.com/2017/04/11/5113/the-dark-secret-at-the-heart-of-ai).

[111] L. Floridi, op. cit., p. 63.

[112] Effective explanations for AI systems should be customized to the user's expertise and the specific interaction with the algorithm, ensuring that users receive information that is rationally and suitably persuasive, encompassing both the general functionality and the rationale behind particular decisions (ibid., pp. 156-157).

decide whether to accept it or not[113], and to protect fundamental rights, such as privacy[114].

There is a distinction between "interpretability" and "explainability." A system is considered interpretable if it is possible to examine its underlying model to comprehend why it produced a specific response for a given input, and how that response would change if the input were altered[115]. For instance, decision trees are often cited as highly interpretable models because their programmed logic explicitly determines decisions based on specific inputs, allowing humans to understand and articulate how a decision was reached[116] readily. On the other hand, a system is explainable if it is possible to construct a narrative about its functioning, even if the system itself acts as a black box; in other words, explainability can help us understand "why was this output produced for this input?"[117]. Some companies, such as Google and IBM, are stepping up their efforts to make AI algorithms more interpretable and inclusive by providing tools such as Vertex Explainable AI[118], What-If-Tool[119], and AI Explainability 360[120].

Given this complex technical architecture, which Explainable AI seeks to make more understandable in the pursuit of transparency, this thesis will analyse in depth the legal challenges that arise.

Contrary to what one might think, xAI is not intended only to address intrinsically opaque models (such as black boxes), as even models classified as

---

[113] The pervasive predictive capabilities and persistent "nudging" by AI systems, even if unintentional, should be designed to support and not undermine human self-determination and dignity (ibid., p. 106). The principle of autonomy in AI emphasizes the need to balance human decision-making power with that delegated to artificial agents, ensuring that humans choose how and whether to delegate decisions to AI systems to achieve human objectives (ibid., p. 62).

[114] Article 22 of the GDPR, for example, provides for the right to receive an understandable explanation for automated decisions with a significant impact on a person's life.

[115] S.J. Russell, P. Norvig, op. cit., p. 729.

[116] M. Coeckelbergh, op. cit., pp. 116-117.

[117] S.J. Russell, P. Norvig, op. cit., p. 729.

[118] For further information, see www.cloud.google.com/vertex-ai/docs/explainable-ai/overview.

[119] For further information, see www.cloud.google.com/blog/products/ai-machine-learning/introducing-the-what-if-tool-for-cloud-ai-platform-models.

[120] For further information, see www.ai-explainability-360.org.

transparent may still need xAI methods to be made more understandable to users[121].

According to the National Institute of Standards and Technology (NIST), xAI is based on four fundamental principles: 1) explanation: the system provides or contains the evidence or the reasons for the outputs; 2) meaningful: the explanations provided must be understandable for the intended recipient (for example, regulators, end users or developers); 3) explanation accuracy: (the explanation must correctly reflect the true reason for which the output was generated); 4) knowledge limits: it is necessary to recognise when the system operates outside of its design limits[122].

XAI techniques are generally classified along two dimensions: when the explanation occurs (*a priori* or *a posteriori*) and its scope (local or global).

As for the first dimension, the primary objective of ante-hoc (or pre-modelling) methods is to avoid forming a black box from the start, using intrinsically transparent models, such as decision trees[123] and expert systems[124]. Not by chance, such methods are also defined as "white box", "glass box"[125],

---

[121] D. Liga, The Interplay Between Lawfulness and Explainability in the Automated Decision-Making of EU Administration, in H.C.H. Hofmann, F. Pflücke (eds.), op. cit., p. 247, who observes that «XAI methods have the more comprehensive goal of enhancing transparency and interpretability of any AI model, even those which are possibly already intrinsically transparent. In fact, 'transparent' is not synonymous with 'understandable'».

[122] P.J. Phillips, C.A Hahn, P.C. Fontana, A.N. Yates, K. Greene, D.A. Broniatowski, M.A. Przybocki, Four Principles of Explainable Artificial Intelligence, September 2021, available at NIST.

[123] D. Liga, op. cit., p. 246, where the Author explains that «decision trees are generally considered intrinsically transparent and interpretable 'white-box'models because one can see exactly what there is in each of their branches». However – the Author warns – such algorithms «can also be very complex in their structure or in the interpretation of what each branch represents, which would make them less interpretable for some people. In this sense, even if their intrinsic (objective) transparency would not be considered, their interpretability might still be contested (subjectively) because of their complex structure».

[124] J. Etscheid, Artificial Intelligence in Public Administration. A Possible Framework for Partial and Full Automation, in I. Lindgren, M. Janssen, H. Lee, A. Polini, M.P. Rodríguez Bolívar, H. Jochen Scholl, E. Tambouris (eds.), Electronic Government. 18th IFIP WG 8.5 International Conference, EGOV 2019, San Benedetto Del Tronto, Italy, September 2-4, 2019 Proceedings, Springer, Cham, 2019, p. 250: «Early AI systems from the middle of the 20th century, often referred to as expert systems, were basically comprehensible for the developer and user because they operated according to defined rules. These expert systems were primarily intended to present relationships transparently in order to explain multi-causal phenomena».

[125] S. Ali, T. Abuhmed, S. El-Sappagh, K. Muhammad, J.M. Alonso-Moral, R. Confalonieri, R. Guidotti, J. Del Ser, N. Díaz-Rodríguez, F. Herrera, Explainable Artificial

"transparent by design"[126] or "Integrated XAI"[127]. The ante-hoc methodology also includes Exploratory Data Analysis (EDA), which focuses on the explanation and understanding of the data and datasets used[128]. Although the ante-hoc approach offers maximum interpretability, it is often associated with a trade-off between predictive accuracy and explainability; deep learning algorithms often achieve superior performance by sacrificing explainability[129]. Therefore, one of the challenges of xAI is to provide explanations that are both faithful to the underlying model's complexity and sufficiently simple for the user to understand[130].

On the contrary, post hoc methods are designed to extract information and provide explanations for outputs already generated. A fundamental distinction among such methods is between model-specific (applicable only to specific types of models) and model-agnostic (applicable to any black-box model)[131].

The second dimension of XAI classification concerns the scope of the analysis: whether it focuses on a single output (local) or on the system's overall behaviour (global).

The primary objective of local explanations is to clarify why an AI model made a particular decision in a given case[132]. Among the most important local explanation techniques are LIME, SHAP, and counterfactual explanations.

LIME (Local Interpretable Model-agnostic Explanations) is based on the idea of explaining not the entire model, but a single specific prediction.

Intelligence (XAI): What we know and what is left to attain Trustworthy Artificial Intelligence, in Information Fusion, 99, 2023, p. 2.

[126] A. Barredo Arrieta, N. Díaz-Rodríguez, J. Del Ser, A. Bennetot, S. Tabik, A. Barbado, S. Garcia, S. Gil-Lopez, D. Molina, R. Benjamins, R. Chatila, F. Herrera, Explainable Artificial Intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI, in Information Fusion, 58, 2020, p. 87.

[127] Ibid., pp. 249-250.

[128] Ibid., p. 247.

[129] C. Kerrigan, O. Vercoe, Explainable AI and Responsible AI, in C. Kerrigan (ed.), Artificial Intelligence. Law and Regulation, Edward Elgar Publishing, Cheltenham, 2022, p. 530. See also V. Papadouli, Transparency in Artificial Intelligence: A Legal Perspective, in Journal of Ethics and Legal Technologies, 4(1), 2022, pp. 31-32, who observes that «Any attempt to make the system's inner procedures more transparent can have adverse effects on their accuracy and efficiency. As mentioned in the literature, the more transparent the autonomous system is, the less accurate it is».

[130] For further information on the trade-off between explainability and accuracy of black box AI systems, see D. Liga, op. cit., pp. 247–249.

[131] Ibid., p. 250.

[132] Ibidem.

To do this, LIME trains a simpler, more interpretable model (such as a linear model) that approximates the behaviour of the original complex model locally, that is, in the immediate vicinity of the specific instance being analyzed. In practice, LIME generates new data samples (called "perturbations") by slightly modifying the original instance (for example, by removing words from a text or obscuring parts of an image). It then asks the original model (the black box) to make predictions on these new samples. At this point, LIME uses these new data (perturbed samples and related predictions) to train the simple, interpretable model, giving greater weight to samples more similar to the original instance. The final result is a simple model that approximates the complex model in that area, showing which characteristics (e.g., words) contributed most to the decision[133].

SHAP (SHapley Additive exPlanations) is a technique for explaining a model's predictions, inspired by game theory. It works by evaluating all the possible combinations of characteristics to understand their impact. To each characteristic is then assigned a score, called a "Shapley value", which quantifies how much it contributed to the specific prediction in different contexts[134].

The "counterfactual explanations" work without attempting to explain the algorithm's complex internal logic or to "open the black box". Instead of showing how the system reasoned internally, they describe a dependence on the external facts that led to that decision. In practice, they show the user what the nearest alternative scenario should have been to achieve a different, desired result. In this way, the user receives useful, easy-to-digest information that focuses on which specific data should have differed to change the outcome[135]. Consider the example of a person who is denied a loan. The counterfactual explanation does not describe the formula of the credit score,

---

[133] The LIME technique was theorized and introduced by Marco Tulio Ribeiro, together with Sameer Singh and Carlos Guestrin, in the article "Why Should I Trust You? Explaining the Predictions of Any Classifier", in KDD '16: Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2016, pp. 1135-1144.

[134] The SHAP technique was theorized and introduced by Scott M. Lundberg and Su-In Lee in the article "A Unified Approach to Interpreting Model Predictions", in Advances in Neural Information Processing Systems, 30, 2017, pp. 4765–4774.

[135] The technique of counterfactual explanations was made famous by Sandra Wachter, Brent Mittelstadt and Chris Russell with the article "Counterfactual Explanations without Opening the Black Box: Automated Decisions and the GDPR", in Harvard Journal of Law & Technology, 31(2), 2018, pp. 841-887.

but says: “You were denied a loan because your annual income was £30,000. If your income had been £45,000, you would have been offered a loan”[136].

Global explanations, instead, aim to provide users with a comprehensive understanding of how a complex model operates, allowing them to inspect its structures and parameters[137]. These specifically offer an overview of the trained model as a whole, showing how each input variable contributes, positively or negatively, to the prediction[138].

An example of an XAI method that provides global explanations is Partial Dependency Plots (PDPs), which show the marginal change in the system's predicted response when the value of a specific characteristic or column is modified. Their main function is to determine whether the relationship between a given characteristic and the model's response is linear or more complex[139].

---

[136] Ibid., p. 844.

[137] R. Ramachandranpillai, R.A. Baeza-Yates, F. Heintz, FairXAI – A Taxonomy and Framework for Fairness and Explainability Synergy in Machine Learning, in IEEE Transactions on Neural Networks and Learning Systems, 36(6), 2025, p. 9820.

[138] I. Ahmed, I. Kumara, V. Reshadat, A.S.M. Kayes, W.J. van den Heuvel, D.A. Tamburri, Travel Time Prediction and Explanation with Spatio-Temporal Features: A Comparative Study, in Electronics, 11(106), 2022, p. 7.

[139] P.J. Philips, C.A Han, P.C. Fontana, A.N. Yates, K. Greene, D.A. Borniatowski, M.A. Przybocki, op. cit., p. 14. Partial Dependence Plots were theorised by Jerome H. Friedman in his article “Greedy Function Approximation: A Gradient Boosting Machine”, in The Annals of Statistics, Stanford University, 29(5), 2001, pp. 1189-1232, in which PDPs are proposed as a tool for visualising the average effect of one or a few features on the model's prediction.

Chapter II

The principles and rules of administrative law put to the test of artificial intelligence

Summary: 1. The legal nature of deterministic algorithms within the scope of administrative law – 1.1. The theory of the algorithm as a digital administrative act – 1.2. The theory of the algorithm as a regulation – 1.3. The theory of the algorithm as a procedural instrument and organisational tool – 1.4. The eclectic theory – 2. The legal nature of artificial intelligence systems within the scope of administrative law – 2.1. The distinction between traditional algorithms and AI systems in administrative case law – 2.2. The extension of the instrumental nature to AI systems: the judicial evolution in judgements no. 4297/2023 and no. 4929/2025 of the Council of State – 2.3. The statutory codification of the instrumental function of AI in art. 14 of Law 23 September 2025, no. 132 – 3. Artificial intelligence and administrative discretion – 3.1. Discretionary and non-discretionary activity: classic definitions – 3.2. The case law evolution: from the restrictive approach to the opening for the use of automation in discretionary activities – 3.3. The placement of the discretionary choice: "upstream" self-binding and "downstream" decision – 4. The principle of administrative transparency and its algorithmic application – 4.1. The obligation to give reasons for administrative acts using artificial intelligence – 4.1.1. Art. 3 of Law no. 241/1990 and the multifaceted nature of the statement of reasons – 4.1.2. Statement of reasons based on deterministic algorithms – 4.1.2.1. The theory of the simplified statement of reasons for non-discretionary activity and the debate on the applicability of Art. 21-octies, paragraph 2, Law 241/1990 to automated administrative acts – 4.1.2.2. The theory of the Council of State on the obligation to translate the technical formula into a legal rule – 4.1.3. Statement of reasons based on artificial intelligence systems – 4.1.3.1. The theory of the black box as an absolute obstacle to the fulfilment of the duty to give reasons – 4.1.3.2. The theory of the functional human standard – 4.1.3.3. The theory of the enhanced statement of reasons – 4.1.3.4. The theory of the generative statement of reasons – 4.1.4. The relationship between the right to an explanation under Art. 86 of the AI Act and the duty to give reasons under the Italian legal system – 4.1.5. An operational proposal: incorporating Explainable AI (xAI) techniques into the duty to give reasons for administrative acts – 4.2. The right of access to administrative documents: from the disclosability of the source code of traditional software to the complex

technical documentation of AI systems – 4.2.1. Access to the source code of deterministic algorithms: the balancing between the right of defence and intellectual property in administrative case law – 4.2.2. The distinction between decisione amministrativa algoritmica and algoritmo di mero supporto in judgement no. 4857/2025 of the Council of State: critical issues and aporias – 4.2.3. The object of the right of access in AI systems: beyond the source code, towards the technical documentation (art. 11 AI Act) and the Fundamental Rights Impact Assessment (FRIA) – 4.2.4. The problems connected to the use of proprietary software and the question of Open-Source AI – 5. The principle of non-exclusivity of the artificial administrative decision: human oversight – 5.1. The genesis of the principle: from Art. 22 GDPR to the Council of State's triptych of algorithmic legality – 5.2. Human oversight in Art. 14 of the AI Act and its transposition in Art. 14 of Law 23 September 2025, no. 132 – 5.3. The intensity of human oversight: from the detailed verification to the review of manifest defects – 5.3.1. The theory of the gradation of supervision based on the discretionary or non-discretionary nature of the administrative power – 5.3.2. The theory of the deferred right to be heard: human oversight as a subsequent instance activated by the private party's objection – 5.3.3. The theory of the integral automation of favourable administrative decisions – 5.3.4. The theory of human oversight limited to manifest defects – 6. The principle of non-discrimination of the artificial administrative decision – 6.1. The phenomenology of algorithmic bias: direct and indirect discrimination – 6.2. Bias in data, in the algorithm and in the interaction: taxonomy of technological biases – 6.3. The regulatory framework: from the GDPR to art. 10 of the AI Act on data governance – 6.4. The role of public officers' training: prompt engineering as a tool for bias control – 7. The participation of private parties in artificial administrative proceedings – 7.1. The communication of an administrative procedure's commencement – 7.1.1. The function of the legal concept and the inadequacy of the current art. 8 of Law no. 241/1990 in the automated context – 7.1.2. A reform proposal: the obligation of disclosure of the use of AI and of the methods of supervision at the initiation of the proceeding – 7.2. The communication of reasons preventing the acceptance of an application, or advance notice of rejection – 7.2.1. The notice of rejection as a key moment for the right to be heard on algorithmic output – 7.2.1.1. The critical theory of incompatibility – 7.2.1.2. The theory of "subsequent participation": the algorithmic output as an administrative "decision proposal" – 7.2.2. A reform proposal: the obligation of autonomous human review following the written submissions of the interested party – 8. The (possible) conflicts between the AI Act and Italian Law no. 132/2025: the risk of "gold plating" – 9. The

liability of the public administration for damage caused by AI systems – 9.1. Civil liability – 9.1.1. The legal nature of the liability of the Public Administration for the unlawful exercise of public functions: the debate between the theory of contatto sociale qualificato and the tortious nature pursuant to Article 2043 of the Italian Civil Code. – 9.1.2. The elements of the tort: the conduct, the unlawfulness of the damage due to the violation of legitimate interests, and the notion of colpa d'apparato – 9.1.3. The relationship between the liability of the Administration and the liability of the public officer: the provisions of Presidential Decree No. 3/1957 and the limitation to gross negligence for public officers – 9.2. Administrative liability – 9.2.1. Constitutional foundation and legal nature of administrative liability – 9.2.2. The elements of administrative liability – 9.3. In search of the meaning of the concepts of "fault" and "causal link" in liability for damages caused by artificial intelligence – 9.3.1. The reconfiguration of the concept of 'fault' in the age of automation – 9.3.1.1. Software selection: the culpa in eligendo theory – 9.3.1.2. Articles 2047 and 2048 of the Civil Code: the culpa in vigilando theory – 9.3.1.3. The colpa d'apparato theory – 9.3.1.4. Articles 2049, 2050, 2051 and 2052 of the Civil Code: the strict liability theory – 9.3.2. The crisis of the causal link – 9.3.2.1. The strict approach – 9.3.2.2. The causa causae est causa causati theory – 9.3.3. The impact of European Union law: the Product Liability Directive (EU) 2024/2853 and the proposal for an AI Liability Directive

This chapter aims to investigate the validity of theoretical categories and general principles of administrative law in light of the widespread use of artificial intelligence systems by public authorities. The analysis will start from the complex debate on the legal classification of algorithms – distinguishing between deterministic algorithms and artificial intelligence systems – to examine the various theoretical reconstructions that oscillate between the nature of a digital administrative act, a regulatory act and, as is currently prevailing in case law, an organisational tool and procedural instrument. Subsequently, the investigation will focus on the compatibility of automation with the exercise of administrative and technical discretion, before delving into the algorithmic interpretation of the principle of transparency, highlighting the tensions between the opacity of so-called black boxes, the obligation to state reasons for administrative acts and the right of access to the source code and technical documentation of AI systems. The most recently developed principles of algorithmic legality will also be examined, including knowability and comprehensibility, the principle of non-exclusivity of decision-making (or the requirement for human intervention), and the principle of non-

discrimination. The discussion will continue by assessing the impact of AI on the participatory mechanisms of the Italian Administrative Procedure Act (Law No. 241 of 7 August 1990), such as the notification of the initiation of proceedings and the notification of the reasons for rejecting the application, and by analysing the potential regulatory conflicts between the EU Regulation on AI and national legislation in terms of the prohibition of gold plating. Finally, the chapter will conclude with an analysis of the civil and administrative liability issues of the public administration and officials, seeking to unravel the critical issues related to attribution of liability and the assessment of causality in automated administrative decisions.

1. The legal nature of deterministic algorithms within the scope of administrative law

The question of the legal nature of algorithms employed in the decision-making processes of Public Administration is a central and unavoidable theme in the contemporary public law debate, imposing a complex interpretative effort to trace new technologies back within the traditional theoretical categories of administrative law. The analysis of judicial and theoretical elaboration reveals a fragmented interpretative landscape, within which four main theories emerge, offering divergent solutions to the ontological classification of the algorithmic case. A first theory, of case-law origin, characterises the decision-making software as a true and proper computer-based administrative act, emphasising its suitability for determining the arrangement of interests and constituting the administration's will. Contrasted with this reconstruction is a theoretical orientation that, by emphasising the function of general and abstract predetermination in decision-making criteria, proposes assimilating the algorithm to the regulatory source. A third approach, established in the most recent case law of the Council of State, limits the extent to which the IT tool is regarded as an administrative decision, relegating it to the rank of a mere organisational tool and procedural instrument serving the fact-finding phase. Finally, a median position is recorded, defined as eclectic, suggesting a dynamic and functional approach in which the algorithm's legal nature changes elastically depending on the specific segment of administrative action in which it is inserted.

1.1. The theory of the algorithm as a digital administrative act

One of the first theses on the legal qualification of the algorithm was supported by the judgments of the T.A.R. Lazio no. 3742/2017 and 3769/2017, concerning the well-known case of the so-called «algoritmo di mobilità» of the

MIUR for managing teaching staff transfers[140]. In particular, the T.A.R. Lazio first recalled the distinction between an administrative act "in electronic form", in which the content is determined by a human official and only the final form is digitised, and an administrative act "via electronic processing", where the elaboration of the content of the act is entrusted entirely to the algorithm[141]. It is this second category, according to the T.A.R. Lazio, that characterises the use of decision-making software.

Precisely by virtue of its nature as an act "via electronic processing" that constitutes the final will of the administration and affects individual legal situations, the T.A.R. Lazio established that the algorithm (or rather, the software that manages it) must be qualified to all intents and purposes as a "digital administrative act" (*atto amministrativo informatico*), since the algorithm, in practice, determines the content of the final act of assignment or transfer of the teacher, thus effectively constituting the entire administrative proceeding. The T.A.R. Lazio, while recognizing that the activity was non-discretionary (and therefore more compatible with the logic of the software, which translates factual elements and legal data into a formalized logical reasoning), inserted a significant *obiter dictum*: the

---

[140] T.A.R. Lazio, Roma, sec. III-bis, judgement of 21 March 2017, no. 3742 and judgement of 23 March 2017, no. 3769. On these rulings, see the notes and comments by E. Prosperetti, Accesso al software e al relativo algoritmo nei procedimenti amministrativi e giudiziali. un'analisi a partire da due pronunce del TAR Lazio, in Il diritto dell'informazione e dell'informatica, 4/5, 2019, pp. 979-1010; G. Mancosu, Les algorithmes publics déterministes au prisme du cas italien de la mobilité des enseignants, in Rivista italiana di informatica e diritto, 1, 2019, pp. 75-85; I. Forgione, Il caso dell'accesso al software MIUR per l'assegnazione dei docenti, in Giornali di diritto amministrativo, 5, 2018, pp. 647-662; P. Otranto, Decisione amministrativa e digitalizzazione della p.a., in federalismi.it, 2, 2018, p. 19 ff.

[141] For an in-depth analysis of the administrative act «in forma elettronica» and the administrative act «ad elaborazione elettronica», see A.G. Orofino, Forme elettroniche e procedimenti amministrativi, Cacucci, Bari, 2008; C. Giurdanella, C.E. Guarnaccia, Elementi di diritto amministrativo elettronico, Halley Editore, Matelica, 2005; D. Marongiu, L'attività amministrativa automatizzata, Maggioli, Rimini, 2005; G. Mandolfo, L'atto amministrativo elettronico, in G. Cassano (ed.), Diritto delle nuove tecnologie informatiche e dell'Internet, IPSOA, Milano, 2002, p. 1299 ff.; M. Minerva, L'attività amministrativa in forma elettronica, in Foro amministrativo, 4, 1997, p. 1300 ff.; A. Masucci, L'atto amministrativo informatico. Primi lineamenti di una ricostruzione, Jovene, Napoli, 1993; A. Usai, Le prospettive di automazione delle decisioni amministrative in un sistema di teleamministrazione, in Diritto dell'informazione e dell'informatica, 1, 1993, p. 164 ff; U. Fantigrossi, Automazione e pubblica amministrazione. Profili giuridici, Il Mulino, Bologna, 1993; B. Selleri, Gli atti amministrativi "in forma elettronica", in Diritto e Società, 1, 1982, p. 133 ff.; G. Duni, L'utilizzabilità delle tecniche elettroniche nell'emanazione degli atti e nei procedimenti amministrativi. Spunto per una teoria dell'atto emanato nella forma elettronica, in Rivista amministrativa della Repubblica Italiana, 1978, VI, p. 407 ff.

admissibility of the electronic processing of the administrative act «non è legata alla natura discrezionale o vincolata dell'atto quanto invece essenzialmente alla possibilità, che tuttavia è scientifica e non invece giuridica, di ricostruzione dell'iter logico sulla base del quale l'atto stesso possa essere emanato per mezzo di procedure automatizzate quanto al relativo contenuto dispositivo»; therefore, the decision to resort to electronic processing was qualified as a discretionary choice having «valenza di tipo organizzativo dell'attività amministrativa».

Subsequently, the Council of State, with judgement no. 2270/2019[142], while recognizing the algorithm as part of the administrative proceeding, redefined its function, framing it not so much as the final act, but as the predetermined logic governing it: «la regola tecnica che governa ciascun algoritmo resta pur sempre una regola amministrativa generale, costruita dall'uomo e non dalla macchina, per essere poi (solo) applicata da quest'ultima, anche se ciò avviene in via esclusiva»[143]. In particular, such "algorithmic rule" possesses full legal and administrative validity; it must be subject to the general principles of administrative activity (publicity, transparency, reasonableness, proportionality, etc.); it cannot leave scope for discretionary application and discretion, if present, must be traced and fully exercised at the moment of the elaboration of the digital tool. Therefore, we can observe that judgement no. 2270/2019, although it preferred to characterise the underlying logic as a "general rule", brought the software into the legal domain, concluding that the algorithm must be treated, for all intents and purposes, as a "digital administrative act", using that classification as an umbrella category to ensure full judicial review.

The qualification of the algorithm as a digital administrative act has twofold consequences, which are essential for the protection of the private citizen vis-à-vis automated administrative action. The first implies a strengthened application of the principle of transparency, with the consequence that the algorithm must be fully knowable in all aspects defining the algorithmic rule, so that the criteria, assumptions, and outcomes of the robotised proceeding are compliant with the prescriptions and purposes established by the law or by the administration upstream. Specifically, knowability must extend to: the authors of the algorithm; the procedure used for its elaboration; the decision-making mechanism, including the priorities assigned in the evaluation procedure and the data selected as relevant; the translation of the «formula tecnica» into a «regola giuridica» that is

[142] Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270.

[143] Ibid., § 8.2.

understandable and readable, both for citizens and for the judge[144]. Secondly, the algorithmic rule must be fully subject to the cognisance and review of the administrative judge, similarly to what occurs with respect to traditional human decisions[145].

1.2. The theory of the algorithm as a regulation

A part of legal scholarship, albeit isolated, supports the theory that the algorithm functions as an administrative regulation, based on the assumption of substantive equivalence between the computer code and the legal rule[146]. According to this reconstruction, the algorithms used by public administration to adopt decisions endowed with external efficacy must not be considered mere technical tools, but rather true sources of law in the material sense of the term[147]. The reason lies in their intrinsic function of predetermining and regulating the exercise of public powers: as with traditional regulations, the algorithm establishes, in advance and in the abstract, the criteria and parameters that will bind the content of the final act, limiting the scope of administrative discretion[148]. In this perspective, the source code is interpreted as legal code 2.0, a new generation normative codification that actively contributes to the innovation of the legal system[149]. The theoretical premise of a Kelsenian nature holds that a rule is normative whenever it performs a materially prescriptive function, regardless of its formal guise. Consequently, if code 1.0 were expressed in natural language, code 2.0 would translate it into binary logical sequences that, however, possess the same capacity to shape the sphere of citizens' rights and freedoms[150].

The qualification of the algorithm as a regulation would entail relevant implications for the level of guarantees. Firstly, assimilation to the regulatory regime would impose the obligation to fully publish the code, by virtue of the principle of publicity that applies to every binding rule, rendering any trade secrets or intellectual property rights asserted by private providers

---

[144] Ibid., § 8.3.

[145] On judicial review of the artificial administrative act by the administrative courts, see Section 3 of Chapter III.

[146] A. Boix-Palop, Algorithms as Regulations: Considering Algorithms, when Used by the Public Administration for Decision-making, as Legal Norms in order to Guarantee the proper adoption of Administrative Decisions, in European Review of Digital Administration & Law, 1, 1-2, 2020, p. 83.

[147] Ibid., pp. 81-82.

[148] Ibid., pp. 83-84.

[149] Ibid., pp. 82-83.

[150] Ibid., p. 82.

unenforceable[151]. Secondly, such a legal nature would allow interested parties to pursue direct or indirect judicial remedies against the algorithm itself, challenging the legitimacy of the normative codification underlying the individual decision[152]. Finally, the administration would be bound by the same principle of binding force in individual cases that governs regulations, preventing an arbitrary use or a discretionary disapplication of the algorithmic model once approved[153]. This theory ultimately aims to fill the protection deficit created by the black box in administrative law, transferring the entire baggage of guarantees of traditional public law to the new reality of digital technification[154].

1.3. The theory of the algorithm as a procedural instrument and organisational tool

The case-law theory of the algorithm as a digital administrative act, as formulated by the T.A.R. Lazio, was later superseded by subsequent Council of State case law, which qualified the algorithm not as an autonomous legal act but as an organisational tool and a procedural instrument.

The first judgement to adopt this approach was no. 8472 of 13 December 2019 (together with the companion judgements nos. 8473 and 8474), which characterised the administration's decision to use electronic processing as an alternative organisational approach to the traditional methods of gathering and assessing the information needed to reach an administrative decision. In this sense, the algorithm is seen as a means, an aid, and not as the ultimate decision-maker or the act itself. Since the algorithm is merely an organisational tool and an instrument supporting administrative procedure and fact-finding, it remains subject to the verifications typical of every administrative proceeding, which «resta il *modus operandi* della scelta autoritativa, da svolgersi sulla scorta della legislazione attributiva del potere e delle finalità dalla stessa attribuite all'organo pubblico, titolare del potere»[155]. Following this approach, the result produced by the operation

---

[151] Ibid., pp. 93-95.

[152] Ibid., pp. 96-97.

[153] Ibid., p. 90.

[154] Ibid., p. 97.

[155] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 10. For a comment on this judgement, see J. Della Torre, Le decisioni algoritmiche all'esame del Consiglio di Stato, in Rivista di diritto processuale, 2, 2021, pp. 713-733; M. Timo, Il procedimento di assunzione del personale scolastico al vaglio del Consiglio di Stato, in Giurisprudenza Italiana, May 2020, pp. 1190-1197; R. Mattera, Decisioni algoritmiche. Il Consiglio di Stato fissa i

performed by the program (and by the algorithm it applies) represents nothing other than the results of the fact-finding phase (pursuant to art. 6, paragraph 1, letter e), of Law no. 241/1990), which must underlie the act, which must in any case be adopted by the competent authority.

As is evident, such legal classification stands in contrast with the previous case law of the T.A.R. Lazio, which tended to qualify the algorithm or the software as a digital administrative act and which was founded on the idea that the algorithm, determining *de facto* the content of the final decision (for example, in the assignment of teachers), should be equated to the administrative act itself. However, as correctly observed by scholars, tracing the algorithm back to a mere organisational tool addresses the underlying misunderstanding of confusing the algorithm itself with the legal vehicle through which it enters the proceeding[156].

The position assumed with judgement no. 8472/2019 was subsequently reiterated and established in other important rulings, confirming it as the

limiti, in La nuova giurisprudenza civile commentata, 4, 2020, pp. 809-820; N. Muciaccia, Algoritmi e procedimento decisionale: alcuni recenti arresti della giustizia amministrativa, in federalismi.it, 10, 2020, pp. 344-368; A. Mascolo, Gli algoritmi amministrativi: la sfida della comprensibilità, in Giornale di diritto amministrativo, 3, 2020, pp. 366-375; A. Coiante, Il Giudice amministrativo delinea le regole del (nuovo) procedimento algoritmico? Riflessioni a margine di Cons. Stato, Sez. VI, n. 8472/2019, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori del laboratorio di diritto amministrativo 2019, Roma Tre Press, Roma, 2020, pp. 129-154; D. Dalfino, Decisione amministrativa robotica ed effetto performativo. Un beffardo algoritmo per una "buona scuola", in Questione Giustizia, 13 January 2020.

[156] G. Gallone, Riserva di umanità e funzioni amministrative, CEDAM, Padova, 2023, p. 92.

prevailing case law in the matter: examples include judgements no. 881/2020[157], no. 4297/2023[158] and, more recently, no. 4929/2025[159].

1.4. The eclectic theory

The coexistence and alternation of the described positions have led a minority of the legal scholarship to propose a so-called "eclectic" theory[160], whose central core lies in the necessity to observe the algorithm in its dynamic and elastic form, rather than static. According to this view, the algorithm would not possess an autonomous legal nature distinct from the administrative action to which it is ancillary. Still, it would assume, from time to time, the nature of the specific segment of activity it is performing. The algorithm,

---

[157] Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881, § 7, which reiterated that «il ricorso all'algoritmo va correttamente inquadrato in termini di modulo organizzativo, di strumento procedimentale ed istruttorio, soggetto alle verifiche tipiche di ogni procedimento amministrativo, il quale resta il *modus operandi* della scelta autoritativa, da svolgersi sulla scorta della legislazione attributiva del potere e delle finalità dalla stessa attribuite all'organo pubblico, titolare del potere». For a comment on this judgement, see A. Valsecchi, Algoritmo, discrezionalità amministrativa e discrezionalità del giudice (nota a Cons. Stato, sez. VI, sent. del 4 febbraio 2020, n. 881), in IUS in Itinere, 14 September 2020; A.G. Orofino, G. Gallone, L'intelligenza artificiale al servizio delle funzioni amministrative: profili problematici e spunti di riflessione, in Giurisprudenza Italiana, July 2020, pp. 1738-1748.

[158] Cons. Stato, sec. VI, 28 April 2023, no. 4297, § 4, according to which «il ricorso a strumenti informatici nelle procedure amministrative costituisce una modalità agevolata di istruttoria, senza che il singolo strumento – per quanto qualificabile in termini di intelligenza artificiale – possa, da un lato, derogare alle regole normative ed ai criteri posti a presupposto della singola procedura e, dall'altro lato, essere sottratto alla trasparenza nonché alla imputabilità all'amministrazione procedente. Quest'ultima è chiamata a verificare la correttezza del funzionamento dello strumento istruttorio utilizzato e la relativa coerenza agli obiettivi ed alle regole dettate, in coerenza al principio di legalità, per l'esercizio del potere in esame. E nel caso di specie l'amministrazione ha correttamente verificato come l'applicazione fatta dallo strumento automatizzato sia stata coerente ai criteri predeterminati normativamente».

[159] Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929, § 9: «(…) la giurisprudenza di questo Consiglio (see ad es. Consiglio di Stato sez. VI, 13 dicembre 2019, n. 8472) e la successiva evoluzione normativa (see ad es. art. 30 d.lgs. 36 del 2023) hanno evidenziato come l'utilizzo di sistemi di intelligenza artificiale (dagli algoritmi al c.d. machine learning, compreso ogni meccanismo rientrante nella attuale nozione di AI, su cui cfr. da ultimo le "*guidelines on the definition of an artificial intelligence system established by Regulation EU 2024/1689*", ex artt. 3 e 96 dello stesso regolamento), da intendersi quale modulo procedimentale per lo svolgimento dell'attività autoritativa in modalità più efficienti, si accompagna ad una serie di principi ermeneutici ed applicativi tesi a garantire l'operatività del sistema e la tutela dei diritti e degli interessi coinvolti».

[160] A. Sola, Inquadramento giuridico degli algoritmi nell'attività amministrativa, in federalismi.it, 16, 2020, pp. 361-363.

therefore, constitutes a mechanism or technical instrument through which the administrative decision is concretised, capable of encompassing not only the final act but also the procedural activity.

Based on this reconstruction, the algorithm's legal qualification varies depending on the function performed at that moment. It can be defined as an internal organisational tool whose efficacy is limited to managing internal bureaucratic or back-office activities, without direct impacts on the outside. Conversely, the algorithm must be identified as a proceeding when it manages the entire fact-finding and decision-making phase with which the administration constitutes, modifies, or extinguishes subjective legal positions. Finally, the software and the related source code are classified as an administrative act insofar as they are the concretisation of the will of the administrative authority. In particular, the process begins with the issuance of a general administrative act of a programmatic nature, by which the administration decides to use algorithms. This is followed by the technical phase in which the algorithm is programmed; at this stage, in source code form, it is an administrative act. Once put into operation, the algorithm becomes something other than itself, transforming into a proceeding, organisational tool, or internal act depending on the activity performed[161].

The merit of this approach lies in its ability to ensure appropriate legal protections at each phase. By recognising the nature of an administrative act in the source code, the exercise of the right of access to documents is legitimised, allowing the underlying technical rules to be known. In parallel, when the algorithm acts as a procedural substitute for human activity, the theory requires compliance with the minimum participatory guarantees provided by the Italian Administrative Procedure Act. In conclusion, the eclectic theory suggests that it is not necessary to create new conceptual legal categories for algorithms; instead, the objective is to verify the compatibility of these instruments with the constitutional principles of impartiality and transparency, ensuring that the efficiency and cost-effectiveness derived from automation do not compromise the fundamental procedural guarantees[162].

[161] Ibid., p. 362.

[162] Ibid., p. 363.

2. The legal nature of artificial intelligence systems within the scope of administrative law

2.1. The distinction between traditional algorithms and AI systems in administrative case law

The question regarding the legal nature of artificial intelligence systems within the scope of administrative law is different. As anticipated in Section 2 of Chapter I, AI differs from deterministic algorithms in that it is based on machine learning, a fundamental method used to build an artificial intelligence system.

The Council of State itself is aware of such a distinction; in judgment no. 7891 published on 25 November 2021, it recalled the difference between a "traditional" algorithm and artificial intelligence: «non v'è dubbio che la nozione comune e generale di algoritmo riporti alla mente "*semplicemente una sequenza finita di istruzioni, ben definite e non ambigue, così da poter essere eseguite meccanicamente e tali da produrre un determinato risultato* (…). Nondimeno, si osserva che la nozione, quando è applicata a sistemi tecnologici, è ineludibilmente collegata al concetto di automazione ossia a sistemi di azione e controllo idonei a ridurre l'intervento umano. Il grado e la frequenza dell'intervento umano dipendono dalla complessità e dall'accuratezza dell'algoritmo che la macchina è chiamata a processare. Cosa diversa è l'intelligenza artificiale. In questo caso l'algoritmo contempla meccanismi di *machine learning* e crea un sistema che non si limita solo ad applicare le regole software e i parametri preimpostati (come fa invece l'algoritmo "tradizionale") ma, al contrario, elabora costantemente nuovi criteri di inferenza tra dati e assume decisioni efficienti sulla base di tali elaborazioni, secondo un processo di apprendimento automatico»[163].

---

[163] Cons. Stato, sec. III, judgement of 25 November 2021, no. 7891, with notes by S. Cereda, Il concetto di algoritmo in una recente sentenza del Consiglio di Stato, in MediaLaws, 3, 2022, pp. 296-300; C. Filicetti, Sulla definizione di algoritmo (nota a Consiglio di Stato, Sezione Terza, 25 novembre 2021, n. 7891), in Giustizia insieme, 8 February 2023; G. Gallone, Il Consiglio di Stato marca la distinzione tra algoritmo, automazione ed intelligenza artificiale, in Diritto di Internet, 1, 2022, pp. 157-168; F. Paolucci, Algoritmi e intelligenza artificiale alla ricerca di una definizione: l'esegesi del Consiglio di Stato alla luce dell'AI Act, in Giustizia Insieme, 8 April 2022; N. Cappellazzo, Algoritmi, automazione e macchinismi di intelligenza artificiale: la classificazione proposta dal Consiglio di Stato, in federalismi.it, 23 March 2022; P. Clarizia, La nozione di algoritmo "tecnologico" secondo una recente decisione del Consiglio di Stato, in IRPA, 13 January 2022; G. Delle Cave, I desiderata "privatistici" della P.A.: sulla nozione di algoritmo e I.A. nelle forniture di dispositivi medici ad alto tasso di automazione, in italiAppalti, 15 January 2022.

2.2. The extension of the instrumental nature to AI systems: the judicial evolution in judgements no. 4297/2023 and no. 4929/2025 of the Council of State

Although administrative courts have not yet had the opportunity to rule on administrative acts adopted using artificial intelligence systems, one cannot fail to note two rulings that I consider important.

The first is the judgement of the Sixth Section of the Council of State no. 4297 published on 28 April 2023, which specified how «il ricorso a strumenti informatici nelle procedure amministrative costituisce una modalità agevolata di istruttoria, senza che il singolo strumento – per quanto qualificabile in termini di intelligenza artificiale – possa, da un lato, derogare alle regole normative ed ai criteri posti a presupposto della singola procedura e, dall'altro lato, essere sottratto alla trasparenza nonché alla imputabilità all'amministrazione procedente. Quest'ultima è chiamata a verificare la correttezza del funzionamento dello strumento istruttorio utilizzato e la relativa coerenza agli obiettivi ed alle regole dettate, in coerenza al principio di legalità, per l'esercizio del potere in esame. E nel caso di specie l'amministrazione ha correttamente verificato come l'applicazione fatta dallo strumento automatizzato sia stata coerente ai criteri predeterminati normativamente»[164]. The clause relating to the algorithmic tool «per quanto qualificabile in termini di intelligenza artificiale» should constitute, in my opinion, the manifestation of the will to extend the principles enunciated by judgement 8472/2019 also to artificial intelligence systems.

The second that I consider relevant is the recent judgement of the Sixth Section of the Council of State No. 4929 published on 6 June 2025, with which the Supreme Administrative Court seems to have extended the theory that characterises the "traditional" algorithm as an organisational tool and procedural instrument also to artificial intelligence systems. Indeed, it affirmed textually that «(…) la giurisprudenza di questo Consiglio (cfr. ad es. Consiglio di Stato sez. VI, 13 dicembre 2019, n. 8472) e la successiva evoluzione normativa (cfr. ad es. art. 30 d.lgs. 36 del 2023) hanno evidenziato come l'utilizzo di sistemi di intelligenza artificiale (dagli algoritmi al c.d. machine learning, compreso ogni meccanismo rientrante nella attuale nozione di AI, su cui cfr. da ultimo le "*guidelines on the definition of an artificial intelligence system established by Regulation EU 2024/1689*", ex artt. 3 e 96 dello stesso regolamento), da intendersi quale modulo procedimentale per lo svolgimento dell'attività autoritativa in modalità più efficienti, si accompagna ad una serie di principi ermeneutici ed applicativi tesi a garantire l'operatività del sistema

[164] Cons. Stato, sec. VI, judgement of 28 April 2023, no. 4297, § 4.

e la tutela dei diritti e degli interessi coinvolti»[165]. Although it improperly used the reference to its own precedent no. 8472/2019 (since in that case what came into play was a traditional algorithm, and not an AI system), I believe that the phrase «ogni meccanismo rientrante nella attuale nozione di IA», together with the reference to the guidelines of the EU Commission on the definition of «AI system» pursuant to the AI Act, is an unequivocal sign of the judicial intent to extend the so-called instrumental legal nature to the systems in question.

2.3. The statutory codification of the instrumental function of AI in art. 14 of Law 23 September 2025, no. 132

Moreover, Law No. 132 of 23 September 2025 marks a decisive statutory intervention in this field; specifically, Article 14 codifies the legal framework for the deployment of artificial intelligence within the Public Administration. This provision resolves any lingering ambiguity by formally recognising – in strict alignment with the jurisprudence of the Council of State and the overarching architecture of the EU AI Act – the inherently instrumental character of AI systems. By relegating these technologies to an ancillary role, the legislature has firmly anchored automated tools to the human-centric paradigm, establishing that algorithmic outputs are merely preparatory or supportive to the exercise of public powers. It, in fact, expressly establishes in paragraph 2 that «l'utilizzo dell'intelligenza artificiale avviene in funzione strumentale e di supporto all'attività provvedimentale, nel rispetto dell'autonomia e del potere decisionale della persona, che resta l'unica responsabile dei provvedimenti e dei procedimenti in cui sia stata utilizzata l'intelligenza artificiale»[166].

---

[165] Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929.

[166] For an analysis of the impact of Law 132/2025 on the use of AI in the Italian Public Administration, see G. Panucci, Legge 132/2025 sull'intelligenza artificiale: un punto di svolta per la PA italiana, in ilPersonale, 24 October 2025; A. Pellegrino, Dal procedimento digitale all'amministrazione algoritmica responsabile: la nuova disciplina dell'intelligenza artificiale nella pubblica amministrazione dopo la Legge n. 132/2025, in Contabilità Pubblica, 16 October 2025; M. Iaselli, L'intelligenza artificiale nella pubblica amministrazione: efficienza e garanzie secondo la legge italiana, in Le Autonomie, 7 October 2025.

3. Artificial intelligence and administrative discretion

3.1. Discretionary and non-discretionary activity: classic definitions

Discretion, which can refer to the power, the activity, or the administrative act, is probably the most characteristic (and at the same time debated) notion of administrative law, both substantive and procedural. Indeed, the understanding of the different modes of exercising public power is structured into the fundamental opposition between non-discretionary activity (*attività vincolata*) and discretionary activity (*attività discrezionale*), the latter divided into further categories.

The classic and most common definition identifies non-discretionary activity as a situation in which the administration has no margin of choice because only one determination is imposed by the law[167]. In a non-discretionary activity, the administration's action is entirely governed by the law, which precisely establishes both the factual prerequisites and the legal consequences, so that there is only one decision corresponding to the legitimate exercise of the power and no room for administrative discretion[168]. In such

---

[167] R. Villata, L'atto amministrativo, in L. Mazzarolli, G. Pericu, A. Romano, F.A. Roveresi Monaco, G. Morbidelli (eds.), Diritto amministrativo, Monduzzi, Bologna, 2005, p. 771; R. Villata, M. Ramajoli, Il provvedimento amministrativo, Giappichelli, Torino, 2017, p. 73 ff.; B.G. Mattarella, Lezioni di diritto amministrativo, Giappichelli, Torino, 2018, p. 174.

[168] R. Villata, M. Ramajoli, ult. loc. cit. In the same sense, see F. Fichera, Funzioni amministrative e altre funzioni pubbliche, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 33. Italian legal scholarship has been divided on the ontological qualification of non-discretionary activity, debating whether it constitutes a true exercise of administrative power or merely the fulfillment of a duty. A prominent part of the legal scholarship (including Capaccioli, Orsi Battaglini, Ferrara, Ledda) argued that, in the presence of an absolute normative constraint, the administration would not exercise public authority in the strict sense. According to this approach, if the legal effect derives directly from the rule once the factual situation is met, the activity of the administration would not be constitutive but merely declaratory, constituting the fulfillment of an obligation (L. Ferrara, Diritti soggettivi ad accertamento amministrativo, CEDAM, Padova, 1996; A. Orsi Battaglini, Attività vincolata e situazioni soggettive, in Aa.Vv., Studi in ricordo di E. Capaccioli, Giuffrè, Milano, 1988; F. Ledda, Potere, tecnica e sindacato giudiziario sull'amministrazione pubblica, in Aa.Vv., Studi in memoria di V. Bachelet, vol. II, Giuffrè, Milano, 1987, p. 245; E. Capaccioli, Manuale di diritto amministrativo, CEDAM, Padova, 1980). The prevailing orientation (Scoca, Mattarella, Casetta, Trimarchi, Falcon, Corso) believes instead that even non-discretionary activity is an expression of administrative power, arguing that, although there is no choice on the content, the production of the legal effect is not immediate but mediated by a decision of

hypotheses, as observed among scholars, the administrative authority plays a role akin to that of a judge, focused mainly on ascertainment[169].

In sharp contrast, when the legal rule does not fully predetermine the administration's behaviour, a decision-making space remains, defining administrative discretion.

"Pure" administrative discretion constitutes the archetype of administering. According to Massimo Severo Giannini's prominent definition – now also the prevailing view in Italian scholarship – administrative discretion consists in the «ponderazione comparativa di più interessi secondari in ordine ad un interesse primario»[170], where primary interest is understood as the public interest attributed to the mandate of the administration, but which exists only insofar as there are other interests to which it must be ordered:

---

the administrative authority (F.G. Scoca, L'interesse legittimo. Storia e teoria, Giappichelli, Torino, 2017; B.G. Mattarella, L'imperatività del provvedimento amministrativo. Saggio critico, CEDAM, Padova, 2000, p. 436; F.G. Scoca, La teoria del provvedimento dalla sua formulazione alla legge sul procedimento, in Diritto amministrativo, 1995, p. 34; F.G. Scoca, Contributo sulla figura dell'interesse legittimo, Giuffrè, Milano, 1990). Even the non-discretionary act is necessary for the determination of effects and, therefore, constitutes the exercise of an administrative function serving the public interest, since the fact-finding assumes the substantial value of a concrete validation of the public interest (M. Trimarchi, La validità del provvedimento amministrativo. Profili di teoria generale, ETS, Pisa, 2013, p. 155 ff.). Therefore, the legal constraint serves not to delimit the power and its existence to the direct advantage of the private citizen, but to define its valid content: the power always exists, as demonstrated by the fact that the administration could issue an unlawful act, which would still be productive of effects (E. Casetta, F. Fracchia (eds.), Manuale di diritto amministrativo, Giuffrè, Milano, 2024, p. 334). As summarized by Falcon, «i poteri vincolati sono pur sempre poteri giuridici» (G. Falcon, Lezioni di diritto amministrativo, CEDAM, Padova, 2024, p. 42) and, to use Corso's words, «il carattere vincolato dell'atto non è incompatibile con la sua costitutività» (G. Corso, L'efficacia del provvedimento amministrativo, Giuffrè, Milano, 1969, p. 65).

[169] S. Civitarese Matteucci, La forma presa sul serio. Formalismo pratico, azione amministrativa ed illegalità utile, Giappichelli, Torino, 2024, p. 162.

[170] M.S. Giannini, Il potere discrezionale della pubblica amministrazione, Giuffrè, Milano, 1939, p. 77, now in M.S. Giannini, Diritto amministrativo, vol. II, Giuffrè, Milano, 1993, p. 49. In connection with the theory of balancing of interests, discretion is defined as the discretionary latitude to select from a variety of solutions, provided they are all legally compatible with the statutory requirements. Indeed, Virga defined discretion as the «facoltà di scelta tra più comportamenti giuridicamente leciti per il soddisfacimento dell'interesse pubblico stabilito dalla legge, o, comunque, nel potere di individuare, sulla base di una valutazione di opportunità, il modo migliore per perseguire un fine rispondente alla causa del potere esercitato» (P. Virga, Il provvedimento amministrativo, Giuffrè, Milano, 1972, p. 19). Similarly, Casetta defined discretion as the «spazio di scelta che residua allorché la normativa di azione non predetermini in modo completo tutti i comportamenti dell'amministrazione» (E. Casetta, F. Fracchia (eds.), Manuale, cit., p. 334).

these other interests have a subordinate character and, therefore, have been called secondary interests[171]. Pure discretion is defined by the presence of both the moment of judgement (acquisition and examination of facts) and the moment of choice (synthesis of the interests at stake and determination of the most appropriate solution)[172]. Such a choice can regard the *an* (whether to issue the act), the *quando*, the *quid* (the content) and the *quomodo* (the modalities)[173].

The decision-making process does not always limit itself to the comparison of interests; it often requires the application of specialist knowledge, leading to the distinct category of the so-called technical discretion, which arises when the administration is called upon to apply a technical rule to which a legal rule confers relevance, direct or indirect[174]. Such discretion consists of evaluations based on rules and concepts proper to specialist technical sciences that transcend the law[175]. According to traditional scholarship, however, such expression would be improper, since it would involve mere technical assessments, and not true discretion, as they do not imply a balancing of interests: in particular, according to such approach, technical discretion, unlike the pure one, contains solely the cognitive or

---

[171] M.S. Giannini, Il potere discrezionale della pubblica amministrazione, cit., p. 77, ult. loc. cit. See also the observations of the same Author whereby «Gli interessi secondari non giocano gli stessi ruoli. Taluni di essi hanno un ruolo di attenuazione dell'interesse primario; altri di rafforzamento; taluni sono così forti da impedire la realizzazione dell'interesse primario; altri portano a soluzioni di compromesso; accade pure che i medesimi talora operino come attenuativi, talaltra come rafforzativi. Più aumenta l'ampiezza delle scelte, più cresce il numero e la qualità degli interessi coinvolti» (M.S. Giannini, Diritto amministrativo, op. cit., p. 48).

[172] F. Fichera, op. cit., p. 34. The most attentive scholars further distinguish pure discretion from the activity of mere ascertainment or interpretation. While interpretation is an intellective activity aimed at clarifying the meaning of a rule (even if vague), discretion is an «attività creativa di definizione della fattispecie precettiva concreta che ordina e definisce un assetto di interessi nella delimitazione di categorie o nella forma compiuta di concetti imprecisi lasciati all'interprete» (A. Police, La legge, il potere amministrativo e le situazioni giuridiche soggettive, in G. della Cananea, M. Dugato, B. Marchetti, A. Police, M. Ramajoli (eds.), Manuale di diritto amministrativo, Giappichelli, Torino, 2022, p. 140 ff.). To put it in other words, «che la discrezionalità comporti un'attività interpretativa della norma è vero, non è vero il reciproco, che ogni attività interpretativa comporta un'attività discrezionale» (R. Villata, M. Ramajoli, op. cit., pp. 62-63).

[173] B.G. Mattarella, op. cit., p. 195.

[174] R. Labriola, Discrezionalità tecnica e poteri del giudice amministrativo, Giuffrè, Milano, 2020, p. 9.

[175] C. Guacci, La valutazione di compatibilità paesaggistica, Giappichelli, Torino, 2023, p. 121.

intellective aspect (the judgement), while it is devoid of the volitional aspect of the synthesis of interests[176]. Furthermore, a central element is the concept of "debatability" (*opinabilità*), whereby one speaks properly of technical discretion only when the application of the technical rule does not yield a univocal and certain result, but instead opens up a range of solutions that are all technically plausible or reliable[177]. In this sense, if the application of exact sciences (e.g. mathematics, physics) leads to a certain and univocal result, we are faced with a mere "technical ascertainment"; if, instead, the application concerns inexact sciences (e.g. economics, art history, forensic medicine), characterized by uncertainty and subjectivity, the "technical evaluation" (technical discretion) arises, where the administration must choose the solution deemed most reliable among the possible ones[178].

The distinction between pure and technical discretion, although theoretically clear, fades in complex decisions, giving rise to the category of "mixed" discretion, conceptually understood as the synthesis of the two described discretionary moments, since, in these circumstances, the Public Administration uses technical discretion for the analysis of complex facts and, subsequently, exercises pure discretion for the choice of the most appropriate act to care for the public interest[179].

---

[176] M.S. Giannini, Diritto amministrativo, Giuffrè, Milano, 1970, p. 489: «malgrado il carattere fortemente valutativo che possiedono siffatti giudizi, essi rimangono nell'ambito dell'apprezzamento tecnico, e non debordano nella potestà discrezionale: abbiamo sempre dei giudizi tecnici, giuridicamente distinti dai giudizi di opportunità e dal momento decisionale».

[177] R. Labriola, op. loc. cit.

[178] J. Pintauro, I pareri e le valutazioni tecniche, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 584. With respect to the distinction between technical ascertainment and technical evaluation, the distinction between "simple" and "complex" facts also becomes relevant. The former are those that are subject to a binary determination of existence or non-existence and, therefore, are subject to a mere technical ascertainment that leaves no room for evaluations (e.g., citizenship, age, poverty, the expiration of a deadline, the existence of a criminal sentence, etc.). Conversely, "complex" facts require the formulation of an estimative judgement (and therefore of a technical evaluation) since it is not possible to resort to an objective criterion centred on the binary distinction between existence and non-existence (e.g., the urgency of taking administrative action, the unworthiness of a person for a given office, the danger of a construction for public safety, the unhealthiness of a building for public hygiene, the suitability of a candidate in a public recruitment process, etc.) (E. Casetta, F. Fracchia (eds.), op. cit., p. 335).

[179] The concept of mixed discretion is described by Giannini as «l'ipotesi in cui l'Amministrazione è titolare sia della discrezionalità tecnica che di quella amministrativa. Due poteri discrezionali che rimangono distinti seppure non si possa negare che tra i due vi sia correlazione dal momento che il non corretto esercizio della discrezionalità tecnica travolge il

3.2. The case law evolution: from the restrictive approach to the opening for the use of automation in discretionary activities

The interest in delegating complex public decision-making processes to artificial intelligence lies in its promise of neutrality, rationality, and objectivity, potentially replacing human discretion with a judgement deemed less influenced by prejudice[180]. Nevertheless, the automation of decision-making processes that weigh public and private interests challenges the very nature of administrative discretion. The question of whether automation can also involve the direct exercise of discretionary powers has been at the centre of an intense debate, which has seen the administrative judge move from a restrictive approach to a more conditional opening.

In a first phase, indeed, the first-instance administrative case law, in particular the T.A.R. Lazio, had adopted an approach of closure, believing that the use of algorithms should be confined exclusively to non-discretionary administrative activity[181], with the consequence that recourse to the

---

corretto esercizio di quella amministrativa» (M.S. Giannini, Istituzioni di diritto amministrativo, Giuffrè, Milano, 1981, p. 956).

[180] P. Miele, Intelligenza artificiale e pubblica amministrazione, in Rivista della Corte dei Conti, Quaderni, 2, 2024, p. 146.

[181] See, for example, T.A.R. Lazio, sec. III-bis, judgement of 22 March 2017, no. 3769, where the court held that the digital administrative act was fully legitimate «(…) quanto all'attività vincolata dell'amministrazione». Indeed, this compatibility derives from the very nature of the software, which «(…) traduce gli elementi di fatto e i dati giuridici in linguaggio matematico dando vita a un ragionamento logico formalizzato che porta a una conclusione che, sulla base dei dati iniziali, è immutabile». In this context, the computer's binary and deterministic logic is fully consistent with the absence of any margin of choice that characterises non-discretionary activity. By contrast, the relationship between algorithms and administrative discretion was considered problematic by the T.A.R. Lazio in Rome, which observed that «(…) la prevalente dottrina ritiene che l'esercizio del potere discrezionale sia, con qualche riserva, incompatibile con l'elaborazione elettronica dell'atto amministrativo». Discretion entails a balancing of interests and a choice between different possible options for pursuing the public purpose, a decision-making process that is difficult to reconcile with the rigidity of a predetermined algorithmic calculation. However, in the specific case of teacher transfers, the court held that the activity entrusted to the algorithm could be described as «(…) frutto di attività vincolata dell'amministrazione (…)». Despite its complexity, the procedure was based on «(…) innumerevoli elementi (…) di tipo oggettivo e di immediato riscontro (…)», thereby excluding discretionary assessments in the strict sense. The judgment further clarifies that the only genuine discretion exercised by the administration lies in the preliminary organisational phase, namely in the «(…) decisione di fare ricorso all'elaborazione

automated administrative decision was admissible only if, in the phase after the programming of the IT tool, a space of pure discretion was lacking. Automation, therefore, was seen as possible only for non-discretionary administrative powers, in which all elements of administrative action are analytically predetermined. In a subsequent ruling, the T.A.R. Lazio had expressed concern that an algorithm, even if preset to take into account qualifications and scores, could never ensure the safeguarding of the procedural guarantees established by the Italian Administrative Procedure Act (Law No. 241 of 7 August 1990). This restrictive position was based on the idea that the automatisms and opacity of algorithms contrasted with the principles of administrative proceedings, such as the duty to give reasons, participation, and procedural transparency, and that, in such cases, a true administrative activity was missing[182]. As observed by part of the legal scholarship, the

---

elettronica ai fini della definizione del contenuto dell'atto (…)», which was regarded as a methodological choice offering an alternative to the "tradizionale" management of the procedure. Once an algorithm has been adopted for non-discretionary activity, the software does not merely implement a decision already made; instead, it becomes the instrument through which the administration «(…) attribuisce specifico contenuto ed effettiva concretezza ad una decisione che l'amministrazione ha soltanto delineato nei suoi presupposti (…)». Ultimately, it is the software itself that performs the procedural steps that would ordinarily be carried out by a human public official, making the source code essential to understanding the logical and legal reasoning followed.

[182] See, in particular, T.A.R. Lazio, Roma, sec. III-bis, judgement of 10 September 2018, no. 9224, in which the court observed that «alcuna complicatezza o ampiezza, in termini di numero di soggetti coinvolti ed ambiti territoriali interessati, di una procedura amministrativa, può legittimare la sua devoluzione ad un meccanismo informatico o matematico del tutto impersonale e orfano di capacità valutazionali delle singole fattispecie concrete, tipiche invece della tradizionale e garantistica istruttoria procedimentale che deve informare l'attività amministrativa, specie ove sfociante in atti provvedimentali incisivi di posizioni giuridiche soggettive di soggetti privati e di conseguenziali ovvie ricadute anche sugli apparati e gli assetti della pubblica amministrazione. Un algoritmo, quantunque, preimpostato in guisa da tener conto di posizioni personali, di titoli e punteggi, giammai può assicurare la salvaguardia delle guarentigie procedimentali che gli artt. 2, 6, 7, 8, 9, 10 della legge 7.8.1990 n. 241 hanno apprestato, tra l'altro in recepimento di un inveterato percorso giurisprudenziale e dottrinario» (§ 3.1.). In truth, «gli istituti di partecipazione, di trasparenza e di accesso, in sintesi, di relazione del privato con i pubblici poteri non possono essere legittimamente mortificate e compresse soppiantando l'attività umana con quella impersonale, che poi non è attività, ossia prodotto delle azioni dell'uomo, che può essere svolta in applicazione di regole o procedure informatiche o matematiche. Ad essere inoltre vulnerato non è solo il canone di trasparenza e di partecipazione procedimentale, ma anche l'obbligo di motivazione delle decisioni amministrative, con il risultato di una frustrazione anche delle correlate garanzie processuali che declinano sul versante del diritto di azione e difesa in giudizio di cui all'art.

exclusion of AI from discretionary proceedings was founded on the consideration that discretionary activity implies the sequence norm-fact-power-effect, which presupposes an appreciation and a comparative evaluation of multiple interests that cannot be entrusted to the machine[183], as it is devoid of the capacity to weigh interests based on parameters of reasonableness, logic, and congruity[184]. Furthermore, automation would encounter the obstacle of indeterminate or vague legal concepts, the normalisation of whose language is a precondition for the reduction of the normative statement to an algorithmic chain of commands[185].

---

24 Cost., diritto che risulta compromesso tutte le volte in cui l'assenza della motivazione non permette inizialmente all'interessato e successivamente, su impulso di questi, al Giudice, di percepire l'iter logico – giuridico seguito dall'amministrazione per giungere ad un determinato approdo provvedimentale» (§ 3.2.). In the same sense, see the judgements of the same court, of the same date, from no. 9225 to no. 9230 of 2018 and, more recently, the judgement of the Council of State, sec. Vi, 4 February 2020 no. 881.

[183] M.C. Cavallaro, G. Smorto, Decisione pubblica e responsabilità dell'amministrazione nella società dell'algoritmo, in federalismi.it, 16, 2019, pp. 11-12. In a not dissimilar sense, according to Martín Delgado, administrative automation can be developed only with respect to that which supposes the exercise of non-discretionary power or, at least, of low discretion, in which the parameterisation of the possibilities of implementation of the competent body is possible (I. Martín Delgado, La riforma dell'amministrazione digitale: un'opportunità per ripensare la pubblica amministrazione, in S. Civitarese Matteucci, L. Torchia (eds.), La tecnificazione, vol. IV, Firenze University Press, Florence, 2016, p. 150).

[184] On this point, see A. Contaldo, Cenni sulla funzionalità dell'atto amministrativo con l'ausilio dei Sistemi Esperti, in Rivista italiana di informatica e diritto, 1, 2025, pp. 665-667, who observes that algorithmic automation (based on "if-then" logic) clashes with the very nature of discretionary activity, as weighing and choice among lawful alternatives. The Author highlights the risk that, if the exercise of discretion were reduced to an algorithm, the weighing of interests based on parameters of reasonableness, logic, and congruity within the single proceeding would be *de facto* prevented. Furthermore, Contaldo does not fail to underline the widespread skepticism among jurists stemming from the fact that the discretionary act is founded on «ragionevolezza umana» and follows a «logica 'opaca' non riconducibile a percorsi predeterminati o predeterminabili», which are instead at the basis of the functioning of algorithms.

[185] P. Otranto, Decisione amministrativa e digitalizzazione della p.a., cit., p. 17. On this line lies the thought of Cluzel-Métayer, according to whom «si, en effett, la décision administrative individuelle est prise en situation de compétence liée, l'algorithme ne fait que prendre la décision qui, en tout état de cause, s'imposait à l'administration. Mais dès lors qu'elle dispose d'une marge d'appréciation, l'automatisation algorithmique soulève certaines difficultés. Le fonctionnement de l'algorithme, paramétré à l'avance en function de règles générales prédéterminées qui s'appliqueront aux situation particulières dans la stricte mesure où elles auront, elles aussi, été prédéfinies est, en effet, "contraires avec l'idée même de pouvoir discrétionnaire pensée pour permettre, dans des situations complexes ou des domaines

An area of greater openness, even in the early stages of the debate, was that of technical discretion, as a type of activity which, while implying complex evaluations, is based on technical and scientific knowledge that can, in theory, be translated into conditional IT rules[186]. Indeed, technical discretion, insofar as it is correlated to the ascertainment of complex facts through the reference to the so-called hard sciences[187], offers a promising terrain for AI, since the algorithm, in this context, is capable of filtering and managing complex technical-scientific knowledge, enhancing the cognitive autonomy of the public administration[188]. Nevertheless, even in the presence of technical discretion, the remark was not lacking that automation would

---

sensibles, l'adoption d'une décision adaptée à une situation de fait averée – et non présagée – qui est par essence singulière et donc imprévisible dans sa complexité"» (citing J.B. Duclercq, L'automatisation algorithmique des decisions administratives individuelles, in Revue du Droit Public, 2, 2019, p. 311). Consequently – concludes the Author – «incapable de saisir la complexite du réel, l'algorithme "classique" ne peut alors être conçu que comme une aide à la décision pour l'autorité administrative qui doit en conserver la maîtrise» (L. Cluzel-Métayer, Le contrôle juridictionnel embryonnaire des processus décisionnels algorithmiques, in Collectif L'action publique et le numérique, 47, 2021, p. 75). Also part of the Anglo-Saxon legal scholarship articulates the theory whereby administrative automation should be admitted based on the parameters of complexity and uncertainty: see J. Bullock, Artificial Intelligence, Discretion, and Bureaucracy, in American Review of Public Administration, 2019, p. 6, according to whom «tasks that are high in complexity (more deviations from the norm) and high in uncertainty (less analyzable) should most likely remain as a discretionary task to be completed by humans»; see also J. Bullock, M.M. Young, Y.F. Wang, Artificial intelligence, bureaucratic form, and discretion in public service, in Information Polity, 25(4), 2020, pp. 4-5, according to whom «For tasks with low levels of required discretion, automation by AI may be possible removing much of the need for human discretion. For tasks with medium levels of required discretion, AI is most likely to be used as a tool of prediction, finding patterns in multidimensional data, and generating new insights into variables that affect task execution. Finally, neither automation nor prediction may be an appropriate use of AI for tasks that require a high level of discretion. Instead, AI may be used to generate better data from unstructured inputs such as images, sensors, and text that can aid human decision makers in executing a task more effectively».

[186] G. Carullo, Decisione amministrativa e intelligenza artificiale, in Diritto dell'informazione e dell'informatica, 3, 2021, pp. 435-436.

[187] G. Marchianò, La legalità algoritmica nella giurisprudenza amministrativa, in Il diritto dell'economia, 3, 2020, pp. 255-256.

[188] A. Venturi, Il procedimento algoritmico nelle gare per l'affidamento dei contratti pubblici: problemi e proposte, in AmbienteDiritto.it, 4, 2020, p. 21. Furthermore, the Author argues that in «procedimenti soggetti a discrezionalità tecnica il procedimento algoritmico offre l'indubbio vantaggio di favorire l'autonomia conoscitiva della pubblica amministrazione anche rispetto agli aspetti tecnico-scientifici» (p. 24).

remain impracticable if the number of conditions to be evaluated is not quantifiable or is excessively high[189].

Despite the initial perplexities, a theoretical orientation supported from the outset the opportunity to extend the use of AI tools also to discretionary proceedings, in order to achieve objectives of transparency, reduction of disparities in treatment, and increase in efficiency[190].

The perspective of openness to the use of algorithms in discretionary administrative activity was subsequently accepted by the case law of the Council of State, in particular, starting from judgement no. 8472/2019, which affirmed the full operability of AI not only in sectors with non-discretionary activity, but also in those characterized by discretion, be it administrative or technical, clarifying that there are no «ragioni di principio, ovvero concrete, per limitare l'utilizzo all'attività vincolata piuttosto che discrezionale, entrambe espressione di attività autoritativa svolta nel perseguimento del pubblico interesse». Although the use is «di più semplice utilizzo» for non-discretionary activity, the benefits (such as efficiency) can be extended: «(…) se il ricorso agli strumenti informatici può apparire di più semplice utilizzo in

---

[189] G. Carullo, op. cit., p. 436.

[190] I. Forgione, Il caso dell'accesso al software MIUR per l'assegnazione dei docenti, cit., p. 660, who, in contrast with the prevailing approach that limits the use of electronic tools to non-discretionary proceedings only, supports the theory admitting the use of ICT technologies also within the scope of discretionary activity, as it could bring benefits linked to «trasparenza informatizzata, alla riduzione delle disparità di trattamento, all'incremento della legalità ed efficienza dell'azione amministrativa». In the same sense, see A. Pajno, M. Bassini, G. De Gregorio, M. Macchia, F.P. Patti, O. Pollicino, S. Quattrocolo, D. Simeoli, P. Sirena, AI: profili giuridici. Intelligenza artificiale: criticità emergenti e sfide per il giurista, in Rivista di BioDiritto, 3, 2019, p. 220, who already hoped that «(…) i processi automatizzati, già diffusi in misura apprezzabile nell'ambito di atti amministrativi vincolati o a bassa discrezionalità amministrativa, po[tessero] conoscere un'estensione della loro applicazione anche nell'ambito della formazione di decisioni amministrative contraddistinte da un più elevato livello di discrezionalità». More critical was the opinion of Picozza, who had argued that pure discretion, both in the choice of ends and means, resolves itself into a «volontà politica» that, as an exercise of power, is not (at least currently) automatable, also because humans will hardly cede such function to a machine. Picozza believes instead that AI can play a fundamental role «consulenziale e propositivo» recalling the distinction, within administrative activity, between the cognitive and volitional nature. While the former (the fact-finding phase, big data analysis, mapping, as in the case of urban planning) is «pane quotidiano» for AI and represents a positive contribution, the latter (the decision) implies a responsibility that must remain human. Therefore, AI does not replace the public decision-maker, but acts as an advanced support tool for the collection and processing of data on which the political or administrative choice is based. For an in-depth analysis in this regard, see E. Picozza, Politica, diritto amministrativo and Artificial Intelligence, in Giurisprudenza Italiana, 7, 2019, pp. 1761-1771 (spec. 1767-1768).

relazione alla c.d. attività vincolata, nulla vieta che i medesimi fini predetti, perseguiti con il ricorso all'algoritmo informatico, possano perseguirsi anche in relazione ad attività connotata da ambiti di discrezionalità»[191].

3.3. The placement of the discretionary choice: "upstream" self-binding and "downstream" decision

This last argument of the Council of State, however, has led some scholars to elaborate theories to reconcile automation with discretionary power. Some scholars, for example, have theorised that discretion, in automated procedures, is exercised and exhausted "upstream", i.e., at the moment of the elaboration of the digital tool, giving rise to a sort of «autovincolo»[192] or self-restraint, in the sense that the Administration would renounce a case-by-case assessment, preferring to define in advance parameters and criteria which, once incorporated into software, lead to the issuance of

---

[191] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 11. The Supreme Administrative Court argues this conclusion starting from the assumption that «(…) anche la pubblica amministrazione debba poter sfruttare le rilevanti potenzialità della c.d. rivoluzione digitale. In tale contesto, il ricorso ad algoritmi informatici per l'assunzione di decisioni che riguardano la sfera pubblica e privata si fonda sui paventati guadagni in termini di efficienza e neutralità. In molti campi gli algoritmi promettono di diventare lo strumento attraverso il quale correggere le storture e le imperfezioni che caratterizzano tipicamente i processi cognitivi e le scelte compiute dagli esseri umani, messi in luce soprattutto negli ultimi anni da un'importante letteratura di economia comportamentale e psicologia cognitiva. In tale contesto, le decisioni prese dall'algoritmo assumono così un'aura di neutralità, frutto di asettici calcoli razionali basati su dati» (§ 7.1.). Furthermore, «non può essere messo in discussione che un più elevato livello di digitalizzazione dell'amministrazione pubblica sia fondamentale per migliorare la qualità dei servizi resi ai cittadini e agli utenti» (§ 8.1.). In truth, «la piena ammissibilità di tali strumenti risponde ai canoni di efficienza ed economicità dell'azione amministrativa (art. 1 l. 241/90), i quali, secondo il principio costituzionale di buon andamento dell'azione amministrativa (art. 97 Cost.), impongono all'amministrazione il conseguimento dei propri fini con il minor dispendio di mezzi e risorse e attraverso lo snellimento e l'accelerazione dell'iter procedimentale» (§ 9.1.). In other words, «l'utilizzo di una procedura informatica che conduca direttamente alla decisione finale non deve essere stigmatizzata, ma anzi, in linea di massima, incoraggiata: essa comporta infatti numerosi vantaggi quali, ad esempio, la notevole riduzione della tempistica procedimentale per operazioni meramente ripetitive e prive di discrezionalità, l'esclusione di interferenze dovute e negligenza (o peggio di dolo) del funzionario (essere umano) e la conseguente maggior garanzia di imparzialità della decisione automatizzata» (§ 9.2.). Adducing the element of novelty, the Council of State concludes by asserting that «Piuttosto, se nel caso dell'attività vincolata ben più rilevante, sia in termini quantitativi che qualitativi, potrà essere il ricorso a strumenti di automazione della raccolta e valutazione dei dati, anche l'esercizio di attività discrezionale, in specie tecnica, può in astratto beneficiare delle efficienze e, più in generale, dei vantaggi offerti dagli strumenti stessi» (§ 11).

[192] A.G. Orofino, L'attuazione del principio di trasparenza nello svolgimento dell'amministrazione elettronica, in Judicium, 19 October 2020, pp. 22-23.

automated administrative acts[193]. In the opposite sense, another part of the scholarship considered it unlikely that all discretion can be exercised at the preliminary stage of designing the IT tool, since automation would risk trespassing into areas not permitted from the point of view of guarantees[194]. In addition to this criticism, some authors observe that the use of open-structure algorithms, typical of advanced automation with AI, could not be interpreted as an *autovincolo*, since the fluidity and indeterminacy of the algorithmic sequence contrast with the binding force that must accompany manifestations of authority[195]. Finally, the concern was not lacking that the shifting of the discretionary choice to the moment of programming would entail a change in the very nature of the administrative function and the risk that the administration abandons the "protagonist" role in the procedural phase to assume that of a "director" in the phase of predetermination of the rules[196].

Besides favouring the use of AI also in discretionary administrative proceedings, I believe that the discretionary choice made "upstream" as a function of an automated procedure must be correctly framed – as part of the legal scholarship has done – in the category of "mixed" discretion, because, if on the one hand it maintains the characteristics of administrative discretion (acquisition and balancing of interests), on the other it acquires aspects of technical discretion in the translation of the balancing into the algorithmic formula and in its application[197]. Consequently, the administration holds both powers, which, although logically distinct, merge in the algorithmic determination[198]. To this approach I would add that, from my point of view, the phase of exercising "pure" administrative discretion, in algorithmic

---

[193] D. Marongiu, L'automazione delle decisioni amministrative: teorie, esperienze e sentenze, in Aa.Vv., Scritti per Franco Gaetano Scoca, IV, Editoriale Scientifica, Napoli, 2020, p. 3378.

[194] A. Di Martino, Tecnica e potere nell'amministrazione per algoritmi, Editoriale Scientifica, Napoli, 2023, p. 226, who invites «a stigmatizzare il ricorso alla tecnica, se, con la vagheggiata accelerazione procedimentale che lo stesso preannuncia, si finisce col sacrificare i canoni che devono guidare l'attività amministrativa e che assicurano in sintesi l'adozione di una decisione ragionevole».

[195] G. Gallone, Riserva di umanità, cit., p. 163.

[196] A. Di Martino, Intelligenza artificiale, garanzie dei privati e decisioni amministrative: l'apporto umano è ancora necessario? Riflessioni a margine di Cons. Stato 8 aprile 2019, n. 2270, in Rivista giuridica europea, 2, 2019, p. 67.

[197] C. Polidori, Procedimento amministrativo e algoritmi, p. 27, in giustizia-amministrativa.it, 2025, p. 27.

[198] G. Botto, Decisione algoritmica, discrezionalità e sindacato del giudice amministrativo, in federalismi.it, 17, 2024, p. 15.

proceedings, consists precisely in the decision of the public officer to accept the results of the fact-finding phase generated as output by the artificial intelligence system or, conversely, to refuse such output by returning to carry out the administrative proceeding with "traditional" methods.

We can therefore affirm with a certain degree of conviction that the choice to automate discretionary decisions, although it is an arduous undertaking full of obstacles, is today possible. Such choice, however, is not unconditional, but is subject to compliance with a triptych of fundamental principles founding the so-called "algorithmic legality", first enunciated by the Council of State and today recognised in various normative provisions: 1) the principle of knowability (*conoscibilità*) and comprehensibility (*comprensibilità*) of the algorithm; 2) the principle of non-exclusivity of the algorithmic decision (*principio di non esclusività della decisione algoritmica*, also described as the requirement for human intervention, *riserva di umanità*); 3) the principle of algorithmic non-discrimination (*principio di non discriminazione algoritmica*)[199].

4. The principle of administrative transparency and its algorithmic application

The principle of transparency is a pillar and necessary value in the contemporary administrative legal system, assuming the contours of a true «modo di essere e di agire dell'amministrazione»[200]. Conceptually,

---

[199] Initially, with judgement no. 2270/2019, the Council of State had recognised the applicability to algorithmic decisions of the principle of knowability and the principle of full reviewability by the administrative judge. Subsequently, the case law of the Council of State, starting from judgement no. 8472/2019, created the "triptych" of principles of algorithmic legality, adding the so-called principle of non-exclusivity of the algorithmic decision (or the requirement for human intervention) and of algorithmic non-discrimination.

[200] G. Arena, Trasparenza amministrativa (voce), in S. Cassese (directed by), Dizionario di diritto pubblico, Giuffrè, Milano, 2006, p. 5945. On the principle of transparency and its evolution in administrative law, see the fundamental contributions of A.G. Orofino, Profili giuridici della trasparenza amministrativa, Cacucci, Bari, 2013; F. Merloni (ed.), La trasparenza amministrativa, Giuffrè, Milano, 2008; M.P. Chiti, G. Palma (eds.), I principi generali dell'azione amministrativa, Napoli, 2006, with contributions by M.R. Spasiano, Trasparenza e qualità dell'azione amministrativa, D.U. Galetta, Trasparenza e governance amministrativa nel diritto europeo, F. Pinto, Trasparenza e responsabilità politica, V. Veneziano, La trasparenza dell'azione amministrativa tra tutela del diritto di accesso e tutela del diritto alla riservatezza: alla ricerca di un equilibrio; F. Trimarchi Banfi, In tema di trasparenza amministrativa e di diritto alla riservatezza, in Aa.Vv., Studi in onore di E. Casetta, vol. I, Jovene, Napoli, 2001, p. 343 ff.; E. Cannada Bartoli, A proposito di tutela

transparency is defined as the comprehensibility and knowability of administrative activity from the outside, allowing the choices made in the care of the general interest to be made intelligible[201]. Its assertion marked a fundamental reversal of perspective compared to the previous administrative system, traditionally centred on the principle of secrecy[202], to the point of evoking the metaphor of an Administration conceived as a «casa di vetro»[203]. From a regulatory point of view, the rules on transparency help define the essential levels of provision relating to civil and social rights that public administrations must guarantee, pursuant to Article 117, paragraph 2, letter m) of the Constitution[204]. Although the principle of transparency is not explicitly enshrined in the Constitution[205], its constitutional relevance is universally recognised and can be traced to constitutional principles, in particular the democratic, equality, impartiality, and efficiency principles[206]. Indeed, it performs an essential function of protecting and guaranteeing the interests, both individual and meta-individual, involved in the actions of the public administration[207]. As expressly established by Legislative Decree 14

---

della riservatezza e trasparenza amministrativa, in Diritto processuale amministrativo, 1999, p. 725 ff.; A. Sandulli, Il procedimento amministrativo e la trasparenza, in S. Cassese, C. Franchini (eds.), L'amministrazione pubblica italiana, Il Mulino, Bologna, 1994, p. 101 ff.; R. Chieppa, La trasparenza come regola della pubblica amministrazione, in Diritto dell'economia, 1994, p. 613 ff.; R. Marrama, La pubblica amministrazione tra trasparenza e riservatezza nell'organizzazione e nel procedimento amministrativo, in Diritta processuale amministrativo, 1989, p. 416 ff.; R. Villata, La trasparenza dell'azione amministrativa, in Diritto processuale amministrativo, 1987, p. 528 ff.

[201] A. Corrado, Il principio di trasparenza e i suoi strumenti di attuazione, in M.A. Sandulli (ed.), Princìpi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 188.

[202] On this point, see C. Guacci, Il diritto di accesso, in E. Romano, C. Guacci (eds.), Argomenti di diritto amministrativo, Giappichelli, Torino, 2023, p. 125 ff.

[203] The iconic comparison of the Public Administration to a «casa di vetro» was made by Filippo Turati in a parliamentary speech in June 1908: see Atti Parlamentari della Camera dei Deputati del Regno d'Italia, XXII legislatura, 17 giugno 1908, in https://storia.camera.it/regno/lavori/leg22/sed529.pdf.

[204] As enshrined by art. 1, paragraph 3, of Legislative Decree 14 March 2013, no. 33, governing the right of civic access and obligations of publicity, transparency, and dissemination of information by public administration.

[205] A. Corrado, Il principio di trasparenza, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. I. Principi, Giuffrè, Milano, 2025, p. 288.

[206] Art. 1, paragraph 2, Legislative Decree 14 March 2013, no. 33. On transparency as a corollary of the principle of impartiality, see A. Basilico, Il principio di imparzialità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. I. Principi, cit., p. 83 ff.

[207] M.R. Spasiano, Il principio di buon andamento, in M.A. Sandulli (ed.), Princìpi e regole, cit., p. 128.

March 2013 no. 33, transparency pursues a multiplicity of purposes that go beyond mere knowability. Firstly, it aims to «tutelare i diritti dei cittadini [e] promuovere la partecipazione degli interessati all'attività amministrativa». Secondly, it is fundamental to «favorire forme diffuse di controllo sul perseguimento delle funzioni istituzionali e sull'utilizzo delle risorse pubbliche»[208], which certainly represents one of the strongest safeguards in the fight against corruption and illegality. Furthermore, transparency is a tool for more effective, efficient, and economically virtuous administrative action, enhancing accountability to citizens[209].

To concretise the principle of transparency, the Italian legal system has provided a complex set of tools that is articulated essentially in mechanisms of publicity (or proactive transparency) and access (or reactive transparency)[210], as well as in the obligation to accompany administrative acts with a statement of reasons (Art. 3 of Law 241/1990).

Proactive transparency is achieved through the obligation placed on administrations to publish data and documents on their institutional websites, in particular in the section named «Amministrazione trasparente», ensuring that the information is complete, up-to-date, timely, and simple to consult, in order to facilitate public scrutiny[211].

Reactive transparency is implemented through the right of access, which manifests itself in various forms. The first is documentary access (*accesso documentale*) under Articles 22 et seq. of Law no. 241/1990, which allows citizens to view and copy documents, provided they demonstrate a direct, concrete, and current interest linked to a legally protected situation[212]. Its primary purpose, therefore, is the protection of individual interests[213]. The second is simple civic access (*accesso civico semplice*) under Art. 5, paragraph 1, of Legislative Decree no. 33/2013, which recognises the right of any person to request that the administration publish data for which a legal obligation exists if it has been omitted[214]. The third form is generalised civic access (*accesso civico generalizzato*) under Art. 5, paragraph 2, of Legislative Decree no. 33/2013, also known as FOIA (Freedom of Information Act), which

---

[208] Art. 1, paragraph 1, Legislative Decree 14 March 2013, no. 33.

[209] Art. 1, paragraph 2, Legislative Decree 14 March 2013, no. 33.

[210] For an in-depth analysis, see A. Corrado, Il principio di trasparenza, cit., p. 294 ff.

[211] A. Corrado, Il principio di trasparenza e i suoi strumenti di attuazione, cit., p. 197.

[212] For an in-depth analysis, see ibid., p. 190 ff.

[213] C. Guacci, Il diritto di accesso, cit., p. 126, observes that it is a «c.d. accesso di garanzia, volto a tutelare la posizione individuale del soggetto nei confronti della P.A.».

[214] On this point, see A. Corrado, Il principio di trasparenza e i suoi strumenti di attuazione, cit., pp. 195-196.

recognises the right of any person to access data and documents additional to those subject to mandatory publication, in order to promote participation in public debate and generalised public scrutiny. Unlike documentary access, it does not require demonstrating a specific legally protected interest[215].

Furthermore, the principle of administrative transparency finds one of its highest concretisations in the duty to give reasons for the administrative act, which, governed by Art. 3 of Law no. 241 of 1990, constitutes the cardinal tool for making the logical-legal path followed by the administration intelligible and allowing control over the power exercised (an aspect that will be examined further *infra*).

As anticipated previously, the Council of State addressed the question of deterministic algorithms in the context of administrative activity (consider the well-known litigation of the "Buona Scuola"), affirming the necessity of their subjection to the general principles of administrative law, including – among others – that of knowability, understood as a «declinazione rafforzata del principio di trasparenza»[216], which materialises in the duty to make the

---

[215] On the normative turning point of administrative transparency towards total accessibility, civic access (FOIA) and corruption prevention, see E. Carloni, Il paradigma trasparenza. Amministrazioni, informazione, democrazia, Il Mulino, Bologna, 2022; F.M. Nocelli, L'accessibilità totale nel quadro della trasparenza amministrativa: dinamiche evolutive, in Il Foro amministrativo, 10, 2020, pp. 1979-2014; M. Savino, Il FOIA italiano e i suoi critici: per un dibattito scientifico meno platonico, in Diritto amministrativo, 3, 2019, pp. 453-495; A. Moliterni, La natura giuridica dell'accesso civico generalizzato nel sistema di trasparenza nei confronti dei pubblici poteri, in Diritto amministrativo, 3, 2019, pp. 577-615; A. Corrado, Conoscere per partecipare: la strada tracciata dalla trasparenza amministrativa, Edizioni Scientifiche Italiane, Napoli, 2018; D.U. Galetta, La trasparenza, per un nuovo rapporto tra cittadino e Pubblica Amministrazione: un'analisi storico-evolutiva in una prospettiva di diritto comparato ed europeo, in Atti del 62° convegno di Studi Amministrativi di Varenna (22-24 settembre 2016, Villa Monastero, Varenna), Giuffrè, Milano, 2017, pp. 465-518; S. Foà, La nuova trasparenza amministrativa, in Diritto amministrativo, 1, 2017, pp. 65-99; G. Gardini, Il paradosso della trasparenza in Italia: l'arte di rendere oscure le cose semplici, in federalismi.it, 1, 2017, pp. 1-18; B. Ponti (ed.), Nuova trasparenza amministrativa e libertà di accesso alle informazioni, Maggioli, Rimini, 2016; E. Carloni, L'amministrazione aperta. Regole strumenti limiti dell'open government, Rimini, Maggioli, 2014; M. Savino, La nuova disciplina della trasparenza amministrativa, in Giornale di diritto amministrativo, 8-9, 2013, pp. 795-805; F. Patroni Griffi, La trasparenza della pubblica amministrazione tra accessibilità totale e riservatezza, 2013, in federalismi.it, 8, 2013, pp. 1-12.

[216] Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270, § 8.3. For a comment on this ruling, see F. Marconi, Alcune questioni in tema di decisioni robotizzate: note a margine della sentenza n. 2270/2019, del Consiglio di Stato, in giustamm.it, 8, 2020; G. Pesce, Il Consiglio di Stato ed il vizio della opacità dell'algoritmo tra diritto interno e diritto sovranazionale, in www.giustizia-amministrativa.it, 2020; R. Ferrara, Il giudice

algorithm fully knowable both for the Public Administration (hereinafter also referred to as "P.A.") holding the power and for the interested parties[217]. In particular, the Council of State listed the aspects that must be made knowable by the P.A.: 1) authors of the algorithm; 2) the procedure used for its elaboration; 3) the decision-making mechanism; 4) the priorities assigned in the evaluation and decision-making procedure; 5) the data selected as relevant. The objective of this burden of transparency is twofold: to allow the *ex post* verification that the criteria, assumptions, and outcomes of the robotised proceeding are compliant with the prescriptions established by the law or by the administration itself at the outset, and, secondly, to ensure that the modalities and rules on which the algorithm was set are clear, and consequently, reviewable[218]. The mere disclosure and knowability of the algorithm, however, are not deemed sufficient to satisfy the requirements of algorithmic legality, since, given the «caratterizzazione multidisciplinare» of the algorithm (which requires legal, technical, IT, statistical, and administrative skills), the decision-making mechanism expresses itself in a «regola espressa in un linguaggio differente da quello giuridico». It is to overcome the opacity generated by this linguistic asymmetry that the principle of knowability finds its full expression in the principle of "comprehensibility", which places on the Administration the duty to ensure that «la "formula tecnica", che di fatto è l'algoritmo, sia corredata da spiegazioni che la traducano nella "regola giuridica" ad essa sottesa», in order to make the decision-making logic readable and intelligible not only for the administrative judge, but also for the common citizen[219]. As specified by the Council of State, the principle of comprehensibility is «la possibilità, per riprendere l'espressione del Regolamento, di ricevere "informazioni significative sulla logica

---

amministrativo e gli algoritmi. Note estemporanee a margine di un recente dibattito giurisprudenziale, in Diritto Amministrativo, 4, 2019, pp. 773-792; I.A. Nicotra, V. Varone, L'algoritmo, intelligente ma non troppo, in Rivista AIC, 4, 2019, pp. 86-106; V. Canalini, L'algoritmo come "atto amministrativo informatico" e il sindacato del giudice, in Giornale di diritto amministrativo, 6, 2019, pp. 781-787; G. Fasano, Le decisioni automatizzate nella pubblica amministrazione: tra esigenze di semplificazione e trasparenza algoritmica, in MediaLaws, 3, 2019, pp. 234-241; A. Di Martino. Intelligenza artificiale, garanzie dei privati e decisioni amministrative: l'apporto umano è ancora necessario? Riflessioni a margine di Cons. Stato 8 aprile 2019, n. 2270, cit., pp. 47-73;

[217] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 13.1.

[218] Ibidem.

[219] Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270, § 8.3.

utilizzata"»[220]. Only in this way is substantive transparency achieved, not limited to potential knowability, but guaranteeing real knowledge and understanding.

The case law of the Council of State, as seen, has so far been elaborated only regarding deterministic algorithms.

However, the application of the principle of knowability and comprehensibility changes radically when moving from simple deterministic algorithms, endowed with a linear and predefined causal logic (*if-then-else*), to complex artificial intelligence systems, which operate through machine learning mechanisms and represent a challenge of a completely different magnitude for the stability of the guarantees of the administrative proceeding. In such systems, the machine does not limit itself to applying rules and parameters preset by humans, as in deterministic algorithms, but autonomously processes new inference criteria, learns from data, and develops its own decision-making logic. Not surprisingly, the European lawmaker, in the AI Act, dedicates numerous provisions to the concept of «transparency» (Recitals 27 and 71, Articles 13, 26, 50, and 86) to transform opacity from a technical characteristic of AI systems into a legal risk to be mitigated. For the Public Administration, these new provisions represent a significant transformation, as they introduce rules and principles on product safety that also apply to sensitive public-sector activities. In this context, the P.A. can act both as a *provider* (when it develops AI systems in-house) and, more commonly, as a *deployer* (when it uses systems supplied by third-party providers).

First, Recital 27 plays an essential role in defining the semantic perimeter of transparency, explicitly linking it to the ethical principles developed by the High-Level Expert Group on AI (AI HLEG). The text of said Recital establishes that «transparency means that AI systems are developed and used in a way that allows appropriate traceability and explainability», creating an inseparable link between "traceability" and "explainability". "Traceability" is the ability to reconstruct the functioning of the software, detect possible defects or distortions, and ensure that the AI

---

[220] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 15.1. Indeed, Art. 15 of the GDPR, paragraph 1, letter h), grants the data subject «the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data and the following information: (…) the existence of automated decision-making, including profiling, laid down in Article 22(1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject».

operates in line with the principles of fairness, transparency, and non-discrimination; it is made technically possible through the obligation to automatically record, through log files, the events occurring during the life cycle of the AI system[221]. "Explainability", instead, is the ability to give reasons for a specific decision taken by the AI[222]; in particular, it refers to the technical property of an AI system to provide relevant information to explain its output in a way understandable to humans[223]. The European lawmaker specifies, moreover, that transparency has a twofold purpose: on the one hand, «making humans aware that they communicate or interact with an AI system»; on the other, «informing deployers of the capabilities and limitations of that AI system and affected persons about their rights». It follows that transparency is not a static concept but rather a dynamic communication process that must adapt to different interlocutors: the professional deployer needs technical details for risk management, while the affected individual needs meaningful explanations to exercise their rights.

If Recital 27 lays the ethical foundations, Recital 71 articulates transparency requirements in terms of technical and legal accountability, stating that having clear information on how high-risk AI systems are developed and how they perform throughout their life cycle is essential to enable traceability and verify compliance with the requirements of the Regulation. Such information must include the general characteristics, capabilities, and limitations of the system, as well as the algorithms, data, and training, testing, and validation processes, presented in a clear and comprehensive form. Furthermore, the concept of automatic recording of events ("logs") is introduced as a technical component of transparency, necessary for post-market monitoring.

The combined analysis of these Recitals suggests that the AI Act does not require absolute transparency (often impossible in deep neural networks),

---

[221] A.G. Orofino, Record-keeping (Article 12), in A. Huergo Lora (ed.), op. cit., p. 223.

[222] A. Huergo Lora, Classification of AI Systems as High-Risk (Chapter III, Section 1), in A. Huergo Lora, op. cit., p. 119.

[223] M. Estrella Gutiérrez David, Transparency and Provision of Information to Deployers in Article 13 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, cit., p. 690. The Author further clarifies the difference between "transparency" and "explainability", stating that «while transparency would answer the question of how the model works, explainability would answer what additional information can be extracted from the model (explanations) when it is impossible or complex to see and understand (interpretability) how the model works internally (black box). In turn, while interpretability would be the ultimate goal, explanations would be the tools to achieve interpretability when the model itself is not interpretable» (p. 692).

but functional and documentary transparency: the system might remain a black box in its microscopic internal functioning, but ideally should become a glass box regarding its operational specifications, training data, and governance logics.

The provider, as the system's architect, holds the primary information needed to understand how the AI functions. Therefore, the AI Act requires the provider to open the black box in two directions: to the "professional" deployer (for high-risk AI systems) and towards the "common" deployer (for limited risk AI systems).

Article 13 of the AI Act represents the cornerstone of transparency obligations for high-risk AI systems, imposing an obligation of result on their design: they must, i.e., be designed and developed in such a way as to ensure that their operation is «sufficiently transparent to enable deployers to interpret a system's output and use it appropriately». "Interpretability" is a passive characteristic of an AI model, referring to the degree to which a model's behaviour and results are understandable to an observer. A model is considered more interpretable if it is easy for a person to explain why the model made a particular prediction[224]. The aforementioned obligation on the system design, according to paragraph 2 of Art. 13, materialises in the provision of «instructions for use», which must accompany the system and be concise, complete, correct, clear, relevant, accessible, and understandable to deployers. Article 13, paragraph 3, of the AI Act lists exhaustively the minimum information that must be included in the instructions for use, transforming the technical documentation into a true risk governance manual for the deployer. The required information includes: a) the identity and the contact details of the provider and, where applicable, of its authorised representative; b) the characteristics, capabilities and limitations of performance of the high-risk AI system, including: i) its intended purpose; ii) the level of accuracy, robustness and cybersecurity[225]; iii) any known or foreseeable circumstance, related to the use of the high-risk AI system in accordance with its intended purpose or under conditions of reasonably foreseeable misuse, which may lead to risks to the health and safety or

---

[224] M. Estrella Gutiérrez David, op. cit., p. 686.

[225] In particular, on the requirements of accuracy, robustness and cybersecurity in the AI Act, see O. Fernández Fernández, Accuracy, Robustness and Cybersecurity (Article 15), in A. Huergo Lora, op. cit., pp. 276-296; A. Aba Catoira, Accuracy and Robustness of High-Risk Artificial Intelligence Systems in Article 15 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 739-760; M.E. Sánchez Acevedo, Cybersecurity in High-Risk Artificial Intelligence Systems in Article 15 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 761-784.

fundamental rights; iv) the technical capabilities and characteristics of the high-risk AI system to provide information that is relevant to explain its output; v) its performance regarding specific persons or groups of persons on which the system is intended to be used; vi) specifications for the input data, or any other relevant information in terms of the training, validation and testing data sets used; vii) information to enable deployers to interpret the output of the high-risk AI system and use it appropriately; c) the changes to the high-risk AI system and its performance which have been pre-determined by the provider at the moment of the initial conformity assessment, if any; d) human oversight measures, including technical measures that help deployers interpret the outputs; e) the computational and hardware resources needed, the expected lifetime of the high-risk AI system and any necessary maintenance and care measures to ensure the proper functioning of that AI system, including as regards software updates; f) a description of the mechanisms included within the high-risk AI system that allows deployers to properly collect, store and interpret the logs[226].

As regards, instead, AI systems classified as limited risk, intended to interact directly with natural persons, Art. 50 of the AI Act essentially imposes transparency obligations on both providers and deployers. Paragraph 1 concerns systems intended to interact directly with natural persons (e.g. chatbots, virtual assistants) and requires providers to design them so that natural persons are informed that they are interacting with an AI system, unless this is obvious from the point of view of a reasonably informed, observant and circumspect natural person, taking into account the circumstances and the context of use. Paragraph 2 of Article 50, then, establishes that providers of AI systems, including general-purpose AI systems, generating synthetic audio, video, image or text content, must ensure that the outputs of the system are «marked in a machine-readable format and detectable as artificially generated or manipulated». This provision introduces the obligation of so-called "watermarking" or digital marking.

Furthermore, in the same paragraph, the law requires that the technical solutions adopted be «effective, interoperable, robust and reliable as far as this

---

[226] For an in-depth analysis of Art. 13 AIA, see A. Palma Ortigosa, Transparency and Provision of Information to Deployers (Article 13), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence, cit., pp. 217-242; M.E. Gutiérrez David, Transparency and Provision of Information to Deployers in Article 13 of the Artificial Intelligence Act, cit., pp. 665-716; K. Söderlund, Hight-risk AI transparency? On qualified transparency mandates for oversight bodies under the EU AI Act, in Technology and Regulation, 2025, pp. 96-113; T. Gils, F. Heymans, W. Ooms, From Policy to Practice: Prototyping The EU AI Act's Transparency Requirements, Knowledge Centre Data & Society, 2024.

is technically feasible». The requirement for a «machine-readable format» is fundamental to allow the automated detection of synthetic content by online platforms and intermediaries, creating an ecosystem of content provenance verification. However, the regulation recognises the technical complexity of such requirements, tempering the obligation with a technical feasibility clause and referring to the state of the art. Furthermore, a significant exception is provided: the obligation does not apply to the extent that the AI systems perform an assistive function for standard editing or do not substantially alter the input data provided by the deployer or the semantics thereof, exempting, for example, grammatical correction tools and concentrating the burden on generative systems that create content from scratch or manipulate it deeply (deep fakes)[227].

Let us now turn to the examination of the transparency obligations incumbent on the deployer, i.e., the actor who, operating in real-world contexts and making decisions that affect individuals, bears the burden of rendering transparency operational and ensuring respect for individual rights.

Article 26 AIA outlines the obligations of deployers of HRAIs, establishing, in paragraph 1, a principle of derived but active responsibility, meaning that deployers must take appropriate technical and organisational measures to ensure the use of such systems in accordance with the instructions for use provided by the provider. This regulatory link is of extreme importance, as the provider's transparency (governed by Art. 13) is a precondition for the deployer to fulfil its oversight and monitoring obligations. If the instructions are lacking, the deployer will likely not be able to ensure compliant use. Paragraph 2, then, requires deployers to assign human oversight to natural persons with the necessary competence, training, and authority, which presupposes that such operators understand the system's functioning based on the provided documentation. Article 26, moreover, introduces specific transparency obligations downward, i.e., towards the individuals subject to the use of the system. In particular, paragraph 11 of

[227] For an in-depth analysis of Art. 50 AIA, see A. Cerrillo i Martínez, Article 50 of the AI Act and the transparency obligations for providers and deployers of certain Artificial Intelligence systems, in L. Cotino Hueso & D. U. Galetta (eds.), The European Union Artificial Intelligence Act, cit., pp. 841-863; J. García Luengo, Transparency Obligations for Providers and Deployers of Certain AI Systems cit., pp. 361-371; T. Gils, A Detailed Analysis of Article 50 of the EU's Artificial Intelligence Act, in C.N. Pehlivan, N. Forgó, P. Valcke (eds.), The EU Artificial Intelligence (AI) Act: A Commentary, cit., pp. 776-823; E. Longo, F. Paolucci, The Article 50 of the AI Act and the Transparency Obligations: The Model and Its Limitations, in O. Pollicino, F Donati, G. Finocchiaro, F. Paolucci (eds.), La disciplina dell'intelligenza artificiale, Giuffrè, Milano, 2025, pp. 275-303.

Article 26 establishes that deployers of HRAI systems that make decisions or assist in making decisions about natural persons must inform the latter that they are subject to the AI system's use. This information obligation was almost certainly drafted along the lines of the GDPR's existing information obligation on personal data protection. However, we can observe that in reality the AI Act adds a level of specificity, since it requires the disclosure of the use of AI even when there is not a 100% automated decision (which would fall under Art. 22 GDPR), but also when systems «assist in making decisions»[228]. To conclude on HRAI systems, this dissertation should highlight paragraph 8 of Article 26, which applies exclusively to deployers that are public authorities and requires them to comply with the obligations under Article 49. According to this article, public deployers, or persons acting on their behalf, are required to register in the EU database before putting into service or using a high-risk AI system listed in Annex III, proceeding to select the system and register its use[229]. To complete the regulatory framework, the second sentence of paragraph 8 of Article 26 states that, where public deployers find that the high-risk AI system they intend to use has not been registered in the EU database, they must not use such a system and must inform the provider or distributor[230].

Regarding, instead, LRAI systems, Art. 50 imposes specific disclosure obligations on deployers for content that may deceive the public. Of interest to the public deployer is paragraph 4, which establishes that deployers generating or manipulating text published with the purpose of informing the public on matters of public interest must disclose that the text has been artificially generated or manipulated. There is, however, an exception of a

---

[228] Art. 22 of the GDPR, in fact, gives the data subject the right not to be subject to a decision based «solely» on automated processing, with the consequences that a minimal human intervention is sufficient to determine the non-applicability of this rule.

[229] However, for systems operating in sensitive areas such as law enforcement, migration, asylum, and border management, registration must take place in a secure and non-public section of the database, accessible exclusively to the Commission and the competent national authorities, providing a limited set of information (para. 4). Furthermore, an exception to the described registration obligation is provided for the use of high-risk AI systems related to critical infrastructure, for which registration does not take place in the European database but must be carried out at the national level (para. 5).

[230] For an in-depth analysis of Art. 26 AI Act, see J. García Luengo, Obligations of Providers and Deployers of High-Risk AI Systems and Other Parties (Chapter III, Section 3), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence, cit., pp. 312-320; A. Palma Ortigosa, General regime of obligations for providers and deployers in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, cit., pp. 474-481.

pragmatic nature: this obligation does not apply if the AI-generated content has undergone human review and a natural or legal person holds editorial responsibility for the publication[231].

To make the transparency obligations described so far concrete and operative, the AI Act, in Article 86, introduces a new right that significantly expands citizen protections compared to the GDPR: the «right to explanation of individual decision-making». This rule provides that «any affected person subject to a decision which is taken by the deployer based on the output from a high-risk AI system listed in Annex III, except systems listed under point 2 thereof, and which produces legal effects or similarly significantly affects that person in a way that they consider to harm their health, safety or fundamental rights shall have the right to obtain from the deployer clear and meaningful explanations of the role of the AI system in the decision-making procedure and the main elements of the decision taken»[232]. Firstly, the clause «legal effects or similarly significantly affects» constitutes the threshold of severity necessary to trigger the right to explanation, and its formulation literally follows that present in Art. 22 of the GDPR, acting as a selective criterion to identify decisions worthy of strengthened protection[233]. By «legal effects» are meant those decisions that modify the legal status of the individual or their contractual rights, such as the refusal of a social benefit, the termination of a contract, the refusal of admission to a country, or the rejection of citizenship[234]. The expression «similarly significantly affects», instead, extends protection to situations which, while not formally altering a right, produce a substantive

---

[231] Think, for example, of a Public Administration using a generative AI system to draft a press release. If a press officer reviews and approves it, it is not mandatory to label it as "AI-generated". If, instead, publication is automated without human control, labeling is mandatory.

[232] For an in-depth analysis of Art. 86 AIA, see A. Lopez-Tarruella Martinez, Right to lodge a complaint and right to an explanation. Means of redress for individuals in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 967-980; A. Palma Ortigosa, Remedies (Chapter IX, Section 4), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence, cit., pp. 507-518; M. Brkan, H. Palčič Vilfan, Article 86 – Right to explanation of individual decision-making, in C.N. Pehlivan, N. Forgó, P. Valcke, (eds.), The EU Artificial Intelligence (AI) Act, cit., pp. 1195-1215; M.E. Kaminski, G. Malgieri, The Right to Explanation in the AI Act, U of Colorado Law Legal Studies Research Paper No. 25-9, available at SSRN; S. Orlando, Nove certezze su decisioni algoritmiche, diritto alla spiegazione e tutela dei consumatori, in E. Tosi (ed.), Persona, dati personali, algoritmi tra GDPR e AI Act, Giuffrp, Milano, 2025, pp. 161-163.

[233] M.E. Kaminski, G. Malgieri, The Right to Explanation in the AI Act, cit., p. 7.

[234] Article 29 Data Protection Working Party, Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679, 2018, p. 21.

impact on the circumstances, behaviour, or choices of the individual, comparable in importance to the effects, have a prolonged or permanent impact on the affected individual or, in its most extreme form, lead to the exclusion or discrimination of individuals[235]. The concept of «adverse impact» introduces a degree of specificity compared to the general legal framework of data protection, as such impact refers exclusively to the «health, safety or fundamental rights» of the affected person. A very important aspect noted in the legal literature is the subjective dimension introduced by the verb «consider», which would seem to anchor the assessment of adversity in the perception of the individual concerned, thereby differentiating it from the generally objective approach of Art. 22 of the GDPR[236]. Proceeding with the analysis, the obligation for the deployer to provide «clear and meaningful explanations» concerns the quality and accessibility of the information provided. The adjective «clear» requires that information be provided in a way a non-expert user can understand[237], and in particular in a concise, correct, and accessible manner, in line with the transparency obligations for the instructions for use of AI systems[238]. Such an explanation must not only be clear but also «meaningful», thereby curbing the risk that the search for communicative simplicity degenerates into technical trivialization, thereby emptying the information itself of utility. In this perspective, legal scholarship has noted that the "meaningful" character must necessarily be interpreted in a teleological key: an explanation can be said to be such only if it is suitable for the purpose for which it is granted, namely to provide the interested party

---

[235] Ibid., p. 22, from which it is inferred that the assessment of significance must be conducted on a case-by-case basis, including hypotheses such as exclusion from job opportunities or the application of prohibitive prices from profiling, provided that the effect is sufficiently relevant to require protection.

[236] M.E. Kaminski, G. Malgieri, op. cit., p. 9, observing that «it is not the deployer who is to determine what constitutes an "adverse impact", but the affected person»; it follows that, since «deployers cannot ascertain an individual's perception of a decision *ex ante*, this criterion effectively establishes an "opt-in" or "on demand" right», potentially extending protection to decisions that «might not be objectively under the "similar significance" scope of the GDPR but might be subjectively significant».

[237] A. Palma Ortigosa, Remedies, cit., p. 512.

[238] M.E. Kaminski, G. Malgieri, op. cit., who reject the view that the criterion of clarity requires «simplifying it to the point of being ineffective», but, on the contrary, argue that «a clear explanation is one that is understandable for its user but is detailed enough to also be actionable» (p. 12). Reading this provision in conjunction with Article 13 AIA, they observe that the AI Act aims to «ground the concept of clarity in the ability of that disclosure's audience to both comprehend and use the disclosure» (p. 13), thereby combining the requirements of being «concise, clear, accessible, and comprehensible» with those of being «complete, correct, and relevant» (p. 14).

with the necessary elements to exercise their fundamental rights, with the consequence that the transparency obligation cannot resolve itself into a generic description of the system's functioning, but requires genuine reason-giving that makes explicit the why of the specific automated decision[239]. Furthermore, the explanation must focus on two fundamental elements. The first is «the role of the AI system in the decision-making procedure», which reflects the need to understand the interaction between machine and human in the deliberative process. Unlike the GDPR, which focuses on decisions «solely» automated, the AI Act also covers decisions taken by the deployer «on the basis» of the output of an AI system, thus including scenarios of semi-automated decisions or decision support. Explaining the role of the AI system, therefore, means clarifying whether the decision was entirely delegated to the algorithm or whether there was significant human intervention, and, in the latter case, whether the operator merely ratified the output or exercised effective and critical control[240]. The second fundamental element consists of «the main elements of the decision taken», which requires providing not a simple abstract description of the system's functioning, but concrete and individualized details on the merits of the specific determination, in particular indicating which specific input data relating to the person were used and which parameters or variables had the greatest weight in determining that particular outcome (in this way, allowing the interested party to understand, for example, which factors led to exclusion from a public selection)[241].

---

[239] Ibid., where it is observed that the requirement of "meaningfulness" aims to avoid «interpretative efforts that render explanations meaningless through oversimplification», establishing that «a meaningful explanation is purposive in nature: it is meaningful towards some process or purpose» (pp. 14-15). Interpreting this criterion in light of Recital 171 of the AIA, which requires that the information «should provide a basis on which the affected persons are able to exercise their rights», the Authors deduce that «for an explanation to be 'meaningful,' it must provide enough information to enable a person [...] to effectively make an anti-discrimination claim, or to claim a violation of some other right» (p. 16).

[240] A. Palma Ortigosa, Remediesm, cit., p. 512, observing that «(…) the relevance

of the decision in the whole decision-making process has to be indicated, as well as whether the decision has been fully or partially automated. In the case that it has been partially automated because a human has intervened, it should be indicated how many people have intervened and if these people have in some way contrasted what has been indicated by the AI system».

[241] M.E. Kaminski, G. Malgieri, op. cit., observing that Art. 86 AIA, especially compared to the formulation of the text of Art. 15, par. 1, GDPR, requires «an explanation of "the decision" – meaning an individual decision taken, rather than an overview of the logic on an AI system in the abstract» (p. 18). In their opinion, such expression «likely goes beyond

Once the objective content of the right to explanation has been defined, a complex question arises regarding entitlement to this right, namely the precise identification of the persons who hold it. Article 86 uses the expression «any affected person», without providing a precise definition in the catalogue of Article 3 of the Regulation. However, the reconstruction of the preparatory works reveals a decisive detail: in the intermediate stages of the legislative process, and specifically in the amendments proposed by the European Parliament, a definition had been inserted explicitly qualifying the «affected person» as «any natural person or a group of persons»[242]. The removal of this restrictive definition from the final text, in my opinion, cannot be considered a meaningless drafting error, but according to the classic canons of legal hermeneutics, and in particular the *argumentum a contrario* applied to legislative history, the deletion of an explicit limitation suggests the lawmaker's intention not to preclude a broader interpretation. If the lawmaker had wanted to restrict the right to explanation to natural persons only, they would likely have maintained the proposed definition or used the phrase «natural person» in the body of Article 86, as done in numerous other

---

indicating the facts relied on (…) and mere counterfactuals to include (a) reason-giving and (b) descriptions of features of the decision-making system». Interpreting the rule in light of Recital 171, according to which the information «should provide a basis on which the affected persons are able to exercise their rights», they conclude that «disclosing the "main elements" of a decision necessarily requires disclosing the *why* of decision-making» (p. 19). In this perspective, they also suggest that «features of an AI system (…) necessary for deployer's impact assessments can also constitute the "main elements"» (p. 20), including – by virtue of what is provided by Art. 13, par. 3, let. (b) – the following details of the system: «the intended purpose (…) its level of accuracy; any known circumstances which may lead to risks to fundamental rights; (…) its "performance regarding specific persons or groups of persons on which the system is intended to be used;" information about input data, validation, and testing; and more». On this point, see also the observations – in truth not dissimilar from those just recalled – of A. Palma Ortigosa, ult. loc. cit., according to whom «the main elements of the decision (…) include: the input data that have been taken into account for that person, the most relevant variables or parameters in that decision, the possible correlations that specifically may have affected that person, etc. Much of this information will already be available for the deployer thanks to the documentation provided by the provider, however, the deployer has an obligation to personalise and individualise this information for the persons affected by the decisions».

[242] European Parliament, Amendments adopted by the European Parliament on 14 June 2023 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonised rules on artificial intelligence (Artificial Intelligence Act), P9_TA(2023)0236, Amendment 174, Proposal for a regulation, Article 3 – paragraph 1 – point 8 a (new), Text proposed by the Commission, according to which «(8a) 'affected person' means any natural person of group of persons who are subject to or otherwise affected by an AI system». The text of this proposal amendment is available at European Parliament.

provisions of the Regulation, for example, regarding biometric identification and verification[243]. Despite the opening arising from the suppression of the definition, some textual and systematic elements seem to favour an anthropocentric reading of the rule. Indeed, Art. 86 AIA conditions the activation of such right on the circumstance that the decision harms «health, safety or fundamental rights» of the person. The reference to «health» should unequivocally evoke the biological dimension of the human being; a joint-stock company or a public body, conversely, does not possess a human body subject to illness or injury, making this criterion inapplicable to legal persons. In parallel, the reference to «fundamental rights» is often read through the lens of human dignity, privacy, and non-discrimination, values that derive from the natural person[244]. Furthermore, the close connection between the AI Act

---

[243] In the text of the AI Act, the phrase «natural person» assumes a decisive function for the identification of the persons to whom legal protections and fundamental rights are attributed. Specifically, this reference is used to define sensitive technological categories in Art. 3 (such as biometric data, biometric identification and categorization systems, as well as emotion recognition systems); to delimit the perimeter of prohibited practices under Art. 5 (including cognitive-behavioral manipulation, social scoring, criminal risk assessment, and real-time remote biometric identification for law enforcement purposes); to identify high-risk systems pursuant to Art. 6 and Annex III in critical areas such as education, employment, access to essential services, and border control; as well as to govern obligations of human oversight (Art. 14), transparency towards the end user (Art. 50), and protection of subjects involved in testing in real world conditions (Art. 60).

[244] For example, human dignity, codified in Article 1 of the Charter of Fundamental Rights of the European Union, represents not only a fundamental right in itself, but constitutes the very basis and logical-legal foundation of all other fundamental rights, evoking the role of the person and configuring a true «antropologia dell'*homo dignus*» (to use the words of S. Rodotà, Antropologia dell'*homo dignus*, in civilistica.com, 2(1), 2013, pp. 1-13). Or consider the sphere of privacy, as articulated in Articles 7 (respect for private and family life) and 8 (protection of personal data) of the Charter, with respect to which there is also a close connection with the physical and moral dimension of the individual. The case law of the Court of Justice of the EU, in particular in the *Volker und Markus Schecke* case, clarified that although «legal persons can claim the protection of Articles 7 and 8 of the Charter» (§ 53), «the seriousness of the breach of the right to protection of personal data manifests itself in different ways for, on the one hand, legal persons and, on the other, natural persons» (§87) (CJEU, Grand Chamber, 9 November 2010, C-92/09 and C-93/09). It is precisely in relation to the identified or identifiable natural person that respect for private life and data protection assume their fullness, evolving from a merely negative dimension of «right to be let alone» (made famous by Warren and Brandeiss in the work The Right to Privacy, in Harvard Law Review, vol. 4, no. 5, 1890, pp. 193-220) to a positive dimension of informational self-determination (concept coined starting from the 1983 judgement rendered by the German Federal Constitutional Court in the famous *Volkszählungsurteil*).

and the GDPR, which exclusively protects natural persons[245], could lead courts and legal scholars to transfer the subjective legal categories of data protection into the field of artificial intelligence, seeing the «affected person» as a counterpart to the «data subject»[246]. However, a deeper analysis, teleologically oriented towards the administrative and market contexts, reveals, in my view, the fragility of the exclusively anthropocentric theory and, conversely, the necessity of extending such protection to legal persons. Supporting this theory is, first of all, Article 85 of the same Regulation, which governs the right to lodge a complaint with supervisory authorities, explicitly recognising such faculty to «any natural or legal person». The textual proximity between Article 85 and Article 86 would lead to a reading that recognises the legal person's power to activate public supervision, while simultaneously denying the right to obtain an individual explanation of the decision concerning it; this is true even though that explanation could be the very subject of the complaint, yet this interpretation is jarring and unreasonable. Secondly, the concept of «fundamental rights» recalled by Article 86 is not limited to the personalistic sphere, since the Charter of Fundamental Rights of the European Union recognises and protects rights of which legal persons are also fully holders, such as the freedom to conduct a business (Art. 16), the right to property (Art. 17) and the right to an effective remedy and to a fair trial (Art. 47). In the context of administrative activity, automated decisions frequently affect vital economic interests of companies: suffice it to think of the automatic exclusion from a tender, the denial of public funding based on an algorithmic rating, or an inductive tax assessment based on data mining analysis. Denying companies the right to an explanation in these circumstances would deprive them of an essential defence tool, in violation of the principle of the effectiveness of judicial protection. Thirdly, even the reference to «safety» lends itself to an extensive interpretation embracing the operational, industrial, and patrimonial safety of legal persons, given that an AI system managing critical infrastructures or logistics and making an erroneous decision can cause huge material damage to a company's infrastructure, configuring an impact on its «safety». Finally, coherence with the Italian administrative procedure governed by Law 241/1990 must be considered, where the

[245] Recital 14 of the GDPR expressly states that «This Regulation does not cover the processing of personal data which concerns legal persons and in particular undertakings established as legal persons, including the name and the form of the legal person and the contact details of the legal person».

[246] Indeed, Art. 4, par. 1, of the GDPR provides a definition of "personal data" referring exclusively to «any information relating to an identified or identifiable natural person ('data subject')».

distinction between natural and legal persons tends to fade in the face of participatory guarantees and the duty to give reasons, which applies to every act regardless of the addressee's nature[247]. Interpreting Article 86 of the AI Act in a restrictive sense would create an unjustified asymmetry in domestic

[247] The structure of Law 241/1990, in fact, constructs the position of the Administration's interlocutor not based on its natural or legal nature, but pivoting on the vesting of qualified subjective legal positions (legitimate interests or subjective rights) and on the possibility of suffering prejudice or being directly affected by the exercise of power. As regards participatory guarantees, Articles 7 and 9 of Law no. 241/1990 use the all-encompassing phrase of «soggetti» to identify the holders of the faculties of intervention. In particular, Article 7 imposes the communication of a procedure's commencement to the «soggetti» towards whom the final act is destined to produce direct effects, to those who by law must intervene in it, and to those who may suffer a prejudice from it, provided they are identified or easily identifiable. Similarly, Article 9 recognises the faculty to intervene in the proceeding to «qualunque soggetto», bearer of public or private interests, as well as to bearers of diffuse interests organised into associations or committees, to whom a prejudice may derive from the act. The notion of *soggetto* thus subsumes under a single category – serving the right to be heard in administrative proceedings – both natural persons and legal entities, as well as entities lacking legal personality (such as *comitati*), provided they function as centres of legal imputation for qualified interests. Participation is defined, ultimately, as a tool for the protection of differentiated subjective legal positions, regardless of the biological or organisational substrate of the holder, aiming to ensure that the administrative decision is the result of a complete evaluation of all interests, public and private, involved. Also on the side of the duty to give reasons, enshrined by Article 3 of Law no. 241/1990, the nature of the addressee appears irrelevant for the purposes of the application of the guarantee. The rule establishes, in fact, that reasons of «ogni provvedimento amministrativo» must be stated, indicating the factual prerequisites and the legal reasons that determined the decision. The duty to give reasons is placed to safeguard transparency and substantial legality of administrative action and correlates to the exercise of public authority capable of unilaterally affecting the legal position of others, regardless of whether that sphere belongs to a natural person or an entity. The only exceptions to the duty to give reasons are of an objective type, referring to the nature of the act (regulatory acts and acts of general content) and not to the nature of the affected individual. Furthermore, a statement of reasons performs a guarantee function not only for the direct addressee, but for a plurality of parties interested in evaluating the content and effects of the decision, including any third parties or control bodies, confirming that the protection is not modeled on the anthropomorphic characteristics of the addressee, but on the need for justifiability of the power exercised (A. Cassatella, Il dovere di motivazione nell'attività amministrativa, Wolters Kluwer, Milano, 2013, p. XVI). The irrelevance of the distinction between natural and legal persons is also confirmed by the legal framework of the right of access to administrative documents. Article 22 of Law no. 241/1990 defines as «interessati» all private persons (including those bearing public or diffuse interests) who have a direct, concrete, and current interest, corresponding to a legally protected situation and connected to the document. In this context, the term «privati» is understood in a broad sense, including natural persons, legal persons, associations, and committees, united by the vesting of a qualified position that legitimizes the disclosure.

law, whereby a natural person who is the recipient of an algorithmic act would have the right to the European "technical explanation" under Article 86 AIA, in addition to the right to receive a statement of reasons under domestic law. In contrast, a legal person in the same situation would have to settle for the traditional statement of reasons alone, laboriously reconstructing the algorithmic logic through access to documents or litigation. Therefore, in light of these observations, the most rigorous theory consistent with the principles of administrative law and the European Union appears to be that of inclusion, so that, in the absence of an express provision in the current legislative text, the notion of «affected person», in my opinion, should be interpreted extensively to include the legal person.

From the examination traced so far, three observations arise. The first is that Articles 26 and 86 of the AI Act seem to extend to high-risk artificial intelligence systems the principles of knowability and comprehensibility elaborated by the Italian Council of State in relation to deterministic algorithms. Indeed, if, on the one hand, paragraph 11 of Art. 26 of the AI Act imposes an obligation on the public deployer adopting decisions regarding natural persons to inform them that they are subject to the use of said systems, on the other hand, paragraph 1 of Art. 86 supplements and fulfils this obligation with that of giving the natural person clear and meaningful explanations of a decision made using AI.

The second observation is that Article 86, like Article 26, fills a gap in Article 22 of the GDPR, which applies only to decisions based «solely» on automated processing. The AI Act, instead, extends the right to explanation to so-called “hybrid” decisions, where, for example, there is even minimal human intervention, but the decision is based on the AI's output. However, paragraph 3 of Article 86 introduces a subsidiarity clause, clarifying that this article applies only to the extent that the right is not already provided for by Union law. Consequently, if, for example, the decision concerns a natural person and involves the processing of personal data, it is likely that the provisions of the GDPR (including access rights and procedural safeguards of Art. 22) will take precedence, with the consequence that, in relation to natural persons, the application of the right to explanation under Art. 86 of the AI Act could be limited by that subsidiarity clause. Indeed, according to an interpretation offered by part of the legal scholarship, Art. 86 would find its practical utility in three cases: 1) for decisions based on output of high-risk

AI systems that do not use personal data[248]; 2) for decisions concerning legal persons (e.g. companies)[249]; 3) for decisions involving human intervention but based significantly on the output of a high-risk AI system (thus not «solely» automated under Art. 22 GDPR)[250].

The third observation is that the operational challenge is that the deployer must provide these explanations based on its understanding of the system, which depends entirely on the quality of the information provided by the provider under Article 13. If the provider has provided generic or obscure instructions, the deployer might be unable to comply with Article 86, highlighting the interdependent nature of transparency obligations across the value chain.

---

[248] On this point, Cluzel-Métayer observes that «Le RIA ne remplace pas le RGPD : il le complète. Bien que les deux instruments soient tous deux fondés sur une logique de compliance, leur approche et leur champ d'application sont sensiblement différentes. Tout traitement de données personnelles ne correspond pas nécessairement à un système d'IA au sens du RIA et tout système d'IA ne mobilies pas nécessairement des données personnelles. (…) Parfois, le RIA s'applique, mais pas le RGPD : ce peut être le cas d'un système d'IA dédié à la gestion d'une centrale électrique (SIA à haut risque, mais qui n'exploite aucune donées personnelle)» (L. Cluzel-Métayer, le droit de l'intelligence artificielle, Dalloz, Paris, 2025, pp. 119-120).

[249] Lopez-Tarruella Martinez observes that «it should be noted that the right [to an explanation] is only enjoyed in relation to certain categories of high-risk AI systems: those listed in Annex III (with the exception of point 2). Moreover, if our interpretation of the relationship of Article 86.3 AIA with the GDPR is correct, this right can only be exercised by legal persons. In the case of natural persons, insofar as the automated decision making that affects them should necessarily have been carried out on the basis of data allowing them to be identified, the obtaining of explanations must be exercised through the channels provided for by the GDPR» (A. Lopez-Tarruella Martinez, Right to lodge a complaint and right to an explanation. Means of redress for individuals in the Artificial Intelligence Act, cit., p. 983).

[250] According to Estrella Guetiérrez David, «a systematic interpretation of Article 86(3) AIA leads to the conclusion that the right to an explanation would extend to individual decisions, including profiling, which are not fully automated, where there is human oversight, provided that such processing of personal data has an impact on the health, safety or fundamental rights of individuals. Precisely those that the Regulation would be excluding from the scope of Article 22 and Recital (71)» (M. Estrella Guetiérrez David, op. cit., p. 674).

4.1. The obligation to give reasons for administrative acts using artificial intelligence

4.1.1. Art. 3 of Law no. 241/1990 and the multifaceted nature of the statement of reasons

The introduction of the general duty to give reasons for administrative acts, enshrined in Article 3 of Law 7 August 1990, no. 241, represents a focal point in the evolution of Italian administrative law, transforming a sectoral case law practice into a pivotal principle of administrative action. Before such codification, indeed, a generalised duty to give reasons for acts did not exist[251]. On the contrary, the obligation existed solely if imposed by specific regulatory provisions or deriving from the nature of the act, applying, for example, to discretionary acts or those detrimental to the legal position of private citizens[252]. Case law, in that context, tended to recognise in the absolute failure to state reasons an indicator of misuse of power[253].

Art. 3, paragraph 1, of Law no. 241/1990 now establishes a peremptory obligation: «Ogni provvedimento amministrativo, compresi quelli concernenti l'organizzazione amministrativa, lo svolgimento dei pubblici concorsi ed il personale, deve essere motivato». The lawmaker has thus generalised the duty, overcoming the previous specific enumeration[254].

---

[251] E. Casetta, F. Fracchia (eds.), op. cit., p. 515.

[252] M. Cocconi, Atti amministrativi generali, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 818. For fundamental contributions on the genesis and theorization of the duty to give reasons, see C. Mortati, Obbligo di motivazione e sufficienza della motivazione degli atti amministrativi, in Giurisprudenza Italiana, 1943, III, p. 1 ff.; G. Miele, L'obbligo di motivazione negli atti amministrativi, in Il Foro Italiano, 1941, IV, p. 125 ff.; G. Roehrssen, Note sulla motivazione degli atti amministrativi, in Rivista di Diritto Pubblico, 1941, II, p. 110 ff.; C.M. Iaccarino, Studi sulla motivazione (con speciale riguardo agli atti amministrativi), Roma, Società Editrice del Foro Italiano, 1933; F. Cammeo, Gli atti amministrativi e l'obbligo di motivazione, in Giurisprudenza Italiana, 1908, III, p. 253 ff.

[253] F. Oliverio, La motivazione del provvedimento amministrativo, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, p. 191.

[254] On this point, Perongini observes that «L'art. 3 della legge n. 241/1990 ha codificato un obbligo generale di motivazione di tutti i provvedimenti amministrativi. La norma in questione ha il pregio di generalizzare il dovere di motivazione, rendendolo un connotato costante, dotato di una rilevanza maggiore rispetto alla pregressa enumerazione specifica effettuata dalla giurisprudenza.» (S. Perongini, Teoria e dogmatica del provvedimento amministrativo, Giappichelli, Torino, 2016, p. 205). Nevertheless, paragraph 2 of Art. 3 expressly exempts regulatory acts and those with general content from the duty to give reasons. The exclusion of the former is historically anchored to their *latu sensu* political nature

The statement of reasons, according to the statutory definition, must indicate «i presupposti di fatto e le ragioni giuridiche che hanno determinato la decisione dell'amministrazione, in relazione alle risultanze dell'istruttoria». This wording adopts a broad notion that includes both what previous legal scholarship defined as "statement of reasons in the strict sense" (the setting forth of legal reasons, or *motivazione in senso stretto*) and "justification" (the indication of factual prerequisites)[255]. The approach adopted by the law is oriented towards a rigorously objective conception of the statement of reasons, no longer linked to the expression of the subjective reasons that induced the administration, but to all possible prerequisites and reasons justifying the decision in the normative and factual context[256]. In this regard, moreover, according to the settled case law of the Council of State, the cited Art. 3 «è ormai inteso in un'accezione funzionale, in virtù della quale, rifuggendosi da posizioni di carattere formalistico, sono rispettosi della disposizione in esame i provvedimenti contenenti l'esternazione di ragioni in misura e con modalità tali da consentire al cittadino la ricostruzione dell'iter logico e giuridico attraverso cui l'amministrazione si è determinata ad adottare un dato provvedimento»[257].

---

and unsuitability to affect specific subjective legal positions, such as regulations (F. Fichera, La motivazione, in F. Caringella, F. Chieppa, B.G. Mattarella (eds.), Diritto amministrativo. II. Attività, cit., p. 664). Regarding acts with general content, case law has strongly criticized this exemption and has long insisted on the need for a statement of reasons for those indirectly affecting the legal positions of individuals, in particular planning and programming acts; the currently prevailing orientation is that this exception does not concern the *an* (the necessity) of giving reasons, but its *quomodo* (the modalities of externalization), still requiring an assumption of responsibility (A. Cassatella, Il dovere di motivazione cit., p. 371). On the evolution of the duty to give reasons in light of Law no. 241/1990, see M. Ragusa, L'obbligo di motivazione del provvedimento a vent'anni dall'emanazione della legge generale sul procedimento amministrativo, in A. Sandulli, G. Piperata (eds.), La legge sul procedimento amministrativo. Vent'anni dopo, Editoriale Scientifica, Napoli, 2011, p. 321 ff.; A. Romano Tassone, Legge sul procedimento amministrativo e motivazione del provvedimento amministrativo. Prime osservazioni, in Aa.Vv., Scritti in onore di Pietro Virga, Giuffrè, Milano, 1994, p. 1589 ff.; A. Andreani, Idee per un saggio sulla motivazione obbligatoria dei provvedimenti amministrativi, in Diritto processuale amministrativo, 1, 1993, p. 1 ff.

[255] E. Casetta, F. Fracchia (eds.), op. cit., p. 516.

[256] A. Carbone, Poteri e situazioni giuridiche soggettive nel diritto amministrativo, vol. 1, Giappichelli, Torino, 2020, p. 361.

[257] Cons. Stato, sec. V, judgement of 5 December 2014, no. 6026. In the same sense, *ex multis*, Cons. Stato, sec. V, judgement of 3 March 2025, no. 2144; Cons. Stato, sec. II, judgement of 3 April 2024, no. 3052; Cons. Stato, sec. V, judgement of 23 February 2024, no. 1825; Cons. Stato, sec. I, final opinion, 25 May 2020, no. 976.

The statement of reasons has been defined as a multifaceted concept, as it performs three different functions based on the different addressees: a) facilitating the interpretation of the act; b) allowing administrative control and judicial review; c) guaranteeing the transparency of administrative action[258].

The Italian Constitutional Court (*Corte Costituzionale*) itself has long held that «l'obbligo di motivare i provvedimenti amministrativi è diretto a realizzare la conoscibilità, e quindi la trasparenza, dell'azione amministrativa». Although the Republican Constitution does not contain an express legal framework on the duty to give reasons, it is believed that it is «radicato negli artt. 97 e 113 Cost., in quanto, da un lato, costituisce corollario dei principi di buon andamento e d'imparzialità dell'amministrazione e, dall'altro, consente al destinatario del provvedimento, che ritenga lesa una propria situazione giuridica, di far valere la relativa tutela giurisdizionale»[259].

From a legal-systematic point of view, Art. 3 establishes the duty to give reasons as a modal rule of the exercise of power[260], affecting the structure and content of the act, representing the administration[261]'s accountability for the specific decision as well as «(…) il presupposto, il fondamento, il baricentro e l'essenza stessa del legittimo esercizio del potere amministrativo ai sensi dell'art. 3 della legge n. 241/1990 e, per questo, un presidio di legalità sostanziale insostituibile»[262].

---

[258] Ibid., pp. 187-188. F. Cardarelli, La motivazione del provvedimento, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 397, where he recalls that «Costituisce un dato acquisito in dottrina sia dalle prime sistemazioni organiche (…) il carattere "polifunzionale" della motivazione: essa darebbe conto sia della funzione interpretativa delle norme parametro della decisione, sia delle ragioni da ostendere in sede di controllo giurisdizionale di legittimità dell'atto, sia della garanzia rappresentata a favore dei destinatari del provvedimento affinché siano posti nella condizione (alternativa) di persuadersi delle buone ragioni dell'Amministrazione, ovvero di contestarne la ricorrenza e quindi dedurre l'illegittimità del provvedimento (…)».

[259] Corte Cost., judgement of 2 November 2010, no. 310, § 6.1. For a comment on this decision, see M. Longo, La motivazione nei provvedimenti di sospensione dell'attività imprenditoriale: un obbligo generale dal fondamento costituzionale, in Il Foro amministrativo (C.d.S.), 6, 2011, pp. 1797-1813; A. Cassatella, Il dovere di motivazione discorsiva degli atti amministrativi, in Giornale di diritto amministrativo, 4, 2011, pp. 401-411; A. Ruggeri, La Corte costituzionale, la "logica" del caso e la motivazione insufficiente (dialogando con alcuni matematici sulla sent. n. 310 del 2010), in www.giurcost.org, 26 June 2012.

[260] A. Cassatella, Il dovere di motivazione nell'attività amministrativa, cit., p. 394.

[261] Ibid., p. 277.

[262] *Ex multis*, see Cons. Stato, sec. VI, judgement of 5 March 2024, no. 2155; Cons. Stato, sec. II, judgement of 6 September 2023, no. 8193; Cons. Stato, sec. VI, judgement of 20

An essential requirement of the duty to give reasons is its relationship with the results of the fact-finding phase (*fase dell'istruttoria*), in the sense that a statement of reasons cannot be based on elements that did not emerge during the procedure[263] and, when it deviates from such results, it is necessary to point out the reasons precisely in the final act, to "reinforce" it (Art. 6, paragraph 1, letter e), Law 241/1990). Another case of "enhanced" statement of reasons occurs in relation to Art. 10-bis of Law 241/1990 (communication of reasons preventing the acceptance of the application), where the final act must give reasons for the non-acceptance of the written submissions presented by the private party following the advance notice of rejection issued by the public administration, supplementing the statement of reasons with the necessary arguments to refute such submissions[264].

Furthermore, as observed among scholars, Article 3 imposes a duty of *clare loqui* (or rather, *clare respondere*), i.e., to elaborate precise and understandable language[265].

December 2021, no. 8449; Cons. Stato, sec. V, judgement of 10 September 2018, no. 5291; Cons. Stato, sec. III, judgement of 7 April 2014, no. 1629.

[263] On this point, Cardarelli observes that «il legislatore ha posto una corrispondenza biunivoca tra istruttoria procedimentale e motivazione provvedimentale: sicché le risultanze della prima, che consiste in un momento dinamico della decisione amministrativa non possono che confluire formalmente nella staticità del provvedimento (…) Questa corrispondenza biunivoca comporta, sul piano contenutistico, un preciso vincolo alla motivazione (al di là della articolazione postulata dalla norma positiva in presupposti fattuali e ragioni giuridiche): ma comporta anche (…) conseguenze sul piano formale dell'atto conclusivo, ed in particolare sui profili di validità e legittimità del provvedimento» (in F. Cardarelli, La motivazione del provvedimento, cit., p. 380).

[264] See S. Tuccillo, Il preavviso di rigetto, in M.A. Sandulli (ed.), Princìpi e regole dell'azione amministrativa, cit., p. 426, according to whom «all'esito delle osservazioni presentate dal privato, la realtà fattuale si amplia e anche il corredo motivazionale deve essere integrato di conseguenza, sia in una logica controdeduttiva pura, sia in chiave di rivalutazione o conferma dell'assetto degli interessi dato nel preavviso. A tenore della disposizione, (…) l'amministrazione esaurisce il suo potere/dovere di motivare in una fase antecedente, ovvero nel preavviso di diniego che potrà arricchirsi esclusivamente degli elementi che scaturiscono dal contraddittorio con il privato. Si consolida, così, la funzione eminentemente difensiva della partecipazione nella fase decisoria, e la possibilità di ampliare il corredo istruttorio deve ritenersi esaurita con la comunicazione dei motivi ostativi».

[265] Cassatella observes that «un'assunzione di responsabilità formulata in termini contraddittori o illogici finirebbe infatti per risolversi in una motivazione apparente o apodittica, vanificando gli stessi scopi dell'istituto, oltre a porsi in contrasto con il generale principio di trasparenza che, pur non fondando il dovere di motivare, condiziona le modalità di redazione dell'atto» (A. Cassatella, Il dovere di motivazione nell'attività amministrativa, cit., p. 283).

Although the duty to give reasons is general and Art. 3 makes no distinctions between types of administrative activity, its intensity and modalities vary based on the nature of the act. According to the consolidated orientation of the Council of State, for non-discretionary acts, the statement of reasons is attenuated and can be limited to a mere burden of "justification", indicating the rules applied and the ascertainment of factual prerequisites[266]. In discretionary acts, instead, more extensive reasoning is required, «finalizzata a consentire al destinatario del provvedimento la ricostruzione dell'iter logico-giuridico che ha determinato la volontà dell'Amministrazione»[267], demonstrating that the administration has pondered and taken into account the different interests at stake and that the final choice is reasonable and proportionate[268]. Finally, in technical-discretionary acts, the statement of reasons must make explicit not only the aforementioned logical-legal path but, above all, the logic and coherence of the technical judgement,

---

[266] On this point, mention must be made of Cons. Stato, sec. IV, judgement of 16 June 2008, no. 2977, specifying how «secondo indirizzi giurisprudenziali consolidati, pur dopo l'entrata in vigore della legge n. 241 del 1990 gli atti vincolati – a differenza dei provvedimenti che poggiano su valutazioni di natura discrezionale – non necessitano di una motivazione particolarmente estesa, essendo sufficiente che l'Amministrazione individui con chiarezza le ragioni giuridiche assunte a fondamento della decisione. In tal senso è acquisito in giurisprudenza che l'esercizio del potere amministrativo, ove rivesta natura vincolata, è correttamente e sufficientemente motivato col mero richiamo alle disposizioni di legge delle quali viene fatta applicazione. In sostanza negli atti vincolati, rispetto ai quali non viene in rilievo quell'esigenza di contemperamento dei diversi interessi pubblici e di quelli privati coinvolti dall'azione amministrativa discrezionale, deve considerarsi motivazione sufficiente anche quella che si limita a dar conto della previsione normativa valorizzata dall'Amministrazione procedente in relazione al caso di specie» (in the same sense, more recently, see Cons. Stato, sec. VII, judgement of 15 February 2022, no. 1129; Cons. Stato, Ad. Sez., opinion, 8 April 2014, no. 1151). For example, in the case of refusal of retrospective landscape approval in the hypotheses provided for by Art. 167 of Legislative Decree 42/2004, administrative case law has deemed, «in considerazione della [sua] natura rigidamente vincolata (…) sufficiente, per ritenere motivato congruamente il suddetto diniego, una mera giustificazione del provvedimento ovvero la semplice descrizione delle opere edilizie realizzate e l'indicazione della loro natura abusiva» (TAR Sicilia, Palermo, sec. III, judgement of 12 December 2024, no. 3475; in the same sense, see TAR Sicilia, Catania, sec. III, judgement of 15 April 2021, no. 1161; C.G.A.R.S., jur. sec., judgement of 23 November 2020, no. 1095).

[267] *Ex multis*, see Cons. Stato, sec. II, judgement of 28 May 2022, no. 4287; Cons. Stato, sec. VI, judgement of 22 June 2021, no. 4796; more recently, see Cons. Stato, sec. V, judgement of 7 February 2025, no. 957).

[268] B. Marchetti, La discrezionalità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 148.

and must demonstrate the correctness of the technical criterion and the application procedure used[269].

Another particular case is the so-called "simplified" statement of reasons (*motivazione semplificata*), provided for by Article 2, paragraph 1, of Law no. 241/1990, for acts where the administration deems the application manifestly inadmissible, irregular, procedurally barred (*improcedibile*), or unfounded. In these cases, the statement of reasons can consist of a «sintetico riferimento al punto di fatto o di diritto ritenuto risolutivo». This derogation, however, does not dispense with the duty to give a meaningful statement of reasons, which must remain intelligible and respectful of the good faith characterising administrative activity, allowing individuals to infer from the content of administrative acts the elements necessary to exercise their right of defence under Art. 24 of the Constitution[270].

The violation of the duty to give reasons constitutes a defect of the administrative act. In particular, according to the prevailing case law orientation formed following Law 241/1990, the total absence of a statement of reasons is traced back to the violation of law, while insufficiency, illogicality, incongruity, irrationality, vagueness, contradiction (etc.) of reasoning are typically considered indicators of misuse of power (*figure sintomatiche dell'eccesso di potere*)[271].

---

[269] *Ex multis*, see Cons. Stato, sec. VII, judgement of 15 May 2025, no. 4185; Cons. Stato, sec. VI, judgement of 19 May 2018, no. 3013. However, case law has developed a peculiar orientation, especially regarding public competitions and procedures for evaluating offers in public procurement, admitting the so-called "numerical" or "symbolic" statement of reasons (the expression of the grade or score) in place of an analytical verbal discourse. Such type of statement of reasons is deemed sufficient provided that the pre-set evaluation criteria are extremely detailed (lastly, TAR Lombardia, Milano, sec. V, judgement of 4 November 2024, no. 3022). In such cases, the specificity of the predefined criteria absorbs the burden of analytically stating the reasons for each single score. The admissibility of such synthetic forms of reasoning, however, is balanced by the requirement that the act is not tautological or stereotypical (A. Cassatella, Il dovere di motivazione nell'attività amministrativa, cit., p. 376), and that the score, even if numerical, is suitable to demonstrate the logic and congruence of the technical judgement (Cons. Stato, sec. VI, judgement of 7 May 2018, no. 2699; Cons. Stato, sec. V, judgement of 16 January 2013 no. 233; Cons. Stato, sec. IV, judgement of 17 February 2009 no. 859).

[270] F. Fichera, op. cit., p. 670.

[271] On the historical transition from absence of a statement of reasons as an indicator of misuse of power to violation of law, see Corte Cost., judgement of 5 November 2010, no. 310, observing that «mentre prima di detta legge [241 del 1990] il difetto di motivazione integrava una figura sintomatica di eccesso di potere, oggi configura il vizio di violazione di legge». According to consolidated administrative case law, «il difetto di motivazione costituisce, per

Moreover, the requirement that the decision and its statement of reasons be contemporaneous imposes the inadmissibility of the so-called *post hoc* statement of reasons (*motivazione postuma*), i.e., the supplementation of the statement of reasons during the trial, as admitting it would frustrate the need for transparency of administrative action[272] and violate the private party's right to defence[273].

---

sua natura, lo strumento tipico per l'analisi funzionale del provvedimento. Il difetto di motivazione è, cioè, un elemento rilevante in quanto sintomaticamente rivelatore di un eccesso di potere concernente il mancato rispetto dei precetti della logica, della coerenza interna e della razionalità; ovvero di un errore di valutazione dei presupposti del provvedimento; o ancora di uno sviamento dell'atto dalla causa tipica e/o dall'interesse pubblico. In tale prospettiva, dunque, la motivazione di un provvedimento può, e deve, essere sindacata dal giudice della legittimità sul piano della sufficienza intrinseca, della logica, dalla sostanziale congruità e razionalità, al fine di accertare la possibile ricorrenza di un difetto strutturale o funzionale del provvedimento (per falsità o erroneità dei presupposti, travisamento della realtà di fatto ecc.), o di una sostanziale deviazione dagli interessi pubblici (per sviamento di potere o violazione del principio di imparzialità), o di una palese illogica, irrazionalità, iniquità, ecc.» (Cons. Stato, sec. IV, judgement of 4 December 2013, no. 5768; in conformity, more recently, see T.A.R. Napoli, sec. III, judgement of 24 March 2025, no. 2456; T.A.R. Sicilia, Palermo, sec. III, judgement of 22 November 2021, no. 3197; T.A.R. Sardegna, Cagliari, sec. II, judgement of 21 January 2021, no. 33; T.A.R. Sardegna, Cagliari, sec. II, judgement of 22 July 2020, no. 416; T.A.R. Sardegna, Cagliari, sec. II, judgement of 9 April 2019, no. 326; T.A.R. Trentino-Alto Adige, Trento, sec. un., judgement of 10 October 2014, no. 353).

[272] E. Casetta, F. Fracchia (eds.), op. cit., p. 517.

[273] However, the prevailing case law of the Council of State and the C.G.A.R.S. has specified that «sebbene il divieto di motivazione postuma, costantemente affermato dalla giurisprudenza amministrativa, meriti di essere confermato, rappresentando l'obbligo di motivazione il presidio essenziale del diritto di difesa, non può ritenersi che l'Amministrazione incorra nel vizio di difetto di motivazione quando le ragioni del provvedimento siano chiaramente intuibili sulla base della parte dispositiva del provvedimento impugnato o si verta in ipotesi di attività vincolata (…) In particolare, la facoltà dell'Amministrazione di dare l'effettiva dimostrazione dell'impossibilità di un diverso contenuto dispositivo dell'atto, nel caso di atti vincolati, esclude in sede processuale che l'argomentazione difensiva dell'Amministrazione, tesa ad assolvere all'onere della prova, possa essere qualificata come illegittima integrazione postuma della motivazione sostanziale, cioè come un'indebita integrazione in sede giustiziale della motivazione stessa» (C.G.A.R.S., jur. sec., judgement of 1 September 2025, no. 693). Therefore, «alla luce dell'attuale assetto normativo, devono essere attenuate le conseguenze del principio del divieto di integrazione postuma, dequotando il relativo vizio tutte le volte in cui l'omissione di motivazione successivamente esternata non abbia leso il diritto di difesa dell'interessato, nonché nei casi in cui, in fase infraprocedimentale, risultano percepibili le ragioni sottese all'emissione del provvedimento gravato, nonché infine nei casi di atti vincolati» (Cons. Stato, sec. V, judgement of 17 March 2025, no. 2151). For an in-depth analysis on the supplementation of the statement of reasons during trial, see S. Giacchetti, Fontanazzi giuridici: l'integrazione in corso del giudizio del

4.1.2. Statement of reasons based on deterministic algorithms

Now, what happens when the duty to give reasons must be applied within the scope of algorithmic administrative acts? The answer depends on whether, to adopt the act, recourse is made to deterministic algorithms or artificial intelligence systems.

Regarding the use of deterministic algorithms, two theses have been recorded.

4.1.2.1. The theory of the simplified statement of reasons for non-discretionary activity and the debate on the applicability of Art. 21-octies, paragraph 2, Law 241/1990 to automated administrative acts

According to the first theory, the administrative act arising from such algorithms would fall within the ambit of non-discretionary administrative activity. In these cases, the statement of reasons would amount to the enunciation of the factual and legal prerequisites that constitute the case under consideration. The duty to give reasons, therefore, would be satisfied through the application of legal parameters predetermining the prerequisites of the act, recalled by the indication of the cause of the act itself, as well as by the indication of concrete facts procedurally acquired, with the consequence that in this perspective the recourse to the algorithm would not appreciably change the traditional burden of reasoning[274], which, for non-discretionary administrative acts, is lighter[275]. Some less recent theoretical reconstructions argued that the burden can be met by simply mentioning the administrative program that processed the act, thereby establishing reasoning by reference[276]

---

provvedimento impugnato, in Diritto processuale amministrativo, 1, 1995, p. 18 ff.; A. Zito, L'integrazione in giudizio della motivazione del provvedimento: una questione ancora aperta, in Diritto processuale amministrativo, 3, 1994, p. 577 ff.; G. Virga, Integrazione della motivazione nel corso del giudizio e tutela dell'interesse alla legittimità sostanziale del provvedimento impugnato, in Diritto processuale amministrativo, 3, 1993, p. 507 ff.

[274] G. Carullo, op. cit., p. 446.

[275] P. Forte, Diritto amministrativo e data science. Appunti di Intelligenza Amministrativa Artificiale (AAI), in PA Persona e Amministrazione, 1, 2020, p. 270.

[276] According to Fantigrossi, the duty to give reasons can be considered fulfilled using «anche un semplice richiamo del provvedimento generale con cui è stato approvato il programma» (U. Fantigrossi, Automazione e pubblica amministrazione. Profili giuridici, Il Mulino, Bologna, 1993, p. 135). In general, paragraph 3 of Art. 3 of Law 241/1990 allows the possibility of resorting to the so-called reasoning by reference (*motivazione per relationem*), in case the decision refers to another act of the administration containing the statement of

(*motivazione per relationem*), or even that the automatic retrieval, connection, and juxtaposition of rules and data would suffice[277]. This theory, however, has been subject to criticism since the statement of reasons must constitute a discursive process and not exhaust itself in the mere transmission of the file or the numerical score[278]. In this regard, a lively debate has arisen concerning the applicability of Art. 21-octies, paragraph 2, of Law 241/1990 to administrative acts based on deterministic algorithms, a rule that excludes the voidability (*annullabilità*) of the administrative act «adottato in violazione di norme sul procedimento o sulla forma degli atti qualora, per la natura vincolata del provvedimento, sia palese che il suo contenuto dispositivo non avrebbe potuto essere diverso da quello in concreto adottato» (so-called non-invalidating defects, or *vizi non invalidanti*)[279]. In particular, it has been

---

reasons, provided that such act is indicated and made available. Availability, according to prevailing case law, is guaranteed through the access to administrative documents: «l'art. 3, comma III, della L. n. 241\1990 (…) non obbliga la p.a. ad accludere al provvedimento adottato gli atti a cui con lo stesso rinvia, ma è sufficiente che tali atti siano resi disponibili, rimettendo cioè la concreta disponibilità all'attivazione dell'interessato a mezzo del diritto di accesso ed eventualmente dei poteri di acquisizione istruttoria propri del giudice in sede giurisdizionale» (TAR Campania, Napoli, sec. IV, judgement of 20 July 2010, no. 16867; in the same sense, see TAR Sicilia, Palermo, sec. I, 4 February 2009, no. 293; TAR Lazio, Roma, sec. I, 09 July 2008, no. 6498; TAR Emilia Romagna, Parma, sec. I, 22 January 2008, no. 33; TAR Lazio, Roma, sec. III, 06 November 2007, no. 10922; TAR Campania, Napoli, sec. VII, 08 November 2007, no. 11074; TAR Sicilia, Palermo, sec. I, 23 May 2006, no. 1230).

[277] C. Giurdanella, E. Guarnaccia, Elementi di diritto amministrativo elettronico, Halley, Macerata, 2005, p. 42, according to whom «così come non vi è nessun ostacolo per gli atti aventi forma elettronica (in tal caso anche la motivazione sarà in forma elettronica), allo stesso modo per gli atti ad elaborazione elettronica è plausibile la motivazione elettronica generata, appunto, mediante l'automatico reperimento, collegamento e giustapposizione di norme e dati».

[278] G. Avanzini, Decisioni amministrative e algoritmi informatici, Editoriale Scientifica, Napoli, 2018, p. 151.

[279] For an in-depth analysis on the relationship between the duty to give reasons and the legal framework of non-invalidating defects under Art. 21-octies, paragraph 2, of Law no. 241/1990, see E.M. Santoro, I vizi non invalidanti del provvedimento, in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 717 ff.; F. Aperio Bella, Limiti alla convalida del vizio di motivazione in corso di giudizio (nota a Cons. Stato, sez. VI, n. 3385/2021), Giustizia Insieme, 10 November 2021; N. Durante, I vizi formali del procedimento, alla luce del decreto-legge "Semplificazioni" e delle recenti pronunce dell'Adunanza Plenaria, Rivista della Corte dei conti, 6, 2020, p. 62 ff.; M. Ramajoli, Il declino della decisione motivata, in Diritto processuale amministrativo, 3, 2017, p. 894 ff.; F. Volpe, La non annullabilità dei provvedimenti amministrativi illegittimi, in Diritto processuale amministrativo, 2008, p. 319 ff.; D. Sorace, Il principio di legalità e i vizi formali dell'atto

discussed whether the deterministic nature of the algorithm can legitimize the application of the so-called "downgrading" (*dequotazione*) of procedural or formal defects[280], with the concrete risk of undermining the duty to give reasons and participatory guarantees. Part of the legal scholarship argues that, with respect to the validity of the administrative act, even when automated, the provision of a strengthened duty to give reasons in non-discretionary and serial proceedings would risk undermining the need for speed and procedural simplification that the use of algorithms aims to achieve[281]. To understand the scope of objections raised in the technological field, one must move beyond the orientation toward "non-algorithmic" administrative acts. Indeed, regarding the possibility of downgrading the failure to state reasons to a non-invalidating defect for non-discretionary acts, the prevailing case law of the Council of State excludes the applicability of Art. 21-octies, paragraph 2, to failure to state reasons, given that «il difetto di motivazione non può essere in alcun modo assimilato alla violazione di norme procedimentali o ai vizi di

---

amministrativo, in Diritto pubblico, 2, 2007, p. 385 ff.; A. Pubusa, Forma e sostanza nel procedimento. Considerazioni sull'art. 21octies della legge n. 241 del 1990, in Diritto pubblico, 2, 2006, p. 512 ff.; G. Tropea, La c.d. motivazione "successiva" tra attività di sanatoria e giudizio amministrativo, in Diritto amministrativo, 3, 2003, p. 531 ff.; A. Police, L'illegittimità dei provvedimenti amministrativi alla luce della distinzione tra vizi c.d. formali e vizi sostanziali, in Diritto amministrativo, 4, 2003, p. 735 ff.; P. Siracusano, Considerazioni in tema di obbligo di motivazione degli atti vincolati, in Foro amministrativo (II) C.d.S., 10, 2003, p. 3012 ff.

[280] The expression «dequotazione» was coined in the academic work of Massimo Severo Giannini, who introduced this legal neologism in the Seventies referring specifically to the duty to give reasons. According to Giannini, the «dequotazione della motivazione» (M.S. Giannini, Motivazione dell'atto amministrativo, in Enciclopedia del Diritto, XXVII, Giuffrè, Milano, 1977, p. 265) indicated a substantialist approach by virtue of which, for the purposes of review of legality, the verification of «ciò che si è fatto» (the substance of the decision and the underlying fact-finding process) had to prevail over «ciò che si è dichiarato di voler fare» (the formal wording of the statement of reasons) (M.S. Giannini, p. 226). In this perspective, the formal defect lost its "quota" of invalidating value if the act was nonetheless substantively correct and supported by the record of the proceeding, reducing the problem of giving reasons to that of the intrinsic validity of the adopted solution. This approach, aimed at preventing judicial annulment from resolving into a useless victory for the private citizen in the face of inexhaustible or non-discretionary power, was positivized by the lawmaker with the introduction of Art. 21-octies, paragraph 2, of Law no. 241/1990.

[281] Thus, L. Previti, La decisione amministrativa robotica, Editoriale Scientifica, Napoli, 2022, p. 256, according to whom «A ben vedere, in un siffatto, rinnovato contesto procedimentale, una motivazione in forma discorsiva della decisione adottata a valle della procedura rischierebbe di costituire un ulteriore, poco ragionevole, adempimento a carico dell'amministrazione procedente. Il che renderebbe di fatto il ricorso ai sistemi di automazione eccessivamente farraginoso e, in definitiva, di scarsa utilità pratica».

forma, costituendo la motivazione del provvedimento il presupposto, il fondamento, il baricentro e l'essenza stessa del legittimo esercizio del potere amministrativo (art. 3, l. n. 241 del 1990) e, per questo, un presidio di legalità sostanziale insostituibile, nemmeno mediante il ragionamento ipotetico che fa salvo, ai sensi dell'art. 21 octies, comma 2, l. n. 241 del 1990, il provvedimento affetto dai cosiddetti vizi non invalidanti»[282]. As rightly observed, if one were to admit that a non-discretionary act cannot be annulled even when lacking a statement of reasons (on the grounds that its content would not have changed), the protection afforded by Art. 3 of Law 241/1990 would effectively be rendered nugatory, as for non-discretionary acts it would always be manifest that the content could not have been otherwise[283]. It is precisely in the wake of this guarantee-oriented interpretation that the debate on algorithmic decisions arises, where the prevailing orientation – correctly, in my opinion – tends to challenge the automatic application of the non-voidability mechanism. Indeed, as observed by part of the legal scholarship, the principles of algorithmic legality developed by the Council of State (knowability and comprehensibility, non-discrimination, and non-exclusivity of the algorithmic decision) do not constitute simple formal or procedural rules, but substantive guarantees of legality and, therefore, are exempt from the phenomenon of "downgrading"[284]. A further critical argument was raised

---

[282] Cons. Stato, sec. III, judgement of 31 March 2025, no. 2654. In the same sense, *ex multis*, see Cons. Stato, sec. III, judgement of 27 June 2024, no. 5688; Cons. Stato, sec. IV, judgement of 2 February 2024, no. 1117; Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11258; Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11220; Cons. Stato, sec. IV, judgement of 7 June 2023, no. 5592; Cons. Stato, sec. VI, judgement of 27 April 2021, no. 3385; Cons. Stato, sec. I, opinion, 20 November 2020, no. 1891; Cons. Stato, sec. III, judgement of 7 April 2014, no. 1629. The orientation of the Council of State, moreover, was expressly supported by the Italian Constitutional Court on two occasions: Corte Cost., order of 17 March 2017, no. 58; Corte Cost., order of 26 May 2015, no. 92.

[283] F. Aperio Bella, La motivazione del provvedimento (art. 3 l. n. 241 del 1990 s.m.i.), in M.A. Sandulli (ed.), Princìpi e regole dell'azione amministrativa, cit., p. 453.

[284] F. Nassuato, Legalità algoritmica nell'azione amministrativa e regime dei vizi procedimentali, in CERIDAP, 1, 2022, pp. 166-167, who, in treating the principles of knowability and algorithmic non-discrimination, argues that they are characterized by a «valenza sostanzialista, l'uno per essere strettamente collegato all'obbligo di motivazione degli atti amministrativi e alla sua piena conoscibilità, l'altro per essere una declinazione diretta del principio costituzionale di eguaglianza»; consequently, they express «garanzie di legalità in senso "forte" e non cedevole», regarding the content of the decision and the decipherability of the reasoning process, rather than merely formal aspects. Therefore, «la violazione di uno dei suddetti principi non sarebbe suscettibile di integrare un mero vizio di forma o di procedimento, né potrebbe essere, di conseguenza, dequotata in virtù dell'istituto dei vizi non

by some legal scholars, starting with the following question: in the presence of a machine executing a calculation, would there ever be room for a decision of different content? If the answer were negative (as it is in deterministic logic), the application of Art. 21-octies would entail the systematic irrelevance of the private party's participation in the administrative proceeding, with the consequence that it is advisable to exclude the applicability of Art. 21-octies, paragraph 2, to algorithmic administrative decisions, if only because, arguing otherwise, the very utility of the interested parties' participation would be at risk[285].

4.1.2.2. The theory of the Council of State on the obligation to translate the technical formula into a legal rule

And it is precisely based on these reasons that the Council of State, even within the scope of automated administrative procedures, rejected the idea that the duty to give reasons can be suppressed or reduced due to the presence of an algorithm. On the contrary, the fact that the act is issued based on a complex calculation operation strengthens the duty to give reasons, requiring a «declinazione rafforzata del principio di trasparenza». As clarified

---

invalidanti». The discourse – adds the Author – would become more complex regarding the principle of non-exclusivity of the algorithmic decision (requiring human intervention in the automated administrative proceeding), which, at first glance, might appear as a procedural rule abstractly subject to the regime of non-invalidating defects under Art. 21-octies, paragraph 2. The Author rejects the possibility of strengthening this principle by resorting to the theory of implied powers, since the use of algorithms – following the case law of the Council of State – does not constitute an autonomous power but a mere «modulo organizzativo» of a procedural and fact-finding nature (p. 168). To ensure that this principle can also resist downgrading under Art. 21-octies, Nassuato proposes a different hermeneutic path attributing a substantive significance also to the human in the loop rule, connecting it to the rules on the RUP interpreted in an «chiave antropomorfica» (p. 170). According to this reconstruction, procedural participation takes on the character of a «meta-principio di garanzia del giusto procedimento automatizzato», capable of founding the substantive significance of the principle of non-exclusivity (p. 172). In this way, human intervention is prevented from being reduced to a formality, since distorting participation would mean betraying the function of acquiring interests, which transcends the mere faculty to disregard the algorithmic decision scheme (p. 173). The Author's conclusion is that the attribution of autonomous substantive significance is key to ensuring the stability of algorithmic guarantees vis-à-vis Art. 21-octies, preventing technological development from translating into an «involuzione dei rapporti procedimentali verso una direttrice autoritaria» (p. 175). He finally hopes for a legislative intervention expressly excluding the «irrilevanza dei vizi dell'atto amministrativo derivanti dalla violazione dei principi stessi» (pp. 175-176).

[285] B. Spampinato, Per un primo inquadramento teorico della decisione amministrativa algoritmica, in AmbienteDiritto, 3, 2021, pp. 15-18.

previously, this theory requires that the Administration make its decision not only knowable but also fully understandable. "Knowable" in the sense of indicating the IT decision mechanism employed: from its authors, to the procedure used for its elaboration, to the decision mechanism, including the priorities assigned in the evaluation and decision procedure and the data selected as relevant. "Understandable" in the sense that the Administration must explain the functioning of the algorithm in terms understandable for the user not endowed with technical skills: the "technical formula", representing the algorithm, must be accompanied by explanations translating it into the "legal rule" underlying it and making it readable and understandable, both for citizens and for the judge[286]. The Administration, conversely, cannot limit itself to «postulare una coincidenza fra la legalità e le operazioni algoritmiche che deve invece essere sempre provata ed illustrata sul piano tecnico, quantomeno chiarendo (…) le istruzioni impartite e le modalità di funzionamento delle operazioni informatiche se ed in quanto ricostruibili sul piano effettuale perché dipendenti dalla preventiva, eventualmente contemporanea o successiva azione umana di impostazione e/o controllo dello strumento»: if this were the case, indeed, algorithmic opacity would prevent the applicant, and subsequently the judge, from perceiving the logical-legal path followed by the administration to reach a certain act outcome, since if the method is opaque, the defect «finisce per involgere il metodo in quanto tale per il difetto di trasparenza dello stesso»[287]. More recently, the Council of State expressly specified that «nei casi di decisione algoritmica, la motivazione del provvedimento finale deve richiamare il codice sorgente e il modello matematico impiegati, salva la possibilità per l'interessato di esercitare il diritto d'accesso documentale a tali "documenti"»[288].

4.1.3. Statement of reasons based on artificial intelligence systems

When, instead, the decision-making process is, in whole or in part, based on output from artificial intelligence systems, in particular those based on machine learning and deep learning, the fulfilment of the duty to give reasons becomes more problematic, so much so that at least four different theses have been formed on this issue as well.

---

[286] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 13.1.

[287] Ibid., § 16.

[288] Cons. Stato, sec. IV, judgement of 4 June 2025, no. 4857.

4.1.3.1. The theory of the black box as an absolute obstacle to the fulfilment of the duty to give reasons

The first theory, the most critical, is based on the so-called black box phenomenon. It starts from the assumption that, given the nature of machine learning algorithms (previously described as lacking a predefined linear causal logic, but based on a logic of probabilistic inference), the logical-legal path leading to the decision is often not only unpredictable, but also incomprehensible to the programmers themselves and, *a fortiori*, to the public officer adopting the act[289]. Consequently, providing a statement of reasons that sets out the factual prerequisites and legal reasons according to the standard required by traditional administrative law would be structurally impossible or extremely difficult[290]. This hermeneutic approach leads to the conclusion that, at least for now, the use of machine learning algorithms in areas requiring a statement of reasons and judicial review should be limited or precluded,

---

[289] E. Bracci, op. cit, p. 748; A. Di Martino, L'amministrazione per algoritmi ed i pericoli del cambiamento in atto, in Il diritto dell'economia, 3, 2020, p. 625 ff. See also the observations of D.U. Galetta, La pubblica amministrazione oggi, fra intelligenza artificiale e intelligenza umana, in J.B. Auby, G. De Minico, G. Orsoni (eds.), L'amministrazione digitale, Editoriale Scientifica, Napoli, 2023, p. 128, according to whom «rispetto a taluni algoritmi di IA, per quelli di "deep learning" è infatti in linea di principio impossibile stabilire come l'algoritmo valuta i dati e le informazioni che elabora. (…) Il "codice" è impenetrabile poiché il programma "evolve" e gli esseri umani non possono capire il processo che la programmazione ha seguito per arrivare a una data soluzione. Se questo è il caso, non credo che sia possibile permetterne il loro uso da parte delle amministrazioni pubbliche». See also M. Interlandi, L. Tomassi, La decisione amministrativa algoritmica, in A. Contieri (ed.), Approfondimenti di diritto amministrativo, Editoriale Scientifica, Napoli, 2021, p. 454, who observe that «sembra difficile immaginare che il funzionario sia effettivamente in grado di "contestare" il processo algoritmico, rispetto al caso concreto, avventurandosi nella dinamica tecnologica che ha generato una determinata soluzione».

[290] A. Di Martino, Tecnica e potere nell'amministrazione per algoritmi, cit., p. 225; M. Bottari, Procedimento amministrativo: evoluzione digitale e suoi sviluppi nell'era dell'Intelligenza artificiale, in Il Diritto Amministrativo, 20 February 2023, p. 25. According to another part of the legal scholarship, moreover, «the right to an explanation or a right to know the logic of a machine learning-based automated decision-making system, as established in Article 22 of the General Data Protection Regulation (GDPR), is probably not sufficient as a legal justification of a decision with respect to administrative law», since « (…) knowing the logic, or even the source code, of a machine learning algorithm does not suffice to explain the reasons behind or give the legal reasons of such a decision in an individual case in a manner that is expected under the administrative law in most countries» (M. Suksi, Formal, Procedural, and Material Requirements of the Rule of Law in the Context of Automated Decision-Making, in M. Suksi (ed.), The Rule of Law and Automated Decision-Making, Springer, Cham, 2023, p. 72).

keeping AI in a merely auxiliary or fact-finding role, without replacing human decision-making[291].

4.1.3.2. The theory of the functional human standard

A second theory attempts to overcome the black-box problem by distinguishing between the causal and technical explanations of the algorithm's functioning and the reasons required by law. According to this perspective, for administrative legality, what matters is that the final act satisfies the standard of reasoning proper to human decision-making[292]: it is

---

[291] See L. Sancilio, Le ricadute del Next Generation EU sul procedimento amministrativo digitale e il problematico uso dell'intelligenza artificiale nell'esercizio della discrezionalità amministrativa, in S. Franca, A. Porcari, S. Sulmicelli (eds.), Le transizioni e il diritto: atti delle giornate di studio, 21-22 settembre 2023, Università degli Studi di Trento, Trento, 2024, pp. 535-559, highlighting how the use of artificial intelligence systems based on machine learning in discretionary proceedings clashes with the «impossibilità per la macchina di spiegare come è pervenuta a una decisione», since the latter «non è supportata da un processo logico argomentativo causale» but founded on learning occurring «attraverso numeri, non attraverso la logica giuridica». This mechanism generates an «opacità algoritmica» (or black box) rendering the fact-finding phase unintelligible and «non garantisce il rispetto del fondamentale principio di motivazione», essential for judicial review of the administrative act (p. 552). Furthermore, Sancilio observes that administrative discretion is a «creativa» activity, aimed at finding new solutions to balance changing interests (p. 555), a task that current AI cannot perform without the risk of «restringere notevolmente le maglie della discrezionalità amministrativa, di fatto snaturandola» (p. 556); therefore, the Author concludes that the ideal placement for such machine learning systems is limited to the initiative phase of the proceeding (p. 559). See also A. Di Martino, L'amministrazione per algoritmi, cit., according to whom, for machine learning algorithms, the possibility of stating reasons for the decision receives a response that «non può che essere negativa» (p. 625), since they lead to conclusions «non rispondenti ad un determinato processo logico causale», indicating only the probability that an event occurs and not the why. Accepting an act devoid of an intelligible statement of reasons would entail, according to the Author, not only the violation of the right of defense, but the «definitivo tramonto della necessità per l'amministrazione di legittimare l'esercizio del proprio potere» before the community (p. 626).

[292] H.P. Olsen, J.L. Slosser, T.T. Hildebrandt, The Legal Requirement of Explainability in Computationally Aided Decision-Making in Public Administration, in H.W. Micklitz, O. Pollicino, A. Reichman, A. Simoncini. G. Sartor, G. De Gregorio (eds.), Constitutional Challenges in the Algorithmic Society, Cambridge University Press, Cambridge, 2022, p. 223, where the Authors argue that «In our view, ADM can and should be held accountable under those existing legal standards and we consider it unnecessary to public administration if this standard were to be changed or supplemented by other standards or requirements for AMD and not across al decision makers, whether human or machine. ADM, in our view, should meet the same minimum explanation threshold that applies to human decision-making. Rather than introducing new requirements designed for ADM, a more dynamic

therefore not necessary for the addressee or the judge to be able to penetrate the minutiae of neuronal mechanisms (or, by analogy, the mathematical formulas of AI), but it is sufficient for the administrative authority to provide sufficient and understandable reasons based on facts and law that led to the decision, similarly to what is required for a non-algorithmic decision[293]. It is argued, therefore, that even if the system is opaque, the final decision (which must be imputed to the human official and, consequently, to the administrative body) should be reviewable based on traditional legal categories. The duty to give reasons, therefore, does not require knowledge of how the machine reasoned (causality), but why the decision is legally justified. This vision, upon closer inspection, aims to preserve the use of AI, provided that the authority remains fully responsible and capable of answering for the underlying logic in ordinary language[294]. If this were not the case, indeed, one would run the risk of the so-called "rubber-stamping" phenomenon, i.e., over-

---

communicative process aimed at citizen engagement with the algorithmic processes employed by the administrative agency in question will be, in our view, more suitable to protecting against the ills of using ADM technology in public administration».

[293] On this point, Mir observes that «if a discretionary decision can be automated, it must be reasoned in at least as much detail as would be required of a human being» (O. Mir, Algorithms, Automation, and Administrative Procedure at EU Level, cit., p. 61).

[294] Ibid., p. 224: «The general call for explainability in AI – often conflated with complete transparency – is not required for challenging the decision by a citizen. This does not mean that we think that the quest for transparent ADM should be abandoned. On the contrary, we consider transparency to be desirable, but we see this as a broader and more general issue that links more to overall trust in AI technologies as a whole rather than something that is necessary to meet the explanation requirement in administrative law». Furthermore, the Authors argue – in my opinion correctly – that «Retaining the existing human standard for explanation, rather than introducing a new standard devised specifically for AI-supported decision-making, has the extra advantage that the issuing administrative agency remains fully responsible for the decision no matter how it has been produced. From this also follows that the administrative agency issuing the decision can be queried about the decision in ordinary language. This then assures a focus on the rationale behind the explanation being respected, even if the decision has been arrived at through some algorithmic calculation that is not transparent. If the analogy is apt in comparing algorithmic processes to human neurology or psychological history, then requiring algorithmic transparency in legal decisions that rely on AI-supported decision-making would fail to address the explanation requirement at the right level». Ultimately, «(…) we argue that the inner workings of an algorithm are not what is in need of explanation but, rather, the human interaction with the output of the algorithm and the biases that lie in the inputs. What is needed is not that algorithms should be made more transparent, but that the standard for intelligibility should remain undiminished» (pp. 226-227).

reliance by the public officer on the algorithmic output, transforming human control into a mere formal ratification[295].

4.1.3.3. The theory of the enhanced statement of reasons

A third orientation, widely endorsed especially after the interventions of Italian case law, maintains that the fact that the administrative act is issued based on a complex calculation operation (which makes the AI system intrinsically opaque) produces the effect of "reinforcing" the duty to give reasons on the Public Administration, which will have to guarantee the full knowability of the technical rule employed and of the decision-making logics, even if expressed in non-legal language, to allow the interested party to understand the bases of the reasoning process and to exercise an effective defense. The content of such so-called "enhanced" statement of reasons (*motivazione rafforzata*) should include, according to this orientation, the disclosure of various elements of the artificial intelligence system, constituting a complex statement of reasons that goes beyond the mere final outcome and is explicated by guaranteeing the knowability of the algorithm in all its aspects: its authors, the procedure used for its elaboration, the decision-making mechanism[296], the source code[297], the technical specifications, the input data, the training results, as well as any audits carried out on the AI system[298]. Furthermore, the statement of reasons should explain how the rules (including those inferred by the AI) produced the output in the specific case, in light of the preceding discussion. A[299] mere generic reference to the algorithm or to a

---

[295] J. Niklas, Human Rights-Based Approach to AI and Algorithms, 2021, in W. Barfield (ed.), The Cambridge Handbook of the Law of Algorithms, Cambridge University Press, Cambridge, p. 521.

[296] Prevailing administrative case law argues in this sense: Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270; Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881; TAR Campania, Napoli, sec. III, judgement of 14 November 2022, no. 7003.

[297] For an in-depth analysis of the problem of access to source code in administrative law, see Section 4.2. of this Chapter.

[298] I.M. Delgado, Automation, Artificial Intelligence and Sound Administration, in European Review of Digital Administration & Law, 3(1), 2022, p. 22.

[299] On this point, see S. Foà, Intelligenza artificiale e cultura della trasparenza amministrativa. Dalle "scatole nere" alla "casa di vetro"?, in Diritto amministrativo, 3, 2023, p. 540. Interesting are also the observations of H.C.H. Hofmann, Automated Decision-Making (ADM) in EU Public Law, in H.C.H. Hofmann, F. Pflücke (eds.), op. cit., pp. 20-21, according to whom «The 'right to an explanation' with respect to single-case ADM is thus linked to the right to a reasoned decision and the degree of reasoning necessarily required by the case law

complex calculation operation is insufficient[300]. In this context, the growing relevance of Explainable Artificial Intelligence (xAI) fits, which could make AI models interpretable and explainable, facilitating regulatory compliance and ensuring respect for procedural guarantees[301]. In this regard, it has also been observed by part of the legal scholarship, aware of the danger that the black box poses as an obstacle to effective and exhaustive assessments on the adequacy of the statement of reasons underlying the administrative act, that Art. 13 of the AI Act requires providers of high-risk AI systems to design and develop them in such a way as to ensure that their operation is sufficiently transparent to enable users to interpret and use the output appropriately[302].

4.1.3.4. The theory of the generative statement of reasons

Finally, a further theory, based on recent technological developments, suggests that Large Language Models (LLMs) and generative AI could offer a practical solution to the reasoning problem for AI systems. These models, thanks to their ability to analyse language, utilise relevant information, and

---

of the CJEU under principles of good administration and the right to an effective judicial protection. In fact, in the case of ADM, arguably the reasoning must be more complete regarding the information taken into account and processed as well as how the information has influenced the outcome of a decision than in a 'traditional' decision-making process, since probability used by AI systems is not the same of reasoning as human causality-driven approach would entail (…). This does not exclude the fact that in individual cases, providing the rationale behind decision- making might also require explanations concerning the system-level functioning and logic of programs used in ADM, but it does not require it as such, since the system level might only indicate the outcome in programming which is purpose built and to a certain degree static with respect to the outcome. Accordingly, demands have been made that in order to 'enable third parties to probe and review the behaviour of the algorithm', ADM 'should be accompanied by a "datasheet" that records the choices and manipulations of training data and the composition, collection process, recommended uses and so on».

[300] The Regional Administrative Court of Napoli, in judgement no. 7003 of 14 November 2022, held that the statements of reasons for two challenged acts were unlawful as the Administration merely mentioned the application of a "new algorithm" without revealing the technical formula or explaining its functioning in accessible terms, preventing the private party from understanding the reasoning process of the reduction suffered and the judge from verifying the correctness of the calculation operations performed by the machine.

[301] D. Marongiu, L'intelligenza artificiale "istituzionale": limiti (attuali) e potenzialità, in European Review of Digital Administration & Law, vol. 1, iss. 1-2, 2020, p. 47, seeing in xAI the tool making the use of neural networks compatible with procedural guarantees of administrative law. See also D. Liga, op. cit., p. 264, arguing that the duty to give reasons can only be satisfied with a combination of different xAI techniques.

[302] I. Forgione, La prospettiva dell'intelligenza artificiale nel procedimento e nell'attività amministrativa, in Rivista italiana di informatica e diritto, 2, 2024, pp. 510-511.

generate coherent and argumentative texts[303], could be used to produce articulated textual statements of reasons reflecting the outcome of the algorithmic decision in a way that is understandable to humans[304]. In this way, the duty to give reasons could be satisfied more completely compared to traditional decisions, supplementing the textual output with the documentation of the source code, the dataset used for training, and the corresponding individual administrative precedents, allowing the creation of a double-level review mechanism: evaluation of the generated textual output and analysis of the underlying algorithmic support layer[305]. However, critically, three observations have been advanced: the first is that the use of LLMs, in reality, would not solve the problem of opacity at all, but would risk creating an illusion of rationality and transparency, since these are models based on the statistical probability of a sequence of words, and not on semantic understanding or causal logic: in other words, they mimic legal reasoning, but do not genuinely exercise it[306]. The second is that the statement of reasons text generated by an LLM, even if formally correct and legally founded, would

---

[303] R. Liepina, F. Lagioia, M. Lippi, P. Palka, H.W. Micklitz, G. Sartor, Automating Legal Tasks. LLMs, Legal Documents, and the AI Act, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, Cambridge University Press, Cambridge, 2025, p. 410.

[304] See P.J. Pesch, Potentials and Challenges of Large Language Models (LLMs) in the Context of Administrative Decision-Making, in European Journal of Risk Regulation, 16(1), 2025, suggesting that «LLMs could also play a major role in decision-making, particularly as they allow for the development of decision-support systems that draft complete decisions. LLMs can create texts with a high variance. In the context of administrative decisions, this makes them a promising tool for the automated generation of complex individual explanations that are not merely based on text blocks» (p. 6). In particular, «LLMs could especially facilitate the efficiency of administrative decision-making where this requires processing large amounts of texts that take substantial efforts to read, analyse or write, ie, where the decision-making is based on comprehensive file material, or the decision requires extensive explanations. Furthermore, LLMs are capable of generating highly varied text that cannot be composed from commonly used text modules, making them especially valuable in unique cases that demand a thorough individual evaluation» (p. 7).

[305] G. Carullo, Large Language Models for Transparent and Intelligible AI-Assisted Public Decision-Making, in CERIDAP, 3, 2023, p. 16, where the Author concludes that «(…) by designing deep learning systems that generate argumentative text outputs comparable to those of human decision-makers, public administration can harness the power of AI while setting a new benchmark in administrative accountability and scrutiny. At the same time, by enhancing the transparency and comprehensibility of AI-assisted decisions, public administration can build trust in these systems and ensure that their use is welcomed by the recipients of the decisions».

[306] P.J. Pesch, op. cit., p. 15.

not necessarily reflect the statistical factors that determined the output[307]. Therefore, in the absence of fidelity between the formal statement of reasons and the algorithm's internal decision-making process, the duty to give reasons for the administrative act, intended to allow transparency and assessment of legality, could not be said to be satisfied[308]. The third observation is that LLMs have a known tendency to produce "hallucinations", i.e., contents that seem plausible but are inaccurate, fictitious, or nonsensical[309]; furthermore, due to their non-deterministic nature, LLMs can produce different answers even with identical inputs, raising serious problems of coherence and respect for the principle of equality[310].

Ultimately, we can observe that while the more prudent legal scholarship emphasizes the intrinsic impossibility of stating reasons for AI-based decisions given the structural opacity of the black box, the prevailing orientation requires an adaptation of the concept of giving reasons through a reinforced transparency implying the disclosure of operating criteria and data, with the potential contribution of xAI technology and LLMs to translate statistical inference into legal justification.

From my point of view, it is preferable – albeit not without some adaptation – to subscribe to the second theory requiring, for administrative legality, that the final administrative decision satisfies the standard of reasoning proper to human decision, and this for various reasons.

---

[307] Ibidem. For example, a model might base the refusal of a request on irrelevant statistical correlations (such as the applicant's address or name), while generating a textual statement of reasons citing relevant norms correctly.

[308] Ibidem. The Author, however, favors the use of LLMs that «serves as a starting point for human decision-making», as in this case «the situation is different, even in cases where the human decision-maker issues the decision without any changes to the LLM's draft. This is because a human decision-maker who checks an LLM-drafted decision adopts the reasons the LLM has generated to the extent they do not make changes to them (manually or through prompting the model again). In other words, human decision-makers can make LLM-generated reasoning their own. In this situation, neither the concerned individual nor courts or administrations need to understand how the LLM reached its output to assess the reasoning of the decision. Then the functioning of the LLM is not the reason for the decision but simply the reason for the decision being made faster. To substantively explain their decision, the human decisionmaker does not need to explain the functioning of the LLM. LLMs, therefore, are especially promising for legal use cases. The fact that the outputs of LLMs are fully verifiable, regardless of the transparency of their parameters, supports the implementation of decision support systems based solely on LLMs, ie, without combining them with other machine learning models whose lack of transparency could limit the verifiability of decisions».

[309] R. Liepina, F. Lagioia, M. Lippi, P. Palka, H.W. Micklitz, G. Sartor, op. cit., p. 410.

[310] Ibid., p. 419.

The first reason lies in the cost-benefit *ratio* of using artificial intelligence. Indeed, we must not forget that the use of AI systems should optimise the quantity and quality of administrative proceedings. Today, this is also enshrined in Law 132/2025, Art. 14, according to which «le pubbliche amministrazioni utilizzano l'intelligenza artificiale allo scopo di incrementare l'efficienza della propria attività, di ridurre i tempi di definizione dei procedimenti e di aumentare la qualità e la quantità dei servizi erogati ai cittadini e alle imprese (…)». If we burden AI-assisted administrative proceedings even more (for example, in terms of burdens of giving reasons), the risk is to produce the opposite effect to that hoped for, namely to burden the public officer with even more work compared to "totally human" administrative proceedings, thus losing sight of the main purpose for which AI is used.

The second reason why I support the aforementioned theory is based on the interpretation of Art. 3 of Law 241/1990, which states that «la motivazione deve indicare i presupposti di fatto e le ragioni giuridiche che hanno determinato la decisione dell'amministrazione, in relazione alle risultanze dell'istruttoria». This rule, in my opinion, can be interpreted in the sense that it requires only indicating the «presupposti di fatto» and the «ragioni giuridiche», and not also the "process" through which the Administration came to elaborate that specific statement of reasons: whether, i.e., such process was elaborated through a human mental process or an algorithmic computational process. In other words, it is not relevant whether the text of the statement of reasons is written by humans or generated by artificial intelligence: the important thing is that it is compliant with the law, both in non-discretionary and discretionary proceedings; in the latter case, in particular, the official should clarify if and how they exercised discretion, accepting or deviating from the output produced by the AI. The fundamental problem, from my point of view, lies not so much in the statement of reasons, as rather in the duty of supervision and liability of the public officer; indeed, this person, by signing the act, implicitly accepts the AI's output, with the consequence that the human is ultimately responsible for verifying that the machine-generated content is accurate and free from defects that could be asserted in litigation before the administrative judge.

Naturally, this interpretation does not preclude but rather reinforces (in the interest of transparency) the obligations of the public deployer to make available to the private individual, upon a reasoned request, all acts that explain the AI-driven decision. Moreover, the European legislature appears to have taken an approach consistent with this interpretation: Art. 86 of the AI Act recognises the right of any affected individual subject to a decision based

on the output of a high-risk AI system to obtain from the deployer clear and meaningful explanations of the AI system's role in the decision-making process and of the main elements of the decision taken.

4.1.4. The relationship between the right to an explanation under Art. 86 of the AI Act and the duty to give reasons under the Italian legal system

The entry into force of Article 86 of the AIA also raises the question of whether such a rule overlaps with, replaces, or supplements Article 3 of Law 241/1990. The answer to such a question – which can only derive from a comparative analysis of the two provisions – should accept, in my opinion, the theory of complementarity and, more specifically, the theory whereby Article 86 provides the minimum technological content necessary to satisfy the duty to give reasons in the presence of high-risk AI systems. While Article 3 of Law 241/1990 imposes the general obligation to make the legal and factual basis for the decision explicit, Article 86 AIA defines the information that must be provided to make the AI's contribution to that decision intelligible. In other words, we could argue that Article 86 "specialises" the duty to give reasons, filling it with prescriptive content regarding the tool's technological specificity. Without the «clear and meaningful explanations of the role of the AI system in the decision-making procedure and the main elements of the decision taken» required by the European rule, the reasoning of an artificial administrative act could lead to a defect affecting the legality of the act itself[311]. Stated differently, the Public Administration does not satisfy the duty to give reasons by limiting itself to referring to the result of the algorithm (with expressions such as "given the outcome of the automated procedure..."), but should necessarily incorporate into the statement of reasons the explanatory elements required by Article 86.

However, such supplementation presents several challenges. Indeed, a first structural divergence concerns the nature of the obligation, since Article 3 of Law 241/1990 establishes an *ex officio* duty of the administration, in the sense that the statement of reasons must accompany the issuance of the act and be provided to all addressees. Article 86 of the AI Act, in its literal formulation, establishes instead a right «to obtain» upon the party's request, which presupposes subsequent activation by the interested party. If Article 86, compared to the rules of the Italian administrative proceeding, were interpreted rigidly as a right to an *ex post* explanation, a breach would be

[311] The question of the defects of the artificial administrative act will be explored in depth in Section 2 of Chapter III.

created with respect to the Italian standard of protection, which requires a statement of reasons *ab origine*. Therefore, to support the theory of complementarity, it would be necessary to interpret Article 86 in the context of national administrative law as a so-called "proactive" disclosure obligation: the PA, knowing that the interested party has the right to the explanation, should act in advance by providing the explanatory elements directly in the body of the act or in a concurrent technical annex, in order to avoid the challenge of the acts for failure to state reasons[312].

A second reflection concerns the depth of the explanation. In this regard, the case law of the Italian Council of State has provided clarifications that seem to align with European standards, overcoming concerns about divergence between «main elements» and the logical comprehensibility of the administrative decision. The Council of State has indeed specified that the right to knowledge of the existence of automated administrative decisions

---

[312] There are, however, quite a few difficulties in acceding to such hermeneutic reconstruction. Indeed, as observed by part of the legal scholarship, there are multiple aspects of the legislation suggesting a right triggered "on demand" (i.e. exercisable upon request of the private party) rather than "by default" (i.e. operating *ex officio*). This conclusion is based primarily on the textual analysis of Article 86 and on the criterion of «adverse impact», which implies that the right applies only when an affected person affirmatively requests an explanation, given that deployers are not obliged to provide explanations to all individuals impacted by high-risk AI decisions, but «only to those who perceive an adverse effect on their fundamental rights» (M.E. Kaminski, G. Malgieri, op. cit., p. 20). Since the user of the AI system can't determine *a priori* the subjective perception of an individual regarding the adversity of a decision, it follows that such individuals must «affirmatively ask for an explanation» (ibidem). Supporting this theory is also the systematic placement of the rule within the text of the law. The Authors note that the lawmaker inserted Article 86 in Section 4, entitled «Remedies». Being characterized as a remedy, the explanation would become a tool that «an individual can choose to deploy» (ibidem), instrumental to the exercise of other rights guaranteed elsewhere. However, the Authors warn that this "on demand" nature should not translate into an obstacle: deployers should facilitate the exercise of the right ensuring that persons are aware of the possibility to request an explanation and providing «clear, accessible means to do so» (p. 21). Consequently, the Authors suggest a necessary and enabling link with Article 26, par. 11, AIA, which obliges deployers to inform natural persons when they are subject to the use of high-risk AI systems. For Article 86 to function as an "on demand" right, the notification obligation of Article 26, par. 11, should therefore play a fundamental role, as it should reveal «enough information to enable individuals to exercise their Article 86 right» (ibidem). In conclusion, the theory of the Authors is that, without a robust interpretation of the obligation under Art. 26, par. 11, AIA informing individuals not only of the use of the system but also of its potential significant consequences, the right to explanation would risk remaining ineffective. A notification mechanism well implemented pursuant to Article 26, par. 11, should serve as an entry point for individuals to invoke their right, otherwise «Article 86 will have little effect» (ibidem).

must be accompanied by mechanisms capable of deciphering their logic. In this perspective, the principle of "knowability" is completed with the principle of "comprehensibility", understood expressly as «la possibilità (…) di ricevere "informazioni significative sulla logica utilizzata"»[313]. This results in a substantive harmony between the «clear and meaningful explanations» required by Art. 86 AIA and the «comprensibilità» required by the Italian administrative judge: both aim to make the algorithmic decision-making logic intelligible, avoiding opacity, without necessarily requiring the impossible tracking of every neural calculation, provided that the result is justified and reviewable. In this sense, we can conclude that Art. 86 does not stand in contrast to, but rather reinforces and details the technical requirement of reasoning under Art. 3 Law 241/1990, providing the legal standard for those «informazioni significative» demanded by national case law.

4.1.5. An operational proposal: incorporating Explainable AI (xAI) techniques into the duty to give reasons for administrative acts

To implement this integrated model of protection, the most concrete way to harmonise the right to explanation under Article 86 AIA with the duty to give reasons for the artificial administrative act appears to be to use Explainable AI techniques[314]. From a practical and operational point of view, I therefore propose that the Public Administration adopts a reasoning scheme combining four elements: 1) a concise global explanation of the AI system (in a general act or in an annex referred to in the act): purposes, main variables considered, high-level operating logic, etc.; 2) local xAI explanation for the single act (through LIME, SHAP or equivalent method), from which it is derived which factual elements had the greatest impact on the output referred to the specific case; 3) counterfactual explanation, to make the outcome more understandable and also guide any judicial action by the interested party; 4) human legal synthesis, which connects the algorithmic output to the applied rules, clarifying if and how the official exercised discretion (accepting or deviating from the AI).

To provide an example of non-discretionary administrative activity, let us consider the denial of an application for a building permit concerning the volumetric expansion of a property. The Sole Officer in Charge of the Administrative Proceeding (*Responsabile Unico del Procedimento* – RUP),

---

[313] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881.

[314] For an in-depth analysis of xAI techniques, see Section 8 of Chapter I.

firstly, should acknowledge that the technical fact-finding phase relating to the urban planning and building compliance of the intervention was carried out with the support of an AI system, explaining that it operates by comparing the project data (volume, heights, distances) with the urban planning and building regulations in force and referring, for the description of the general functioning of the model and for the necessary technical documentation, to a specific document attached to the rejection act and published on the institutional website in the section «Amministrazione Trasparente». Secondly, because the project presents a non-conformity that contributes to the application's negative outcome, the local explanation xAI technique indicates that one of the project variables, such as the distance between facing walls with windows, violates the law, as it is only 8.50 meters from the building opposite. In contrast, Art. 9 of Ministerial Decree 1444/1968 imposes a minimum absolute distance of 10 meters, which is mandatory and precludes approval despite the compliance of the other project elements. Thirdly, the RUP should ensure that the statement of reasons includes a counterfactual explanation stating that the application would have had a positive outcome (all other factors being equal) if the windowed wall had been set back by a further 1.50 meters, bringing it to a distance of 10 meters from the facing building. Finally, where written submissions pursuant to Art. 10-bis of Law 241/1990 have also been presented contesting the act (arguing, for example, that the opposite wall was not windowed but equipped only with openings admitting light without affording a view (luci)), the RUP should personally acknowledge that, following an inspection carried out to verify the contested fact, they ascertained the presence of openings affording a view (vedute), confirming the correctness of the grounds for rejection highlighted by the AI system[315].

To provide another example regarding technical discretion, let us consider the case of an environmental impact assessment proceeding concerning a project for the construction of a new special waste recovery plant, concluded with a negative outcome as the AI system returned a critical environmental risk index, justified by the incidence of induced traffic on PM10 levels. Local xAI techniques would identify the transit of heavy vehicles as the determining cause of air quality exceeding legal limits in neighbouring residential areas, highlighting that plant emissions alone, although compliant, are secondary to the logistical impact in this case. The Administration, in the exercise of its technical discretion, deems such a scenario not capable of being

[315] In this way, among other things, the duty of human oversight would be fully discharged.

mitigated by the proposed measures: the counterfactual explanations processed by the AI system demonstrate, indeed, that the risk would fall back within the acceptability threshold only by reducing incoming waste deliveries by 40%, a condition incompatible with the industrial plan presented. Applying the principle of environmental precaution, the Administration confirms that protecting public health takes precedence over entrepreneurial interests and rejects the party's written submissions, which did not provide sufficient data to refute the traffic projections.

4.2. The right of access to administrative documents: from the disclosability of the source code of traditional software to the complex technical documentation of AI systems

Closely connected to the duty to give reasons is the question that has arisen among scholars and in case law regarding the relationship between the so-called "documentary" right of access and source code, originally raised in Italy in relation to deterministic algorithms. Indeed, once the Public Administration adopts an act based on an algorithm's output and the recipient believes there are defects associated with the use of that tool, they might have an interest in exercising their right of access to all relevant technical information.

In Italy, the right of documentary access is generally governed by Articles 22 et seq. of Law 241/1990 and, for public contracts, by Articles 30, 35, and 36 of Legislative Decree 36/2023.

The right of documentary access is defined by Art. 22, paragraph 1, letter a), as «il diritto degli interessati di prendere visione e di estrarre copia di documenti amministrativi»[316]. The very formulation, speaking of a «right»,

[316] For an in-depth analysis of the right of documentary access and its differences with other forms of access, see M. Sinisi, I diritti di accesso e la discrezionalità amministrativa, Cacucci, Bari, 2022; S. Sergio, Il diritto d'accesso procedimentale e il diritto d'accesso civico, fra differenze e analogie. In particolare, la legittimazione ad esercitare il diritto di accesso, in federalismi.it, 20, 2020, pp. 313-358; M. Lipari, Il diritto di accesso e la sua frammentazione dalla legge n. 241/1990 all'accesso civico: il problema delle esclusioni e delle limitazioni oggettive, in federalismi.it, 17, 2019, pp. 1-36; A. Simonati, I principi in materia d'accesso, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, cit., p. 1208 ff.; P. Alberti, I casi di esclusione del diritto di accesso, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, cit., p. 1289 ff.; A. Simonati e M. Calabrò, Le modalità di esercizio del diritto di accesso e la relativa tutela, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, cit., p. 1318 ff.; A. Cauduro, Il diritto di accesso a dati e documenti amministrativi come promozione della partecipazione: un'innovazione limitata, in Diritto amministrativo, 2017, p. 601 ff.; F. Caringella, R. Garofoli, M.T. Sempreviva, L'accesso ai documenti amministrativi, Giuffrè,

has fuelled a lively debate for decades regarding its exact legal nature. Traditionally, the question oscillated between the qualification as a subjective right (*diritto soggettivo*) and as a legitimate interest (*interesse legittimo*). The theory in favour of the subjective right is based, besides the plain wording of the law, also on the non-discretionary character of the power exercised by the Administration (which must limit itself to a mere ascertainment of the existence of legal prerequisites without margins of discretion) and on the devolution of related disputes to the exclusive jurisdiction (*giurisdizione esclusiva*) of the administrative judge pursuant to Art. 133, paragraph 1, letter a), no. 6); furthermore, the inclusion of access in the essential levels of services concerning civil and social rights (ex Art. 117, paragraph 2, letter m, Const.), by virtue of paragraph 2-bis of Art. 29 of Law 241/1990, provides further support to the theory of the nature of a subjective right[317]. However, from a more pragmatic perspective, the Plenary Assembly of the Council of State, even if leaning towards qualification as a subjective right, emphasises its essentially instrumental role, as it is aimed at defending a further legally protected situation[318]. Moreover, while not resolving the issue in absolute

---

Milano, 2007; A. Sandulli, La casa dai vetri oscurati: i nuovi ostacoli all'accesso ai documenti, in Giornale di diritto amministrativo, 6, 2007, p. 669 ff.; A. Sandulli, L'accesso ai documenti amministrativi, Giornale di diritto amministrativo, 5, 2005, p. 494 ff.; M. Occhiena, I diritti di accesso dopo la riforma della l. n. 241 del 1990, in Foro amministrativo – TAR, 3, 2005, 905 ff.; M.A. Sandulli, Accesso alle notizie e ai documenti amministrativi, Enciclopedia del diritto, Agg. vol. IV, Giuffrè, Milano, 2000; S. Bellomia, Il diritto di accesso ai documenti amministrativi e i suoi limiti, Giuffrè, Milano, 2000; L.A. Mazzarolli, L'accesso ai documenti della pubblica amministrazione. Profili sostanziali, CEDAM, Padova, 1998; M. Clarich, Diritto di accesso e tutela della riservatezza: regole sostanziali e tutela processuale, in Diritto processuale amministrativo, 4, 1996, p. 444 ff.; A. Romano Tassone, A chi serve il diritto d'accesso? (Riflessioni su legittimazione e modalità di esercizio del diritto di accesso nella legge n. 241/1990), in Diritto amministrativo, 3, 1995, p. 315 ff.; G. Arena (ed.), L'accesso ai documenti amministrativi, il Mulino, Bologna, 1991; F. Teresi, Procedimento amministrativo e accesso ai documenti. Commento alla legge 7 agosto 1990, n. 241, Maggioli, Rimini, 1991.

[317] A. Bellei, L'accesso documentale, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., pp. 536-537; M. Amorizzo, F. Ricciulli, L'accesso agli atti, in A. Giordano (ed.), Il procedimento amministrativo, cit., pp. 346-347; A. Corrado, Il principio di trasparenza e i suoi strumenti di attuazione, cit., p. 191.

[318] Cons. Stato, Ad. Plen., judgement of 18 April 2006, no. 6, § 2: «Il carattere essenzialmente strumentale di tali posizioni si riflette inevitabilmente sulla relativa azione, con la quale la tutela della posizione soggettiva è assicurata. In altre parole, la natura strumentale della posizione soggettiva riconosciuta e tutelata dall'ordinamento caratterizza marcatamente la strumentalità dell'azione correlata e concentra l'attenzione del legislatore, e quindi dell'interprete, sul regime giuridico concretamente riferibile all'azione, al fine di

terms, the Plenary Assembly subsequently clarified that, on the one hand, access is an autonomous "substantive interest" (*bene della vita*), but, on the other, its function is to offer the holder procedural powers instrumental to the protection of the substantive interest[319]. Eligibility to exercise the right of documentary access is conferred by Art. 22, paragraph 1, letter b), to "interested parties", i.e. private persons, including bearers of public or diffuse interests, who have an «interesse diretto, concreto e attuale, corrispondente ad una situazione giuridicamente tutelata e collegata al documento al quale è chiesto l'accesso»[320]. The entities subject to access requests are identified by

---

assicurare, al tempo stesso, la tutela dell'interesse ma anche la certezza dei rapporti amministrativi e delle posizioni giuridiche di terzi controinteressati. Sotto tale punto di vista, il giudizio a struttura impugnatoria consente alla tutela giurisdizionale dell'accesso di assicurare la protezione dell'interesse giuridicamente rilevante e, al contempo, quell'esigenza di stabilità delle situazioni giuridiche e di certezza delle posizioni dei controinteressati che si è visto essere pertinenti ai rapporti amministrativi scaturenti dai principi di pubblicità e trasparenza dell'azione amministrativa».

[319] Cons. Stato, Ad. Plen., judgement of 25 September 2020, no. 19, § 9.2: « In primo luogo, l'accesso difensivo è costruito come una fattispecie ostensiva autonoma, caratterizzata (dal lato attivo) da una *vis espansiva* capace di superare le ordinarie preclusioni che si frappongono alla conoscenza degli atti amministrativi; e connotata (sul piano degli oneri) da una stringente limitazione, ossia quella di dovere dimostrare la "necessità" della conoscenza dell'atto o la sua "stretta indispensabilità", nei casi in cui l'accesso riguarda dati sensibili o giudiziari. In secondo luogo, la conoscenza dell'atto non è destinata a consentire al privato di partecipare all'esercizio del pubblico potere in senso "civilmente" più responsabile, ossia per contribuire a rendere l'esercizio del potere condiviso, trasparente e imparziale, ma rappresenta il tramite per la cura e la difesa dei propri interessi giuridici. La mancata specificazione dell'ambito entro il quale tali interessi vanno curati è, inoltre, indicativa del fatto che il legislatore ha voluto appositamente trascendere la dimensione partecipativa procedimentale e la stessa logica della trasparenza della funzione amministrativa, e costruire l'accesso agli atti, piuttosto, come una pretesa ostensiva, finalizzata anche - eventualmente - alla difesa in giudizio, ed a sua volta autonomamente tutelata con una specifica azione avverso il diniego o il silenzio della pubblica amministrazione (si tratta dell'azione prevista dall'art. 116 c.p.a.)».

[320] The provision does not explain what is meant by direct, concrete, current, as well as instrumental interest (i.e., corresponding to a legally protected situation and linked to the document to which access is requested). The prevailing case law, however, has clarified that "direct" interest means «correlato alla sfera individuale e personale del soggetto richiedente: dovendosi, con ciò, escludere una legittimazione generale, indifferenziata ed inqualificata, che darebbe la stura ad una sorta di azione popolare»; "concrete" means «specificamente finalizzato, in prospettiva conoscitiva, alla acquisizione di dati ed informazioni rilevanti ed anche solo potenzialmente utili nella vita di relazione, palesandosi immeritevole di tutela la curiosità fine a sé stessa; insufficiente un astratto e generico anelito al controllo di legalità; precluso un "controllo generalizzato dell'operato delle pubbliche amministrazioni" (art. 24, comma 3 l. n. 241/1990 cit.)»; "current" means «non meramente prospettico od eventuale,

Art. 22, paragraph 1, letter e), and Art. 23, and include all public administrations, autonomous and special agencies, public bodies, managers of public services, and private law entities, limited to their activities of public interest regulated by national or EU law[321]. The object of the right of access, pursuant to Art. 22, paragraph 1, letter d), is the administrative document, which is defined in very broad terms as including «ogni rappresentazione grafica, fotocinematografica, elettromagnetica o di qualunque altra specie del contenuto di atti, anche interni o non relativi ad uno specifico procedimento, detenuti da una pubblica amministrazione e concernenti attività di pubblico interesse, indipendentemente dalla natura pubblicistica o privatistica della loro disciplina sostanziale»[322].

The general principle of accessibility, however, is mitigated by the exclusions and limits established by the subsequent Art. 24. Exclusions can be mandatory (Art. 24, paragraph 1), concerning for example state secrets, tax proceedings, regulatory acts, general administrative acts, planning and programming acts (for which sectorial rules on their adoption apply) and documents containing psycho-aptitude information of third parties in selection procedures. Furthermore, the admissibility of requests for a generalised control

---

avuto riguardo alla attitudine della auspicata acquisizione informativa o conoscitiva ad incidere, anche in termini di concreta potenzialità, sulle personali scelte di ordine esistenziale o più comprensivamente relazionale e sulla acquisizione, conservazione o gestione di rilevanti beni della vita»; "instrumental" means «avuto riguardo sia, sul piano soggettivo, alla necessaria correlazione con situazioni soggettive meritevoli di protezione alla luce dei vigenti valori ordinamentali, sia, sul piano oggettivo, alla specifica connessione con il documento materialmente idoneo ad veicolare le informazioni: non essendo, con ciò, tutelate iniziative, per un verso, ispirate da mero intento emulativo (peraltro di per sé espressive, sotto concorrente profilo, di un uso distorto ed abusivo della pretesa e della azione ostensiva) e, per altro verso, finalizzate alla raccolta, elaborazione o trasformazione di dati conoscitivi destrutturati e non incorporati in "documenti" (nel senso lato di cui all'art. 22 cit.)» (Cons. Stato, sec. V, judgement of 23 May 2023, no. 5113; in the same sense, *ex multis*, see Cons. Stato, sec. VI, judgement of 2 March 2020, no. 1528; Cons. Stato, sec. V, judgement of 2 October 2019, no. 6603).

[321] The notion of "public administration", in this context, is functional and elastic, concentrated on the public nature of the activity performed, regardless of the legal form of the entity (A. Bellei, op. cit., p. 541).

[322] The Regulation on the discipline regarding access to administrative documents (Decree of the President of the Republic of 12 April 2006, no. 184) specifies, moreover, that «Il diritto di accesso si esercita con riferimento ai documenti amministrativi materialmente esistenti al momento della richiesta e detenuti alla stessa data da una pubblica amministrazione (…) nei confronti dell'autorità competente a formare l'atto conclusivo o a detenerlo stabilmente. La pubblica amministrazione non è tenuta ad elaborare dati in suo possesso al fine di soddisfare le richieste di accesso».

on the operation of the P.A. is excluded (Art. 24, paragraph 3)[323]. Other limitations, pursuant to Art. 24, paragraph 6, are remitted to government regulations, in particular for the protection of sensitive interests such as national security, public order, and the confidentiality of natural or legal persons, with particular reference to epistolary, health, professional, financial, industrial, and commercial interests. Against these limits, in any case, the fundamental counter-limit of the so-called "defensive" documentary access operates, which imposes guaranteeing access to administrative documents whose knowledge is «necessaria per curare o per difendere i propri interessi giuridici» (Art. 24, paragraph 7), even if the interest in the confidentiality of third parties is involved[324].

At the procedural level, Art. 25, paragraph 2, of Law 241/1990 requires the request for access to be justified. The term for the conclusion of the proceeding is thirty days. The inertia of the P.A. upon the expiry of such term equates to a denial (so-called *silenzio diniego*), pursuant to Art. 25, paragraph 4, constituting a defect of the proceeding opening the way to protection. Indeed, in the event of denial (express or tacit) or deferral, the applicant may appeal within 30 days to the administrative judge, to the territorially competent Ombudsman, or to the Commission for Access to Administrative Documents (CADA). If the interested party appeals to the administrative judge, the dispute is attributed to the exclusive jurisdiction of the administrative courts, according to a special expedited procedure, characterised by halved procedural terms and in-camera hearings (Art. 116, Code of Administrative Procedure). In such a case, the administrative judge's judgment is not limited to the annulment of the denial; it can also directly order the Administration to produce the documents (through a mandatory injunction), thereby overcoming the limits of the traditional review of legality. Furthermore, paragraph 2 of Art. 116 provides for the possibility of presenting

---

[323] Indeed, according to the Council of State, it constitutes «*jus receptum* che il richiedente non può formulare istanze di supervisione di un'attività, che sospetta inefficiente o inefficace, o di cui si vuole verificare in via generale la legittimità, che si risolvono in quell'inammissibile, ai sensi dell'art. 24, c. 3 della l. 241/1990, forme di accesso preordinate ad un controllo generalizzato della P.A.» (Cons. Stato, sec. IV, judgement of 8 February 2017, no. 549; in the same sense, see Cons. Stato, sec. IV, judgement of 22 June 2016, no. 2275; Cons. Stato, sec. VI, judgement of 12 March 2012, no. 1402; Cons. Stato, sec. VI, judgement of 27 February 2008, no. 721).

[324] However, in the case of documents containing sensitive and judicial data, access is allowed only if «strettamente indispensabile» (strictly indispensable), while for data capable of revealing the state of health or sexual life, it is allowed only if the interest to be protected is of «rango almeno pari ai diritti dell'interessato» (rank at least equal to the rights of the interested party) (Art. 24, paragraph 7, second period).

the request for access also while the main court proceedings are pending (Art. 116, paragraph 2, Italian Code of Administrative Procedure – c.p.a.), thus underlining the instrumental nature of the action, to facilitate procedural defence, although the order deciding on such request is considered by case law as a ruling with decisional value and appealable[325].

4.2.1. Access to the source code of deterministic algorithms: the balancing between the right of defence and intellectual property in administrative case law

In the context of the relationship between the right of access and acts adopted with the aid of algorithms, two very debated issues have arisen in Italian case law: 1) the possibility that the source code falls within the notion of «documento amministrativo» pursuant to art. 22, paragraph 1, letter d), Law 241/1990, in order to allow access to it; 2) the relationship between the private party's right of access and the software developer's right to confidentiality, particularly concerning the protection of the intellectual property of the source code.

These issues were initially addressed by Italian administrative case law in relation to the litigation arising from the use of the algorithm for the mobility of teaching staff (the "Buona Scuola" case), in which the appellants had requested access to the source code pursuant to Art. 22 of Law 241/1990 and the Ministry of Education had denied it, arguing that source code could

[325] The theory of the decisional nature of the order in question was accepted by the Plenary Assembly of the Council of State with judgement no. 4 of 24 January 2023, basing its decision on four main hermeneutic criteria: literal, historical, systematic, and constitutional. Firstly, the literal interpretation of Article 116, paragraph 2, of the Code of Administrative Procedure highlights that the rule refers to the appeal provided for autonomous access, suggesting a substantial unity of the remedy, and imposes notification to the administration and adversely affected third parties, guaranteeing a full adversarial process typical of decisional acts. From a historical point of view, the Plenary Assembly noted that the current rules, unlike the provisions of Law no. 15 of 2005, no longer define this act as an "interlocutory order" (*ordinanza istruttoria*), marking a clear break from the previous legislative qualification. The systematic interpretation, then, allowed for a clear distinction between procedural fact-finding activity and the request for access; the latter, being addressed to the administration and not to the judge, implies that the judicial act is not a mere preparatory act, but a true decision on a substantive claim, subject to the peremptory term for challenge. Finally, the interpretation compliant with the Constitution deemed appealability necessary to protect the right of defense and the principle of the two-tier judicial system enshrined in Article 125 of the Constitution: without immediate challenge, compliance with the order for production of documents could entail irreversible prejudice to the confidentiality of adversely affected third parties and public prerogatives, making deferred protection at the time of the final judgement effectively useless.

not be classified as an administrative document. In its first judgments, nos. 3742 and 3769 of 2017, the Regional Administrative Court of Lazio rejected the ministerial argument, opting for an extensive notion of the computerized administrative act, which takes into account the substantive administrative value of the document rather than its provenance, given that it is specifically provided by art. 22 of Law 241/1990 that acts of a private-law nature regarding their substantive legal framework are also included in the related definition, provided that they are inserted and used within the scope and for activities of public relevance, i.e., acts instrumental to the public interest; furthermore, it must be considered that the so-called preparatory acts (*atti endoprocedimentali*) are included, i.e., acts that fit within the procedure and represent the single steps of it and that are aimed at the adoption of the final act, as well as the so-called internal acts (*atti interni*), i.e., acts through which the administration organizes its own procedural activity. The notion of "documento amministrativo informatico", therefore, was deemed extremely relevant for the exact definition of the objective perimeter of the exercise of the right of access to administrative documentation pursuant to the cited Law 241 of 1990. Based on these premises, the TAR established that it is through the software that the final will of the public administration is concretised and that it constitutes, modifies, or extinguishes subjective legal positions, even if it does not produce direct external effects. Subsequently, the TAR clarified the material object of access, stating that the simple "description" of the algorithm's functioning (provided by the Ministry in a memorandum) is insufficient to guarantee the requester's full protection. On the contrary, to verify the correctness of the operations and the absence of programming errors, it is indispensable to access the source code of the software: the description in common language, in fact, constitutes an *ex parte* document (of the Ministry) that does not offer the same depth of knowledge and control guaranteed by the direct analysis of the original computer instructions[326].

---

[326] TAR Lazio, Roma, sec. III-bis, judgement of 21 March 2017, no. 3742; TAR Lazio, Roma, sec. III-bis, judgement of 22 March 2017, no. 3769, which have also specified how «D'altronde è il ricorso a strumenti innovativi da parte dell'amministrazione per la gestione della propria attività procedimentale e provvedimentale che impone all'interprete di fronteggiare, con un approccio più aperto e non legato indissolubilmente alle logiche preesistenti, le problematiche di tipo giuridico che ne conseguono e non può, peraltro, fondatamente ritenersi che la scelta discrezionale dell'amministrazione di ricorrere a un programma informatico al fine di gestire un procedimento che la stessa amministrazione ha costruito in un certo articolato e complesso modo, alla luce delle varianti che la medesima ha ritenuto di dovervi introdurre al fine di giungere alla definizione del contenuto del

With the cited judgements, then, the TAR ruled on the objection raised by the Ministry of Education regarding the fact that the source code, and therefore the related software, would constitute works of authorship and, as such, would be protected by the regulations on intellectual property, as also recognised by art. 6 of Legislative Decree 97/2016 on the civic access. In this regard, the decisions in question preliminarily analyse the legal nature of the software and confirm that it falls within the scope of copyright as a work of authorship, pursuant to EEC Directive 91/250 and Law no. 633 of 1941. The judges explain that such protection is granted when the program, understood as source code, possesses a creative and original character; such originality does not reside so much in the programming language or in the single notions, often simple and known, as in the personal and autonomous way in which the author organises, links, and structures the instructions to obtain a certain result. However, in relation to the relationship between copyright and the right of access to administrative documents, the judgments established that the classification as a work of authorship does not constitute a cause for exclusion from access pursuant to Law no. 241/1990. The two legal frameworks, in fact, protect different interests: copyright safeguards the exclusive economic exploitation of a work, whereas access to documents ensures transparency and the protection of qualified legal positions. Consequently, the mere inspection or reproduction of the source code does not infringe upon intellectual property rights, provided that the use of the data is strictly limited to defensive purposes (in this case, to verify the correctness of mobility operations) and does not involve any commercial exploitation. Furthermore, it was clarified that the fact that the algorithm was developed by a private company following a public procurement procedure, rather than directly by Ministry officials, does not constitute an obstacle to access. Regardless of whether the underlying rules are of a private or public law nature, the algorithm remains a direct expression of administrative activity. Such activity is undeniably of public interest, as it pertains to the organization of the public education service. In fact, the algorithm acted as a decisive element within the procedure and is stably held by the ministerial administration that commissioned and utilized it for its institutional purposes. Finally, the Tribunal rejected the applicability of the limits set out in art. 5-bis of Legislative Decree no. 33/2013 (on generalised civic access), which

---

provvedimento finale sulla base della normativa in materia, si rifletta in senso limitativo all'accessibilità conoscitiva da parte del destinatario dell'atto il cui concreto contenuto dispositivo è stato, in definitiva, elaborato esclusivamente attraverso un programma informatico appositamente elaborato».

protects economic interests and intellectual property. The judges made a clear distinction between civic access, which aims at generalised public scrutiny and entails stricter limits given the vast knowability of the data, and document access under Law no. 241/1990. The latter, presupposing a direct, concrete, and current interest of the requester, allows for deeper, more penetrating access, which is necessary to understand the algorithm's functioning and any programming errors fully. Consequently, in both cases in question, the TAR accepted the appeals and ordered the administration to deliver a copy of the source code.

This case law orientation was further confirmed and specified by the same section of the TAR Lazio in the more recent judgement no. 7370 of 2020, concerning the use of software for the management of the written test of the competition for school principals. In this pronouncement, the Court strongly reaffirmed the qualification of the source code as an "administrative document", emphasising how the algorithm, although ontologically neutral and qualifying as a mere "empty container", becomes an instrument of public interest the moment it presides over the performance of an administrative activity, such as the acquisition and management of competition tests. On this occasion, the administrative judge rejected the Administration's argument that access only to the log files would have been sufficient to guarantee the defensive needs of the appellants; the Tribunal in fact clarified that the log file acts as a black-box recording the local event, but does not allow unveiling structural errors present upstream in the programming language, for which knowledge of the source code is indispensable. The judgement, furthermore, marked a decisive point regarding cybersecurity and software reuse, rejecting the objection that disclosing the code would have made the system vulnerable to external attacks or unusable for future competitions. Recalling articles 68 and 69 of the Digital Administration Code (Legislative Decree 7 March 2005, no. 82), the TAR highlighted the lawmaker's predilection for "open source" solutions and for the reuse of programs between public administrations, deducing that security cannot be based on the secrecy of the algorithm, but rather on other technical safeguards such as passwords and data encryption[327].

---

[327] Article 68 of the Digital Administration Code, headed «Analisi comparativa delle soluzioni», provides that «1. Le pubbliche amministrazioni acquisiscono programmi informatici o parti di essi nel rispetto dei principi di economicità e di efficienza, tutela degli investimenti, riuso e neutralità tecnologica, a seguito di una valutazione comparativa di tipo tecnico ed economico tra le seguenti soluzioni disponibili sul mercato: a) software sviluppato per conto della pubblica amministrazione; b) riutilizzo di software o parti di esso sviluppati

Finally, the pronouncement consolidated the principle of non-discrimination between analogue and digital procedures, stating that the efficiency gains from computerisation cannot compromise the principle of transparency, thereby avoiding the risk of a dual-track system in which digital administrative action is less controllable than traditional action[328].

On this interpretive trail lies the very recent judgement of the Council of State, Section VI, no. 4929 of 6 June 2025. In this pronouncement, the Council of State addressed the case of an administration that attempted to

---

per conto della pubblica amministrazione; c) software libero o a codice sorgente aperto; c-bis) software fruibile in modalità cloud computing; d) software di tipo proprietario mediante ricorso a licenza d'uso; e) software combinazione delle precedenti soluzioni. 1-bis. A tal fine, le Pubbliche Amministrazioni prima di procedere all'acquisto, secondo le procedure di cui al decreto legislativo n. 50 del 2016, effettueranno una valutazione comparativa delle diverse soluzioni disponibili sulla base dei seguenti criteri: a) costo complessivo del programma o soluzione quale costo di acquisto, di implementazione, di mantenimento e supporto; b) livello di utilizzo di formati di dati e di interfacce di tipo aperto nonché di standard in grado di assicurare l'interoperabilità e la cooperazione applicativa tra i diversi sistemi informatici della Pubblica Amministrazione; c) garanzie del fornitore in materia di livelli di sicurezza, conformità alla normativa in materia di protezione dati personali, livelli di servizio tenuto conto della tipologia di software acquisito. 1-ter. Ove dalla valutazione comparativa di tipo tecnico ed economico, secondo i criteri di cui al comma 1-bis, risulti motivatamente l'impossibilità di accedere a soluzioni già disponibili all'interno della pubblica amministrazione, o a software liberi o a codici sorgente aperto, adeguati alle esigenze da soddisfare, è consentita l'acquisizione di programmi informatici di tipo proprietario mediante ricorso a licenza d'uso. La valutazione di cui al presente comma è effettuata secondo le modalità e i criteri definiti dall'AgID». Article 69 of the Digital Administration Code, headed «Riuso delle soluzioni e standard aperti», provides that «1. Le pubbliche amministrazioni che siano titolari di soluzioni e programmi informatici realizzati su specifiche indicazioni del committente pubblico, hanno l'obbligo di rendere disponibile il relativo codice sorgente, completo della documentazione e rilasciato in repertorio pubblico sotto licenza aperta, in uso gratuito ad altre pubbliche amministrazioni o ai soggetti giuridici che intendano adattarli alle proprie esigenze, salvo motivate ragioni di ordine e sicurezza pubblica, difesa nazionale e consultazioni elettorali. 2. Al fine di favorire il riuso dei programmi informatici di proprietà delle pubbliche amministrazioni, ai sensi del comma 1, nei capitolati o nelle specifiche di progetto è previsto, salvo che ciò risulti eccessivamente oneroso per comprovate ragioni di carattere tecnico-economico, che l'amministrazione committente sia sempre titolare di tutti i diritti sui programmi e i servizi delle tecnologie dell'informazione e della comunicazione, appositamente sviluppati per essa. 2-bis. Al medesimo fine di cui al comma 2, il codice sorgente, la documentazione e la relativa descrizione tecnico funzionale di tutte le soluzioni informatiche di cui al comma 1 sono pubblicati attraverso una o più piattaforme individuate dall'AgID con proprie Linee guida».

[328] TAR Lazio, Roma, sec. III-bis, judgement of 30 June 2020, no. 7370. In the same sense, see TAR Lazio, Roma, sec. III-bis, judgement of 1 July 2020, no. 7526; TAR Lazio, Roma, sec. III-bis, judgement of 18 December 2020, no. 13692; TAR Lazio, Roma, sec. III-bis, judgement of 30 June 2021, no. 7769.

deny access to data on agricultural contributions, arguing that it was impossible to extrapolate them because they were managed through algorithms operating entirely automatically at the central level. The administrative judges rejected this argument, clarifying that the entity's primary competence in the matter cannot be evaded by hiding behind the complexity or immediate unavailability of the IT management mechanisms. The judgment assumes particular importance because it updates the principles on the matter by recalling not only consolidated case law but also recent regulatory evolution, including art. 30 of the new Public Contracts Code (Legislative Decree 36/2023) and the definitions of artificial intelligence systems contained in the EU Regulation 2024/1689 on AI. The Council of State ruled that the use of artificial intelligence systems must be accompanied by compliance with non-derogable principles, such as the knowability and comprehensibility of the logic used, the non-exclusivity of the algorithmic decision (which requires human oversight), and non-discrimination. Consequently, the principle of law was affirmed according to which the cognitive or technical difficulties deriving from the use of entirely automated algorithms are not valid grounds to deny the right of access to documents, which constitutes a fundamental articulation of the principle of transparency; therefore, the administration cannot legitimately invoke automated management as a cause of impossibility of disclosure of the data or documents requested for defensive purposes[329].

Having clarified the general framework governing the relationship between the right of document access laid down in Law 241/1990 and algorithms, we can expand the analysis by considering the public contracts sector[330], where Legislative Decree no. 36/2023 provides for a special legal

---

[329] Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929.

[330] On the topic of access to documents in public contracts, see A. Corrado, l regime della trasparenza e dell'accesso digitale ai documenti nei contratti pubblici: vantaggi e criticità alla vigilia dell'applicazione delle nuove norme del Codice, in federalismi.it, 31, 2023, pp. 80-109; P. Provenzano, L'accesso agli atti senza istanza. Riflessioni a prima lettura sulla nuova disciplina (sostanziale e processuale) in materia di accesso agli atti gara, in F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, Giappichelli, Torino, 2024, p. 611 ff; M. Cozzio, La trasparenza nei contratti pubblici tra significati consolidati e nuove prospettive, in Rivista italiana di diritto pubblico comunitario, 2022, p. 545 ff.; T. Raimo, Il tempo dell'accesso agli atti di gara, in Urbanistica e appalti, 5, 2022, p. 705 ff.; N.A. Toscano, Il provvedimento di aggiudicazione tra pubblicità e accesso agli atti, in Urbanistica e appalti, 3, 2021, p. 293 ff.; S. Ingegnatti, Diritto di accesso – Accesso civico generalizzato e appalti pubblici: il punto della Plenaria, Giurisprudenza italiana, 1, 2021, p. 157 ff.; A. Moliterni, Pluralità di accessi, finalità della trasparenza e disciplina dei contratti pubblici, in Giornale

framework of access strictly correlated to the full digitisation of the procurement life cycle and procedural automation. Articles 35 and 36 of the Italian Public Contracts Code, in particular, provide the foundational regulatory framework for the reactive disclosure and the right of access within the public procurement sector, defining the new model of digital access, the limits to the knowability of acts, and the related procedural protections, with a view to balancing maximum transparency and the protection of reserved interests. The current regulatory framework is the result of an evolution that tends to overcome the restrictive approach of the past, integrating traditional document access (Law 241/1990) with the broader forms of civic access (simple and generalised, pursuant to Legislative Decree 33/2013), an orientation, the latter, already endorsed by the consolidated case law of the Plenary Assembly of the Council of State in judgement no. 10/2020. In other words, access to documents is ensured to anyone (*uti civis*), no longer

---

di diritto amministrativo, 4, 2020, p. 505 ff.; A. Corrado, L'accesso civico generalizzato, diritto fondamentale del cittadino, trova applicazione anche per i contratti pubblici: l'Adunanza plenaria del Consiglio di Stato pone fine ai dubbi interpretativi, in federalismi.it, 16, 2020, pp. 48-78; P. Rubechini, Appalti pubblici e diritto di accesso, in Giornale di diritto amministrativo, 2020, p. 232 ff.; V. Varano, È ancora fervido il dibattito in materia di accesso agli atti nelle procedure ad evidenza pubblica, in Rivista trimestrale degli appalti, 2020, p. 386 ff.; G. Ariemma, Le diverse forme di accesso nell'ordinamento italiano: il rapporto tra accesso ordinario e accesso civico generalizzato in materia di contratti pubblici, in Rivista giuridica europea, 2020, p. 89 ff.; M. Ippolito, La 'cultura' della trasparenza nell'accesso agli atti della fase esecutiva di un procedimento ad evidenza pubblica, in giustamm.it, 7, 2020; S. Mastroianni, L'integrazione tra la disciplina del diritto di accesso ordinario e quella dell'accesso civico generalizzato nel settore degli appalti: l'Adunanza Plenaria dice no a buchi neri nel principio di trasparenza, in giustamm.it, 4, 2020; M. Lipari, Informazione dei candidati e degli offerenti e accesso agli atti di gara, in M.A. Sandulli, R. De Nictolis (directed by), in Trattato sui contratti pubblici, vol. III, Giuffrè, Milano, 2019, p. 341 ff.; L. Minervini, Accesso agli atti e procedure di affidamento ed esecuzione di contratti pubblici, Foro amministrativo, 5, 2019, p. 949 ff.; P. Adami, L'accesso civico agli atti delle procedure di affidamento e di esecuzione dei contratti pubblici, in Rivista amministrativa della Repubblica italiana, 2018, p. 241 ff.; V. Gastaldo, Il diritto di accesso nel settore degli appalti pubblici e gli obblighi di trasparenza delle stazioni appaltanti, in Urbanistica e appalti, 10, 2014, p. 1005 ff.; A. Malandrino, Il diritto di accesso ai documenti nelle gare d'appalto e la tutela di interessi commerciali legittimi e della concorrenza, Foro amministrativo – CdS, 7-8, 2013, p. 1803 ff.; M.G. Della Scala, Diritto di accesso agli atti di un soggetto privato. Profili sostanziali e processuali. Osservazioni a margine dell'adunanza plenaria n. 5 del 2005, in Foro amministrativo – CdS, 5, 2006, p. 769 ff.; G. Tanzarella, Nuovi profili di riservatezza nelle procedure di aggiudicazione degli appalti pubblici comunitari: all'indomani della pubblicazione delle direttive 17 e 18 CEE, qualche spunto di riflessione alla luce dell'esperienza statunitense in tema di tutela delle informazioni commerciali riservate, in Servizi pubblici e appalti, 3, 2004, p. 771 ff.

exclusively to individuals bearing a direct, concrete, and current interest (*uti singulus*), overcoming the previous restrictive approach and opening up to forms of generalised public scrutiny[331].

The fundamental prerequisite for the new legal framework concerning the right of access is the full digitisation of the contracts' life cycle, aimed at ensuring maximum simplicity, speed, and verifiability in applying the rules. The new code introduces, in art. 22, the national digital procurement ecosystem (e-procurement), centred on the «Banca dati nazionale dei contratti pubblici» (BDNCP) of which ANAC is the exclusive holder (art. 23). This ecosystem, through the interoperability of platforms and the management of the «fascicolo virtuale dell'operatore economico» (FVOE) (art. 24), makes the necessary information and digital certifications available in real-time, operating according to the «once only» principle[332].

---

[331] Cons. Stato, Ad. Plen., judgement of 2 April 2020, no. 10, which affirmed the following principles of law: «a) la pubblica amministrazione ha il potere-dovere di esaminare l'istanza di accesso agli atti e ai documenti pubblici, formulata in modo generico o cumulativo dal richiedente senza riferimento ad una specifica disciplina, anche alla stregua della disciplina dell'accesso civico generalizzato, a meno che l'interessato non abbia inteso fare esclusivo, inequivocabile, riferimento alla disciplina dell'accesso documentale, nel qual caso essa dovrà esaminare l'istanza solo con specifico riferimento ai profili della l. n. 241 del 1990, senza che il giudice amministrativo, adìto ai sensi dell'art. 116 c.p.a., possa mutare il titolo dell'accesso, definito dall'originaria istanza e dal conseguente diniego adottato dalla pubblica amministrazione all'esito del procedimento; b) è ravvisabile un interesse concreto e attuale, ai sensi dell'art. 22 della l. n. 241 del 1990, e una conseguente legittimazione, ad avere accesso agli atti della fase esecutiva di un contratto pubblico da parte di un concorrente alla gara, in relazione a vicende che potrebbero condurre alla risoluzione per inadempimento dell'aggiudicatario e quindi allo scorrimento della graduatoria o alla riedizione della gara, purché tale istanza non si traduca in una generica volontà da parte del terzo istante di verificare il corretto svolgimento del rapporto contrattuale; c) la disciplina dell'accesso civico generalizzato, fermi i divieti temporanei e/o assoluti di cui all'art. 53 del d. lgs. n. 50 del 2016, è applicabile anche agli atti delle procedure di gara e, in particolare, all'esecuzione dei contratti pubblici, non ostandovi in senso assoluto l'eccezione del comma 3 dell'art. 5-bis del d. lgs. n. 33 del 2013 in combinato disposto con l'art. 53 e con le previsioni della l. n. 241 del 1990, che non esenta *in toto* la materia dall'accesso civico generalizzato, ma resta ferma la verifica della compatibilità dell'accesso con le eccezioni relative di cui all'art. 5-bis, comma 1 e 2, a tutela degli interessi-limite, pubblici e privati, previsti da tale disposizione, nel bilanciamento tra il valore della trasparenza e quello della riservatezza».

[332] M. Corradino (ed.), La riforma dei contratti pubblici, Giuffrè, Milano, 2023, p. 42. The principle of «once only» establishes that citizens and businesses must provide their data and documents to the public administration only once. In the specific context of public contracts, art. 19, paragraph 2, of Legislative Decree no. 36/2023 offers a precise normative definition, establishing that «ciascun dato è fornito una sola volta a un solo sistema

Digital disclosure is enshrined in art. 35, paragraph 1, which ensures access to the documents relating to contract award and performance procedures in digital mode, through direct acquisition of data and information entered into the platforms. Despite the extension of transparency, the public contracts code maintains and strengthens specific limits on disclosure, while introducing limitation mechanisms necessary to protect pre-eminent public interests and private commercial rights. The main mechanism of temporal limitation is the deferral (*differimento*) of the exercise of the right of access, governed by art. 35, paragraph 2, which operates to protect the regularity of the tender procedure and is calibrated based on the procedural phase and the type of procedure: 1) in open procedures, access to the list of tenderers is deferred until the deadline for the submission of the offers themselves; 2) in restricted and negotiated procedures, the deferral applies to the list of invited tenderers and of those who have submitted offers, again until the deadline for submission; 3) access to participation requests, data on requirements, offers, tender minutes, and fact-finding documents relating to tender evaluation and the verification of abnormally low tenders is deferred until the award. Art. 35, paragraph 3, reinforces these limits, establishing that until the conclusion of the phases or the expiration of the terms, the acts cannot be made accessible or knowable, and the violation of this prohibition by public officers or persons in charge of a public service is relevant for art. 326 of the Italian Penal Code (revelation and use of official secrets). The second mechanism for limiting the right of access is governed by art. 35, paragraph 4, which contemplates the hypotheses of "esclusione" from access and from any form of divulgation. Letter b) of paragraph 4 provides for hypotheses of "mandatory" exclusion, i.e., acts that the lawmaker deemed must remain reserved *a priori* to protect specific public interests: legal opinions acquired for the resolution of disputes (potential or ongoing) relating to public contracts; reserved reports of the works director, the execution director, and the testing body on the executor's requests and reservations; digital platforms and IT infrastructures used for tender management, where covered by intellectual property rights. Letter a) of paragraph 4 provides, instead, for a type of "optional" exclusion, in relation to information provided in the offer or in justification thereof that constitutes,

---

informativo, non può essere richiesto da altri sistemi o banche dati, ma è reso disponibile dal sistema informativo ricevente. Tale principio si applica ai dati relativi a programmazione di lavori, opere, servizi e forniture, nonché a tutte le procedure di affidamento e di realizzazione di contratti pubblici soggette al presente codice e a quelle da esso escluse, in tutto o in parte, ogni qualvolta siano imposti obblighi di comunicazione a una banca dati o a un sistema informativo».

according to a reasoned and substantiated declaration by the bidder, technical or commercial secrets, also resulting from discoveries, innovations, projects protected by intellectual property titles, as well as highly technological content. This exclusion is optional, as it is up to the contracting authority to establish the prerequisites to protect the economic and industrial confidentiality of the operators[333].

The principle of maximum transparency, while encountering the limits set out above, is counterbalanced by the provision of access to documents for defensive purposes provided by art. 35, paragraph 5, which states that the right to access prevails over exclusions for technical or commercial secrets (art. 35, paragraph 4, lett. a) and for the protection of intellectual property rights (Art. 35, paragraph 4, lett. b, no. 3) but only on condition that knowledge of the document is «indispensabile ai fini della difesa in giudizio dei propri interessi giuridici rappresentati in relazione alla procedura di gara». This requirement of "indispensability" entails rigorous screening by the contracting authority to determine whether a necessary instrumental link exists between the requested document and the legal situation the applicant intends to protect.

The subsequent art. 36 (headed «Norme procedimentali e processuali in tema di accesso») introduces operational mechanisms to integrate disclosure into the digitised context. Paragraph 1 establishes that the awardee's offer, the tender minutes, and the documents underlying the award decision are made available to all candidates and bidders not definitively excluded, simultaneously with the digital communication of the award (ex art. 90) through the e-procurement platform. In case of rejection of a request for redaction of the offers by the operator (to protect alleged technical or commercial secrets), art. 36, paragraph 5, provides that the disclosure of the parts of the offer for which redaction was requested is not allowed before the expiry of the ten-day term provided by paragraph 4 for proposing the appeal against the decisions on the aforementioned redaction requests. In this regard, paragraph 7 of Article 36 institutes a new accelerated procedure for challenging determinations denying redaction, providing that the appeal is set

[333] As noted by Antonelli, the new public contracts code distinguishes between optional and mandatory cases of exclusion, unlike what was provided in art. 53 of the previous code (Legislative Decree 50/2016), which provided only for cases of mandatory exclusion, including the current case of optional exclusion to protect technical and commercial secrets. On this point, see V. Antonelli, La trasparenza e il controllo dei requisiti negli affidamenti di importo inferiore alle soglie di rilevanza europea, in W. Giulietti, F. Caporale (eds.), I contratti sotto la soglia di rilevanza europea. Dopo il nuovo Codice dei contratti pubblici, Giuffrè, Milano, 2024, p. 281.

ex officio in chambers with halved terms compared to the special procurement procedure (as laid down in art. 120 of the Code of Administrative Procedure) and is decided with a simplified judgement[334].

In summary, the above mentioned articles 35 and 36, although aiming for an unprecedented and profound harmonisation with digitisation and the principles of transparency and *favor partecipationis*, still present delicate hermeneutic questions, particularly in the difficult balance between the protection of industrial secrets and the fullness of judicial protection. As concerns the relationship between the right of access in procurement matters, algorithms, and artificial intelligence, Legislative Decree 36/2023 sets out provisions of considerable innovation. Indeed, art. 30 is dedicated to the use of automated procedures in the life cycle of public contracts, stating in paragraph 1 that, «per migliorare l'efficienza le stazioni appaltanti e gli enti concedenti provvedono, ove possibile, ad automatizzare le proprie attività ricorrendo a soluzioni tecnologiche, ivi incluse l'intelligenza artificiale e le tecnologie di registri distribuiti, nel rispetto delle specifiche disposizioni in materia». The subsequent paragraph 2 states that «nell'acquisto o sviluppo delle soluzioni di cui al comma 1 le stazioni appaltanti e gli enti concedenti: a) assicurano la disponibilità del codice sorgente, della relativa documentazione, nonché di ogni altro elemento utile a comprenderne le logiche di funzionamento; b) introducono negli atti di indizione delle gare clausole volte ad assicurare le prestazioni di assistenza e manutenzione necessarie alla correzione degli errori e degli effetti indesiderati derivanti dall'automazione».

---

[334] On this point, the correlation between digital access and the running of the deadline for challenging public procurement decisions is very important. The code, transposing the case law orientation that excluded the burden of filing unparticularised claims (*ricorsi al buio*) (Cons. Stato, Ad. Plen., judgement of 2 July 2020, no. 12), anchors the thirty-day time limit for bringing the main action (aimed at the annulment of the award) to the receipt of the communication under art. 90 of Legislative Decree 36/2023 or to the moment when the acts are made available under art. 36, paragraphs 1 and 2, Legislative Decree 36/2023. However, art. 36, paragraph 9, establishes that the deadline for challenging the award and the admission and evaluation of offers other than the winning one runs in any case from the communication laid down in article 90. This provision poses a potential critical issue: while providing for the existence of the expedited judicial procedure for challenging decisions on requests to redact parts of tenders, bringing such proceedings for access has no suspensive effect on the time limit for challenging the award, which runs in any case from the communication under art. 90 of Legislative Decree 36/2023. Therefore, as observed among scholars, any subsequent knowledge of the documents, obtained at the outcome of the judgment, could at most legitimize the filing of additional grounds (M. Lipari, Effettività della tutela giurisdizionale e innovazioni tecnologiche nel nuovo codice n. 36/2023, in R. Cavallo Perin, M. Lipari, G.M. Racca (eds.), Contratti pubblici e innovazioni nel nuovo codice, Jovene, Napoli, 2024, p. 133).

Paragraph 3, furthermore, codifies the triptych of algorithmic legality principles, establishing that «le decisioni assunte mediante automazione rispettano i principi di: a) conoscibilità e comprensibilità, per cui ogni operatore economico ha diritto a conoscere l'esistenza di processi decisionali automatizzati che lo riguardino e, in tal caso, a ricevere informazioni significative sulla logica utilizzata; b) non esclusività della decisione algoritmica, per cui comunque esiste nel processo decisionale un contributo umano capace di controllare, validare ovvero smentire la decisione automatizzata; c) non discriminazione algoritmica, per cui il titolare mette in atto misure tecniche e organizzative adeguate al fine di impedire effetti discriminatori nei confronti degli operatori economici». Art. 30, therefore, emphasizes that even in the public contracts sector, similarly to what is enunciated by articles 68 and 69 of the Digital Administration Code, the lawmaker has a clear predilection for open source software – in any case ensuring, in the case of the use of algorithms in administrative activity, the access to the source code – as well as for the prevalence of access to documents for defensive purposes over the protection of intellectual property, even if covered by a patent, evidently believing that the lack of knowledge of the source code would not guarantee the transparency of the algorithm.

4.2.2. The distinction between *decisione amministrativa algoritmica* and *algoritmo di mero supporto* in judgement no. 4857/2025 of the Council of State: critical issues and aporias

The relationship between the right of access in procurement matters and algorithms was addressed in the recent Council of State judgment no. 4857 of 2025, which addressed a dispute arising within the context of an online tender procedure managed through a proprietary digital platform[335]. The specific case concerned the exclusion of a bidder due to a discrepancy between the hash values of the technical offer uploaded during the first stage and those effectively transmitted during the final filing window; the operator, contesting the contracting authority's reconstruction and alleging a presumed malfunction of the system, had formulated a request for access to documents for defensive purposes asking for the disclosure not only of the log files, but

[335] We refer to Cons. Stato, sec. IV, judgement of 4 June 2025, no. 4857, with notes by S. Mento, Sulla differenza tra algoritmo di supporto e algoritmo decisionale: i riflessi nel Codice dei contratti, in Appalti&Contratti, 31 July 2025; L. Viola, L. Caputo, Decisione amministrativa algoritmica e algoritmo di mero supporto: verso una minore trasparenza?, in NT+ Diritto (Il Sole 24 Ore), 2 July 2025.

also of the source code of the tender management software, owned by a third-party company, arguing that the algorithm had made an unlawful automated decision and that the system logs were unreliable as they could be modified. In rejecting the appeal and confirming the administration's partial refusal of access, the Council of State developed an articulated legal reasoning that clarifies the scope of the concept of «indispensabilità» laid down in article 35 of the code. The Court preliminarily made a fundamental distinction between «decisione amministrativa algoritmica» and «algoritmo di mero supporto»: in the case under examination, according to the judges, the software did not replace human will by adopting the exclusion act, but limited itself to comparing technical parameters (the digital fingerprints of the files), acting as an instrumental aid to the Tender Commission, which retained full decision-making authority and responsibility for the final decision. This qualification allowed the Council of State to exclude the automatic applicability of the stricter transparency guarantees provided by article 30 of the code for decision-making algorithms, which would impose on contracting authorities the obligation to ensure «la disponibilità del codice sorgente, della relativa documentazione, nonché di ogni altro elemento utile a comprenderne le logiche di funzionamento» (paragraph 2, lett. a). Regarding the evidentiary aspect and the standing to request access, the judgement stated that the request for disclosure of the source code, covered by intellectual property rights and industrial secrets, cannot be granted when it is merely exploratory in nature, i.e., when it is aimed at searching for any "bugs" or weaknesses of the system in the absence of *prima facie* evidence regarding its malfunction. The Council of State clarified that the «indispensabilità» for defensive purposes must be understood as the impossibility of proving one's claims through other means of proof; in the context of e-procurement, such proof is provided by the log files (so-called “giornale di bordo”), which, being chronological computer records of the operations performed, carry a presumption of reliability. The judges therefore rejected the appellant's argument that the log files would be devoid of evidentiary value because they are theoretically alterable, stating that the mere abstract possibility of a modification is not sufficient to invalidate them: by virtue of the principle of trust and best access to evidence principle (*vicinanza della prova*), it is up to the party contesting the genuineness of the digital reports to provide concrete and specific elements demonstrating the alteration having taken place, as access to documents for defensive purposes cannot turn into an instrument of indiscriminate technical investigation into the know-how of the company supplying the platform. In conclusion, the pronouncement states that the balance between the economic operator's right of defence, the right to the protection of intellectual property,

and the economic initiative of the platform manager must be guided by the principle of proportionality. Access to the source code, which would expose the holder to the risk of seeing the commercial value of their software nullified, represents an *extrema ratio*, grantable only if the technical reports and log traces are not sufficient to reconstruct the procedural truth, a circumstance that in the specific case – according to the administrative judges – did not occur, since the log files attested to the absence of anomalies and the correct functioning of the digital fingerprint verification system.

In my opinion, the distinction between «algoritmo di mero supporto» and «decisione amministrativa algoritmica», as proposed by the Council of State, will become one of the main legal battlegrounds, as the public administration will, in all likelihood, have an interest in qualifying its systems as mere support to evade the burdensome transparency obligations. The applicant, on the contrary, will try to demonstrate that the human intervention was merely formal and that the decision was, *de facto*, made by the machine.

Nevertheless, I believe that the distinction in question is not convincing for at least three reasons. The first is that such a distinction stands in contrast with the orientation of the Sixth Section of the Council of State on the legal nature of the algorithm, qualified on several occasions as «modulo organizzativo» and «strumento procedimentale ed istruttorio»[336], consistently with what is now provided by two provisions of law: 1) art. 30, paragraph 3, lett. b), of Legislative Decree 36/2023, which enshrines the principle of non-exclusivity of the algorithmic decision, whereby there exists in the decision-making process a human contribution capable of controlling, validating, or refuting the automated decision; 2) art. 14, paragraph 2, of Law 132/2025, which expressly speaks of the use of artificial intelligence in the public administration «in funzione strumentale e di supporto all'attività provvedimentale, nel rispetto dell'autonomia e del potere decisionale della persona che resta l'unica responsabile dei provvedimenti e dei procedimenti in cui sia stata utilizzata l'intelligenza artificiale». The use by the Italian lawmaker of the expression «di supporto» would be enough to invalidate the case law distinction at issue, it being evident that an algorithm, within the scope of administrative activity, can only ever be «di mero supporto», in the sense used in judgement no. 4857/2025, since human oversight is always required. In any case, if the letter of the law were not enough, an intervention

[336] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881; Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929.

by the Plenary Assembly to resolve the interpretive conflict would be highly desirable.

The second reason for dissent concerns the circumstance that art. 30 of Legislative Decree 36/2023 does not expressly reserve the disclosure of the source code only to the «decisione amministrativa algoritmica», nor does it exclude the «algoritmo di mero supporto», but limits itself to making a generic reference to the «soluzioni di cui al comma 1», that is to say, to the «soluzioni tecnologiche, ivi incluse l'intelligenza artificiale e le tecnologie di registri distribuiti». Finally, even if I were to consider the distinction under examination valid, there would be, in my opinion, a third reason for dissent, since the position of the Council of State appears to be of an excessively formalistic nature. The reason is that although the tender commission formally adopted the exclusion act, it is a direct and immediate effect of the algorithmic output, i.e., the comparison of the hash fingerprints of the files uploaded to the digital platform. The tender commission, in other words, did not make use of the software in a merely auxiliary function of the administrative activity, but limited itself to referring to the output generated by it (the lack of correspondence between the hash fingerprints of the files uploaded by the appellant), determining the automatic exclusion of the appellant. When an algorithm produces a result that constitutes the sole and necessary prerequisite for the adoption of a non-discretionary administrative act, and when the human decision-maker does not have independent means to verify the correctness of such a result, the algorithm becomes the substantial decision-maker, so to speak. In the case of hash fingerprint control, the tender commission has no way to verify, by eye or by hand, the correspondence between the cryptographic strings. The algorithm's computational complexity, in fact, makes direct human verification impossible. Consequently, when the system displays the error "hash mismatch", the commission does not evaluate the error but accepts it uncritically, reducing its activity to mere rubber-stamping. If the commission does not have the technical capacity or the tools to refute the system (and the denial of access to the code prevents it precisely from acquiring such tools), stating that the decisions «restano rigorosamente affidate al fattore umano» becomes a sophism, since the commission acts as a mere implementer of the machine's output. By limiting the application of article 30 only to cases where the algorithm entirely and formally replaces the official (rare cases – at least for the moment – in our legal system, given the obligation of human imputability), the Council of State ends up emptying the provision of content. If every time a public officer affixes a digital signature to an output generated by software, the case falls outside the scope of the «decisione amministrativa algoritmica», article 30 risks becoming a dead

letter. On the contrary, a teleological and constitutionally oriented interpretation of the provision should lead one to believe that transparency guarantees are triggered whenever the algorithm performs a decisive function in the fact-finding phase, such as irreversibly conditioning the outcome (as in the case of exclusion for a hash mismatch). In conclusion, my thesis is that, in the specific case, the exclusion act was adopted substantively by the software, thus falling within what the Council of State termed «decisione amministrativa algoritmica», with the consequent application of the transparency guarantees laid down in art. 30 of Legislative Decree 36/2023, which would require contracting authorities to ensure access to the source code, the related documentation, and any other element useful for understanding its operating logic.

In this regard, moreover, a further contrast seems to be looming between the analysed judgment no. 4857/2025 of the Fourth Section of the Council of State and some previous judgements of the Sixth Section which expressly clarified, on the subject of deterministic algorithms, that «non può assumere rilievo l'invocata riservatezza delle imprese produttrici dei meccanismi informatici utilizzati i quali, ponendo al servizio del potere autoritativo tali strumenti, all'evidenza ne accettano le relative conseguenze in termini di necessaria trasparenza»[337]. I also endorse this argument, which is widely supported in the legal scholarship. Scholars have highlighted how, on the subject of the relationship between access and industrial secrecy, the person who makes technological solutions available for public activities should renounce prerogatives relating to the safeguarding of their private activities, at least for those connected to the public interest[338].

---

[337] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472, § 13.1; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881, § 10.

[338] S. De Felice, Intelligenza artificiale e "Invalidità e giustiziabilità dinanzi al giudice amministrativo", in www.giustizia-amministrativa.it, 2021, p. 14. Along similar lines, Tronci suggests that «è al momento della contrattazione con il fornitore dell'algoritmo che la pubblica amministrazione può negoziare il contenuto del rapporto contrattuale in modo tale da mettersi nelle condizioni di poter soddisfare l'esigenza di trasparenza algoritmica in termini di conoscibilità senza rischiare di ledere la posizione dell'impresa fornitrice, né rischiare di esser soggetta ad azioni di responsabilità civile. È in questa sede, difatti, che la pubblica amministrazione può acquisire la titolarità di tutti i diritti di proprietà intellettuale ed industriale al fine di eliminare ogni ostacolo alla disponibilità e all'ostensione del codice sorgente» (A. Tronci, Le nuove frontiere della trasparenza nell'amministrazione algoritmica, in federalismi.it, 9, 2025, p. 158). See also S. Civitarese Matteucci, Umano troppo umano. Decisioni amministrative automatizzate e principio di legalità, in Diritto pubblico, 1, 2019, p. 28, according to whom «è abbastanza evidente che se l'amministrazione acquista un servizio

Some voices among scholars, however, are contrary to the absolute prevalence of defensive transparency over private confidentiality. In particular, a part of legal scholarship, while recognising the necessity of transparency, believes that disclosing source code imposes undue prejudice on the fundamental right to intellectual property, suggesting that this right can be balanced more proportionately through information obligations that are alternatives to the source code[339]. Access to the source code could, in fact, prove unduly limiting for intellectual property interests, especially if the disclosure does not guarantee greater transparency for the choice made[340]. From a proportionality perspective, it is suggested that case law should consider whether it is not appropriate to pursue other cognitive paths before ordering access to the source code, to avoid the judicial approach penalising the private contractor and running counter to the principle of proportionality[341].

I find this orientation difficult to endorse, as there would be a risk, in my opinion, that the Public Administration might purchase proprietary technological solutions through recourse to user licenses, thus preparing the

---

per farne uso nella propria attività provvedimentale, la questione della proprietà intellettuale diviene cedevole». Also Huergo Lora places himself in this interpretive groove, stating that «El hecho de que el modelo algorítmico haya sido elaborado por una empresa (contratista de la Administración) y esté protegido como secreto empresarial, no autoriza a la Administración a denegar el acceso a la información. La Administración contratante deberá adoptar en el pliego las cláusulas necesarias para poder después enseñar a terceros los elementos del modelo o de la aplicación necesarios para hacer visible y controlable su funcionamiento» (A. Huergo Lora, Una aproximación a los algoritmos desde el Derecho Administrativo, in A. Huergo Lora (ed.), La regulación de los algoritmos, Aranzadi, Cizur Menor, 2020, p. 86).

[339] F. Bravo, Trasparenza del codice sorgente e decisioni automatizzate, in Diritto dell'informazione e dell'informatica, 4-5, 2020, p. 723. By the same Author, see also F. Bravo, Access to Source Code of Proprietary Software Used by Public Administrations for Automated Decision-making. What Proportional Balancing of Interests?, in A. Barone, A.G. Orofino, J.V. Torrijos (eds.), The Use of Artificial Intelligence by Public Administration (ERDAL), Aracne, Roma, 2020, where Bravo argues that the case law orientation favorable to the disclosure of the source code does not respect the balance of interests, since it neglects that intellectual property «is protected as a fundamental right (…) and (...) it can only be diminished *ex lege* (p. 160), «subject to the principle of proportionality» (p. 165). According to the Author, the protection of secrecy «does not contradict (...) the principle of transparency, but rather requires that this principle be developed differently» (p. 160), specifically guaranteeing transparency through the disclosure of «"meaningful information" regarding the "logic" of the processing (...) and not through the disclosure of source codes» (p. 164).

[340] A. Corrado, La trasparenza necessaria per infondere fiducia in una amministrazione algoritmica e antropocentrica, in federalismi.it, 5, 2023, p. 212.

[341] A. Corrado, ult. op. cit., p. 213.

alibi of the impossibility of exhibiting the technical documentation for reasons of industrial secrecy, and doing so through the reasoning given in the comparative technical and economic evaluation provided by art. 68 of Legislative Decree 82/2005[342], also determining a disparity in treatment toward citizens who turn to Administrations that use proprietary solutions compared to those who turn to Administrations that use open-source solutions, in violation of the principle of equality laid down in art. 3 of the Italian Constitution. In this regard, we must not forget that, although art. 68 of Legislative Decree 82/2005 favours free or open source software, managing such software requires specialised skills, which, according to official sources, the Italian Public Administration does not have, effectively making the purchase of so-called "turnkey" proprietary solutions unavoidable[343] with the consequent "lock-in" effect, i.e., of dependence on the proprietary supplier[344].

---

[342] Despite the legislator's preference for the use of open source software by the public administration, paragraph 1-ter of Legislative Decree 82/2005 provides that, where the technical and economic comparative assessment laid down in paragraph 1-bis reasonably shows that it is impossible to access solutions already available within the public administration or free software or open source code, the acquisition of proprietary computer programs through the use of user licenses is permitted. The comparative assessment laid down in this paragraph is carried out in accordance with the «Linee guida su acquisizione e riuso di software per le pubbliche amministrazioni», published by AgID on May 9, 2019, which require a multi-stage process: definition of requirements, priority verification of reusable or open source solutions, and only in the event of their justified inadequacy, evaluation of proprietary solutions. The comparative assessment must consider, from a technical and economic point of view, the total cost of ownership, the use of open formats, security guarantees, and the protection of personal data, and must result in a reasoned decision demonstrating why it was not possible to adopt reusable or free software before resorting to proprietary licenses.

[343] For example, according to the report of the Court of Auditors on the state of implementation of the National Recovery and Resilience Plan (PNRR), published in November 2023, p. 128, «La PA italiana risulta in grave ritardo, nei confronti con gli altri Paesi europei, circa la dotazione di personale specializzato in ambito digitale nei propri organici: per portare il peso nell'occupazione della PA delle figure qualificate come "scientists and engineers" agli standard medi europei occorrerebbe aumentarne il numero di ben 65mila occupati. D'altra parte, nel 2022 gli occupati laureati in ambito STEM, ovvero con lauree nel gruppo scientifico e tecnico, erano poco meno di 37mila persone».

[344] See the report of the Parliamentary Commission of Inquiry on the digitization and innovation of the Italian Public Administration, published on 13 February 2020, p. 134, which highlighted the «mancanza di competenze, soprattutto manageriali» and the lack of internal technicians capable of assessing the quality of projects, leading to a «effetto lock-in» because the P.A. does not know how to manage alternatives. Furthermore «la mancanza di consapevolezza dell'importanza del digitale ha portato la PA, negli anni, a non dotarsi delle

Finally, it should not be overlooked that the cited Art. 68 requires a comparative evaluation based on a complex calculation (Total Cost of Ownership – TCO) to demonstrate which software costs less, including installation, training, integration, customisation, and compliance verification[345]. Therefore, open source is not free: a P.A. without technicians must pay external providers for all these items. Often, when adding up these external costs, proprietary software (which includes everything in the fee) is easier to justify or economically equivalent, with fewer management risks. In conclusion, the purchase of proprietary licenses currently seems the most viable path for those who do not have a structured internal IT department, and the solution to this impasse seems to be more political (the hiring of many more computer experts) than legal.

From a comparative law perspective, reference to the French legal system appears unavoidable. It was the first in Europe to offer a comprehensive legislative response to the problem of whether the source code used for the adoption of administrative decisions can be made accessible to citizens, culminating in the recognition of the source code of public software as «document administratif» and, therefore, as an object of the right of access[346]. This conclusion, however, was not linear but followed a dialectical path that outlined a complex balance between algorithmic transparency and the secrecy of deliberations. The origin of this right can be traced to the Commission d'accès aux documents administratifs (CADA) opinion no. 20144578 of 8 January 2015. In that venue, the Commission was called upon to pronounce on the refusal by the Direction générale des finances publiques (DGFP) of a university researcher's request to obtain the source code of the simulation software for personal income tax. The CADA, overcoming the administration's resistance, ruled that the source code, understood as a set of computer files containing instructions that are executable by a microprocessor,

---

competenze tecnologiche, manageriali e di informatica giuridica necessarie», so that «mancano le competenze interne e l'amministrazione sceglie di fare ampio ricorso al mercato» (pp. 138-139).

[345] Linee guida su acquisizione e riuso di software per le pubbliche amministrazioni, cit., p. 16.

[346] For further study, see N. Lasbleiz, L. Obrecht, Le droit d'accès aux codes sources des systèmes algorithmiques utilisés par l'administration publique, in sui generis, 3 March 2025, pp. 1-12; W. Gilles, Droit d'accès à l'information publique et codes sources : de l'importance de l'étendue de la notion de document communicable, in International Journal of Open Governments, 10, 2021, pp. 1-12; E. Mouriesse, L'opacité des algorithmes et la transparence administrative, in Revue Française de Droit Administratif, 1, 2019, pp. 45-54; E. Barbin, Transparence administrative et documents numériques : un bilan, in La Semaine Juridique. Administrations et collectivités territoriales, 24, 2021, p. 2182.

falls fully within the definition of an administrative document pursuant to Article 1 of the law of 17 July 1978. The Commission specified that such a document is communicable to anyone who requests it, provided that its disclosure does not prejudice the search for tax infringements, thus establishing a presumption of technical and legal disclosure of public software[347]. This theoretical interpretation was promptly confirmed in court by the Tribunal Administratif de Paris with judgement no. 1508951 of 10 March 2016. The administrative judge accepted the applicant's appeal, rejecting the administration's argument that, because the software is in continuous evolution and requires complex processing, it should be considered an unfinished document or non-existent in a communicable form. The Tribunal clarified that the evolutionary nature of a computer program does not preclude its communicability, and that every version of the source code constitutes a finished administrative document at the time of the request. Furthermore, the judgement emphasised that the European directives on the reuse of public information (2003/98/EC) do not preclude the application of national transparency laws, and consequently ordered the DGFP to communicate the requested source code[348]. The expansion of this principle to the higher education sector occurred with CADA opinion no. 20161989 of 23 June 2016, concerning the university selection platform “Admission Post-Bac” (APB). In this context, the Commission reaffirmed that the algorithm used to rank candidates constitutes a communicable administrative document, citing for the first time article L. 300-2 of the Code des relations entre le public et l'administration (CRPA). The CADA specified that the code must be provided in a format that allows its reuse, affirming the applicability of the transparency principle also to predictive or selective algorithms used for university access[349]. This orientation was normatively consecrated by Law no. 2016-1321 of 7 October 2016 (so-called Loi Lemaire), which modified article L. 300-2 of the CRPA by explicitly inserting "source codes" into the illustrative list of administrative documents, thereby transforming a case-law construction into positive law[350]. However, the application of this reinforced principle encountered significant obstacles with the introduction of the “Parcoursup”

---

[347] Commission d'accès aux documents administratifs (CADA), Opinion no. 20144578 - Session of 8 January 2015.

[348] Tribunal Administratif de Paris, Judgement no. 1508951/5-2, 10 March 2016.

[349] Commission d'accès aux documents administratifs (CADA), Opinion no. 20161989 - Session of 23 June 2016.

[350] Code des relations entre le public et l'administration, Article L300-2, version in force from 9 October 2016.

platform, successor to APB. The interpretive conflict emerged in the litigation between the Union Nationale des Étudiants de France (UNEF) and the Université des Antilles. In the first instance, the Tribunal Administratif de la Guadeloupe, with judgement no. 1801094 of 4 February 2019 ordered the university to communicate the local algorithmic procedures and the related source code, holding that the special provisions of the code of education did not derogate from the general obligation of transparency enshrined by articles L. 311-1 and L. 300-2 of the CRPA. The tribunal held that the disclosure of the algorithmic weighting criteria did not violate the secrecy of the examining commissions' deliberations, thereby positioning itself as a bulwark of total transparency[351]. This orientation was radically questioned by the Conseil d'État and, subsequently, by the Conseil Constitutionnel. The Conseil d'État, with decision no. 427916 of 12 June 2019, annulled the Guadeloupe judgement for procedural defects, but above all paved the way for the question of constitutionality regarding the compatibility between the right of access to administrative documents and the secrecy of deliberations enshrined by article L. 612-3 of the education code[352]. The Conseil Constitutionnel resolved the question with decision no. 2020-834 QPC of 3 April 2020, establishing that, although article 15 of the Declaration of 1789 guarantees the right to ask the administration for an account, the lawmaker may apply limitations to it for reasons of general interest. In the case of Parcoursup, the protection of the secrecy of pedagogical teams' deliberations and the guarantee of their independence justify restricting third-party access to source code and local algorithms. The constitutionality of the provision was, however, subject to a reservation of interpretation: the limitations are valid only if the institutes publish, at the end of the procedure, a general report explaining the criteria used to examine applications[353]. The litigation cycle concluded with the decision of the *Conseil d'État* no. 433296 of 15 July 2020, relating to the Université de la Réunion, but applying the principles established by the French Constitutional Court. The Council definitively affirmed that, in the matter of university selection via Parcoursup, a special derogatory regime applies with respect to the general legal framework established by the CRPA. Consequently, while individual candidates have the right to know the reasons and criteria applied to their own application, third parties (such as student unions) cannot demand the communication of source codes or details of local

[351] Tribunal Administratif de la Guadeloupe, Judgement no. 1801094, 4 February 2019.

[352] Conseil d'État, 4ème - 1ère chambres réunies, Decision no. 427916, 12 June 2019.

[353] Conseil Constitutionnel, Decision no. 2020-834, 3 April 2020.

algorithms, having to be content with the general information contained in public reports or within the national framework[354].

4.2.3. The object of the right of access in AI systems: beyond the source code, towards the technical documentation (art. 11 AI Act) and the Fundamental Rights Impact Assessment (FRIA)

The issues examined so far concern access to the source code of deterministic algorithms. However, for artificial intelligence systems, the mere disclosure of the source code is not sufficient to understand the logic of the administrative decision, as the composition of AI systems presents a structure and functioning fundamentally different from traditional software. Indeed, software source code is written by programmers and is understandable to humans. Subsequently, this code is processed by a compiler, which transforms it into binary code, which machines can read. Source code and binary code are therefore two versions of the same artefact: one for humans and one for machines. When delving into machine learning and deep learning, however, the situation becomes more complex. In these cases, the model is created from a dataset and trained with an algorithm to respond correctly to specific inputs, but the final result is never identical. First, there are the raw data, which are transformed into datasets and then subject to a training process, which finally generates the 'weights' or ‘parameters’ of the model. Some scholars compare the training phase of a model to the process by which source code (written by programmers) is converted into a language understandable to the machine[355]. But there is a fundamental difference. This translation in machine learning is not deterministic, i.e., it does not always produce the same result for the same data. Even with the same datasets, training procedure, and algorithms, the final model will not be identical, but will have similar behaviours. The resulting parameters are not a 'copy' of the initial dataset: they are the result

[354] Conseil d'État, 4ème - 1ère chambres réunies, Decision no. 433296, 15 July 2020.

[355] See A. Karpathy, Software 2.0, in https://karpathy.medium.com/software-2-0-a64152b37c35, according to whom «To make the analogy explicit, in Software 1.0, human-engineered source code (e.g. some .cpp files) is compiled into a binary that does useful work. In Software 2.0 most often the source code comprises 1) the dataset that defines the desirable behavior and 2) the neural net architecture that gives the rough skeleton of the code, but with many details (the weights) to be filled in. The process of training the neural network compiles the dataset into the binary — the final neural network».

of a non-predictable, not perfectly replicable process[356]. Therefore, if one were to train a model from scratch multiple times on the same datasets, one would obtain models that are slightly different from each other, even if they exhibit similar behaviour. And it is precisely this that makes it difficult to clearly define the links between the original datasets and the final parameters.

From the foregoing, it follows that the right of access, when exercised in relation to artificial intelligence systems, cannot but be reconsidered in light of the further technical documents that it is necessary to view in order to understand their operating logics. Italian administrative case law, aside from a general mention[357], has not yet addressed access to documentation about AI systems. However, I believe that the public contracts code, in paragraph 2 of art. 30, contains a relevant provision on this matter, in the part where it states that in the purchase or development of technological solutions, including artificial intelligence, the contracting authority must ensure not only «la disponibilità del codice sorgente», but also – and herein lies the crux of the matter – «della relativa documentazione, nonché di ogni altro elemento utile a comprenderne le logiche di funzionamento». Thanks to such formulation, I believe that, to determine the content of the «documentazione» to which

---

[356] If this were not the case, the phenomenon of so-called "overfitting" would occur, i.e., when an algorithm adapts too faithfully or even exactly to its training data, giving rise to a model that is unable to make accurate predictions or conclusions from data other than the training data. For further study, see IBM, What is overfitting?, in https://www.ibm.com/think/topics/overfitting.

[357] For example, the Council of State, following the well-known judgement no. 8472/2019, affirmed that «il ricorso a strumenti informatici nelle procedure amministrative costituisce una modalità agevolata di istruttoria, senza che il singolo strumento – per quanto qualificabile in termini di intelligenza artificiale – possa, da un lato, derogare alle normative ed ai criteri posti a presupposto della singola procedura e, dall'altro lato, essere sottratto alla trasparenza nonché alla imputabilità all'amministrazione procedente. Quest'ultima è chiamata a verificare la correttezza del funzionamento dello strumento istruttorio utilizzato e la relativa coerenza agli obiettivi ed alle regole dettate, in coerenza al principio di legalità, per l'esercizio del potere in esame» (Cons. Stato, sec. VI, judgement of 28 April 2023, no. 4297, § 4). See also an opinion rendered by the Council of State, which clarified that «il ricorso ai sistemi di intelligenza artificiale – che valorizzano "approcci di apprendimento automatico o basati sulla logica e sulla conoscenza – richiede la strutturazione di adeguate garanzie, non limitate alla "tracciabilità" del funzionamento del sistema ed alla generica "conoscibilità ai soggetti controllati", ma estese ad una più incisiva salvaguardia della effettività del contraddittorio ed una meno generica prefigurazione delle conseguenze della violazione dei formalismi giuridici» (Cons. Stato, Advisory Section for Normative Acts, opinion of 28 March 2024, no. 440, § 15). Lastly, see Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929, § 9, where the judgement limited itself to deeming the principle of knowability and comprehensibility applicable also to the «sistemi di intelligenza artificiale (…) compreso ogni meccanismo rientrante nella attuale nozione di AI» of the AI Act.

access should be requested, it is useful to refer to the «technical documentation» provided by the AI Act for high-risk AI systems in art. 11, paragraph 1, and in Annex IV. In particular, according to paragraph 1 of Article 11, «the technical documentation of a high-risk AI system shall be drawn up before that system is placed on the market or put into service and shall be kept up-to-date. The technical documentation shall be prepared to demonstrate that the high-risk AI system complies with the requirements set out in this Section and to provide national competent authorities and notified bodies with the necessary information, in a clear and comprehensive form, to assess the AI system's compliance with those requirements. It shall contain, at a minimum, the elements set out in Annex IV (…)». Annex IV, then, contains a detailed list of the minimum content of the technical documentation, which must be composed first of all of a general description of the system specifying the intended purpose, the provider's identity, the current version and the relationship with previous ones, the modes of interaction with other hardware or software, the forms of distribution, the necessary operating hardware, the instructions for use, the user interface and, if the system is a component of a product, photographs and illustrations of the external and internal characteristics. This must be followed by a detailed description of the AI system elements and its development process, including the methods and tools used, the logic of the algorithms and the design choices, the system architecture and computational resources, as well as the specifications on data comprising training methodologies, origin, labeling and cleaning of datasets, human oversight measures, predetermined changes, cybersecurity measures and complete validation and testing procedures, including test logs and accuracy and robustness metrics. It is also necessary to provide detailed information on monitoring and functioning, highlighting capabilities, limitations, accuracy levels for specific groups, foreseeable risks to health or fundamental rights and specifications for input data. Finally, the document must contain the justification of the adopted performance metrics, the detailed description of the risk management system, the traceability of changes made during the life cycle, the list of harmonised standards or other technical specifications applied, a copy of the EU declaration of conformity and the description of the system and of the post-market monitoring plan[358].

[358] On technical documentation, see G. Gallone, Technical Documentation (Article 11), in A. Huergo Lora (ed.), cit., pp. 207-211; F. Ramón Fernández, Quality Management Systems, Technical Documentation and Documentation Keeping in the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), cit., pp. 629-647.

As is evident, this is copious and precise documentation prescribed by the European lawmaker in its minimum content, which aligns well, among other things, with the flexible wording of paragraph 2 of art. 30 of the public contracts code, which requires the contracting authority to ensure the access to «ogni altro elemento utile a comprenderne le logiche di funzionamento» of AI systems. Among the aforementioned documents, however, there is a document that, in my opinion, would be important to disclose to the private requesting party: the Fundamental Rights Impact Assessment (FRIA), governed by art. 27 of the AI Act and to be carried out by public deployers and private deployers providing public services before using high-risk AI systems. This assessment must include the description of the deployer's processes in which the system will be used consistently with its intended purpose, the period and frequency of use provided, the identification of the categories of natural persons or groups likely affected by its use in the specific context, the analysis of specific risks of harm (supplemented by the information provided by the provider), a detailed description of the implementation of human oversight measures and, finally, the indication of the measures to be adopted should the risks materialize, including provisions relating to internal governance and complaint mechanisms. The assessment obligation applies to the first use of the system, allowing the deployer, in similar cases, to rely on previously carried out assessments or those provided by the provider, but it requires adopting measures to update the information should the assessed elements vary. Once completed, the deployer must notify the market surveillance authority of the assessment results and submit the completed template, with possible exemptions in certain cases. If the FRIA obligations are already partially met by a Data Protection Impact Assessment (DPIA) performed pursuant to the GDPR or Directive (EU) 2016/680, the FRIA must simply complement that DPIA[359].

Although the provision of the cited paragraph 2 of art. 30 of the public contracts code does not have a counterpart in the Italian Administrative Procedure Act, I believe that even the technical documentation of artificial

[359] For a comment on art. 27 of the AI Act, see E. Chaveli Donet, The Fundamental Rights Impact Assessment by Deployers of Artificial Intelligence Systems in the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 523-566; J. García Luengo, Obligations of Providers and Deployers of High-Risk AI Systems and Other Parties (Chapter III, Section 3), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, cit., pp. 318-320; G. Malgieri, C. Santos, Assessing the (severity of) impacts on fundamental rights, Computer Law & Security Review, 56, 2025; A. Mantelero, The Fundamental Rights Impact Assessment (FRIA) in the AI Act: Roots, legal obligations and key elements for a model template, in Computer Law & Security, 54, 2024.

intelligence systems, similarly to what has already been held by administrative case law on the source code of traditional software, falls fully within the notion of «documento amministrativo» laid down in art. 22, paragraph 1, letter d), of Law 241/1990, in particular in the part where it is stated that «ogni rappresentazione grafica, fotocinematografica, elettromagnetica o di qualunque altra specie del contenuto di atti, anche interni o non relativi ad uno specifico procedimento, detenuti da una pubblica amministrazione e concernenti attività di pubblico interesse». The formulation «ogni rappresentazione grafica, fotocinematografica, elettromagnetica o di qualunque altra specie» clearly embraces also complex electronic files and dossiers such as the technical documentation provided by the AI Act, which describes structure, functioning, data and risk assessments of the AI system, constituting a representation of the content of a series of acts (design, verification, validation, etc.) that support administrative action. The same textual opening to «atti interni» also allows the inclusion of documents not intended for the outside but necessary to investigate, state reasons for, or support the administration's decisions that use AI systems. Furthermore, the technical documentation is certainly "held" by the P.A., for example, when the administration itself develops and puts into service an AI system or purchases one from a private provider. Finally, the technical documents of AI systems used to provide services to citizens should certainly be considered «concernenti attività di pubblico interesse».

4.2.4. The problems connected to the use of proprietary software and the question of Open-Source AI

Lastly, regarding the relationship between the right of access and artificial intelligence, a further problem I believe cannot be overlooked must be noted. Previously, we have seen that official data show that, today, the Public Administration, in most cases, relies on software provided by external private companies under user licenses, despite Article 68 of the Code of Digital Administration demonstrating the Italian lawmaker's preference for open-source solutions. Now, if this problem is already present in traditional software (that is, software equipped with source code based on deterministic algorithms), it becomes even more acute in artificial intelligence. Indeed, defining an artificial intelligence system as "open source" is more complex than defining standard software as "open source." With traditional software, an open-source license guarantees that the source code is available, modifiable, and freely distributable, so anyone can access it and contribute to improving it. But with AI the issue gets complicated, because – as mentioned – AI systems are composed not only of the code but also of the "weights" or

"parameters" of the model, which are generated by the code and data and are not directly interpretable by humans, with the consequence that having access only to the code is not sufficient to understand how they work, nor to modify or reproduce them, effectively breaking the cardinal principle of open source[360].

The discussion of «Open Source AI» became more concrete starting in 2022[361] with the launch of AI models such as GPT-NeoX[362], OPT[363], Stable

---

[360] T. Paris, A. Moon, J.L.C. Guo, Opening the Scope of Openness in AI, in FAccT 2025, ACM Conference on Fairness, Accountability, and Transparency. Proceedings, ACM, 2025, pp. 1293-1294.

[361] It must be said, however, that open source software for machine learning had already been discussed in the past. For example, in 2002 Torch was released, a machine learning library based on the Lua language (for the official paper, see R. Collobert, S. Bengio, J. Mariéthoz, Torch: A Modular Machine Learning Software Library, 30 October 2022, IDIAP Research Report 02-46), which laid the foundations for the modern PyTorch, a very popular open source framework for machine learning and deep learning, based on the Python programming language (for the official paper, see A. Paszke, S. Gross, F. Massa, A. Lerer, J. Bradbury, G. Chanan, T. Killeen, Z. Lin, N. Gimelshein, L. Antiga, A. Desmaison, A. Köpf, E. Yang, Z. DeVito, M. Raison, A. Tejani, S. Chilamkurthy, B. Steiner, L. Fang, J. Bai, S. Chintala, PyTorch: An Imperative Style, High-Performance Deep Learning Library, in Advances in Neural Information Processing Systems, 32, 2019, pp. 8024-8035; for the public repository, see https://github.com/pytorch/pytorch). Or, think of scikit-learn which, started as a Google Summer of Code project in 2007, was publicly released in 2010, quickly becoming a standard for classical machine learning in Python (for the official paper, see F. Pedregosa, G. Varoquaux, A. Gramfort, V. Michel, B. Thirion, O. Grisel, M. Blondel, P. Prettenhofer, R. Weiss, V. Dubourg, J. Vanderplas, A. Passos, D. Cournapeau, M. Brucher, M. Perrot, E. Duchesnay, Scikit-learn: Machine Learning in Python, in Journal of Machine Learning Research, 12, 2011, pp. 2825-2830; for the public repository, see https://github.com/scikit-learn/scikit-learn).

[362] Eleuther AI, Announcing GPT-NeoX-20B, 2 February 2022, in https://blog.eleuther.ai/announcing-20b/. For the official paper, see S. Black, S. Biderman, E. Hallahan, Q. Anthony, K. Gao, K. Golding, H. He, C. Leahy, K. McDonell, J. Phang, M. Pieler, U.S.V.S.N. Sai Prashanth, S. Purohit, L. Reynolds, J. Tow, B. Wang, S. Weinbach, GPT-NeoX-20B: An Open-Source Autoregressive Language Model, available at arXiv, 14 April 2022. For the public repository, see https://github.com/EleutherAI/gpt-neox and https://huggingface.co/EleutherAI/gpt-neox-20b.

[363] Meta AI, Democratizing access to large-scale language models with OPT-175B, 3 May 2022, in https://ai.meta.com/blog/democratizing-access-to-large-scale-language-models-with-opt-175b/. For the official paper, see S. Zhang, S. Roller, N. Goyal, M. Artetxe, M. Chen, S. Chen, C. Dewan, M. Diab, X. Li, X.V. Lin, T. Mihaylov, M. Ott, S. Shleifer, K. Shuster, D. Simig, P. Singh Koura, A. Sridhar, T. Wang, L. Zettlemoyer, OPT: Open Pre-trained Transformer Language Models, available at arXiv, 21 June 2022. For the public repository, see https://github.com/kingoflolz/mesh-transformer-jax/.

Diffusion[364], LLaMA[365], Dolly[366], and StableLM[367]. 2022 is an important year also because the Open Source Initiative (OSI), the organization that has been the custodian of the definition of "open source" for software for decades, launched Deep Dive AI, a global and structured program to understand the impact of artificial intelligence on open source software and to forge a consensus on the definition of «Open Source AI»[368], culminating in the release of the first version 1.0 of the definition on 28 October 2024 under the name of

---

[364] Stability AI, Stable Diffusion Public Release, 22 August 2022, in https://stability.ai/news/stable-diffusion-public-release. For the public repository, see https://github.com/Stability-AI/stablediffusion and https://huggingface.co/CompVis/stable-diffusion.

[365] Meta AI, Introducing LLaMA: A foundational, 65-billion-parameter large language model, 24 February 2023, in https://ai.meta.com/blog/large-language-model-llama-meta-ai/. For the official paper on LLaMA, see H. Touvron, T. Lavril, G. Izacard, X. Martinet, M.A. Lachaux, T. Lacroix, B. Rozière, N. Goyal, E. Hambro, F. Azhar, A. Rodriguez, A. Joulin, E. Grave, G. Lample, LLaMA: Open and Efficient Foundation Language Models, available at arXiv, 27 February 2023. For LLaMA2, see Meta AI, Meta and Microsoft Introduce the Next Generation of Llama, 18 July 2023, in https://about.fb.com/news/2023/07/llama-2/. For the official paper on LLaMA2, see H. Touvron, L. Martin, K. Stone, P. Albert, A. Almahairi, Y. Babei, N. Bashlykov, S. Batra, P. Bhargava, S. Bhosale, D. Bikel, L. Blecher, C. Canton Ferrer, M. Chen, G. Cucurull, D. Esiobu, J. Fernandes, J. Fu, W. Fu, B. Fuller, C. Gao, V. Goswami, N. Goyal, A. Hartshorn, S. Hosseini, R. Hou, H. Inan, M. Kardas, V. Kerkez, M. Khabsa, I. Kloumann, A. Korenev, P. Singh Koura, M.A. Lachaux, T. Lavril, J. Lee, D. Liskovich, Y. Lu, Y. Mao, X. Martinet, T. Mihaylov, P. Mishra, I. Molybog, Y. Nie, A. Poulton, J. Reizenstein, R. Rungta, K. Saladi, A. Schelten, R. Silva, E.M. Smith, R. Subramanian, X.E. Tan, B. Tang, R. Taylor, A. Williams, J.X. Kuan, P. Xu, Z. Yan, I. Zarov, Y. Zhang, A. Fan, M. Kambadur, S. Narang, A. Rodriguez, R. Stojnic, S. Edunov, T. Scialom, LLaMA2: Open Foundation and Fine-Tuned Chat Models, 18 July 2023, in https://ai.meta.com/research/publications/llama-2-open-foundation-and-fine-tuned-chat-models/. For the public repository, see https://github.com/meta-llama/llama and https://huggingface.co/meta-llama.

[366] For Dolly 1.0, see Databricks, Hello Dolly: Democratizing the magic of ChatGPT with open models, 23 March 2023, in https://www.databricks.com/blog/2023/03/24/hello-dolly-democratizing-magic-chatgpt-open-models.html. For Dolly 2.0, see Databricks, Free Dolly: Introducing the World's First Truly Open Instruction-Tuned LLM, 11 April 2023, in https://www.databricks.com/blog/2023/04/12/dolly-first-open-commercially-viable-instruction-tuned-llm. For the public repository, see https://github.com/databrickslabs/dolly.

[367] Stability AI, Stability AI Launches the First of its Stable LM Suite of Language Models, 19 April 2023, in https://stability.ai/news/stability-ai-launches-the-first-of-its-stablelm-suite-of-language-models. For the public repository, see https://github.com/stability-AI/stableLM/ and https://huggingface.co/docs/transformers/model_doc/stablelm.

[368] S. Maffulli, Welcome to Deep Dive AI, 5 August 2022, in https://opensource.org/blog/welcome-to-deep-dive-ai.

«Open Source AI Definition» (OSAID)[369]. According to this definition, an AI system[370] can be called «open source» only if it guarantees the four fundamental freedoms (use[371], study[372], modify[373], share[374]) and provides: 1) sufficiently detailed information on the data used to train the system, so that an expert can build a substantially equivalent system[375]; 2) the complete source code used to train and run the system and the complete specifications regarding the data processing and filtering modalities and the training modalities[376]; 3) the model parameters, such as weights or other configuration settings. The AI Act also contains some relevant provisions that align with the OSAID. In the first place, Recital 102 states that «General-purpose AI models released under free and open-source licences should be considered to ensure high levels of transparency and openness if their parameters, including the weights, the information on the model architecture, and the information on model usage, are made publicly available. The licence should be considered to be free and open-source also when it allows users to run, copy, distribute, study, change and improve software and data, including models under the condition that the original provider of the model is credited, the identical or comparable terms of distribution are respected». Secondly, art. 53, paragraph 2, establishes that the obligations provided by paragraph 1, points (a) and (b), for providers of general-purpose AI models, except those with systemic risk, do not apply to AI models «that are released under a free and open-source licence that allows for the access, usage, modification, and distribution

---

[369] Open Source Initiative, Open Source AI Definition, version 1.0, 28 October 2024, in https://opensource.org/ai/open-source-ai-definition.

[370] It is expressly specified that «when we refer to a "system," we are speaking both broadly about a fully functional structure and its discrete structural elements. To be considered Open Source, the requirements are the same, whether applied to a system, a model, weights and parameters, or other structural elements».

[371] Use the system for any purpose and without having to ask for permission.

[372] Study how the system works and inspect its components.

[373] Modify the system for any purpose, including changing its output.

[374] Share the system for others to use, with or without modifications, for any purpose.

[375] Such information, in particular, must include «(1) the complete description of all data used for training, including (if used) of unshareable data, disclosing the provenance of the data, its scope and characteristics, how the data was obtained and selected, the labeling procedures, and data processing and filtering methodologies; (2) a listing of all publicly available training data and where to obtain it; and (3) a listing of all training data obtainable from third parties and where to obtain it, including for fee».

[376] For example, if used, this must include code used for processing and filtering data, code used for training including arguments and settings used, validation and testing, supporting libraries like tokenizers and hyperparameters search code, inference code, and model architecture.

of the model, and whose parameters, including the weights, the information on the model architecture, and the information on model usage, are made publicly available»[377].

Despite these formal definitions, many models currently advertised as «open source» do not actually meet the criteria for being defined as such. For example, Meta was criticized by OSI for defining its model LLaMA as open source, since while it is true that it allows free download to developers, the only technical details it publishes are the weights, but not sufficient details on the training data; furthermore, the license under which LLaMA was released does not allow the free use of the technology by Meta's main competitors[378]. Given these circumstances, it would be better to call such models «open weight» rather than «open source», as other tech companies have done, including the French company Mistral[379]. But even in this case, it has been observed that in reality the substance does not change, since, even for open weights models, developers cannot see how they were developed nor rely on them to create new products of their own, as happened with open-source software[380]. In this scenario, scholars have raised concerns that open-source AI

---

[377] For further study in this regard, see J.A. Castillo Parrilla, General-Purpose Artificial Intelligence, Foundational Models (and "GPT-Chat") in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 801-824, spec. 816-819; C.I. Velasco Rico, General-Purpose AI Models (Chapter V), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, cit., pp. 373-402.

[378] R. Waters, Meta under fire for 'polluting' open-source, 17 October 2024, in https://www.ft.com/content/397c50d8-8796-4042-a814-0ac2c068361f.

[379] Mistral AI, Introducing Mistral 3, in https://mistral.ai/news/mistral-3. For the public repository, see https://github.com/mistralai and https://huggingface.co/docs/transformers/en/model_doc/mistral. In OSAID 1.0, among other things, the distinction is expressly made, for machine learning systems, between "Open Source models" and "Open Source weights", clarifying «an AI model consists of the mode architecture, model parameters (including weights) and inference code for running the model», while «AI weights are the set of learned parameters that overlay the model architecture to produce an output from a given output» (https://opensource.org/ai/open-source-ai-definition).

[380] Such is the critique of Ali Farhadi, head of the Allen Institute of AI, who released a completely open source artificial intelligence model called Olmo (for the official paper, see A. Ettinger, A. Bertsch, B. Kuehl, D. Graham, D. Heineman, D. Groeneveld, F. Brahman, F. Timbers, H. Ivison, J. Morrison, J. Poznanski, K. Lo, L. Soldaini, M. Jordan, M. Chen, M. Noukhovitch, N. Lambert, P. Walsh, P. Dasigi, R. Berry, S. Malik, S. Shah, S. Geng, S. Arora, S. Gupta, T. Anderson, T. Xiao, T. Murray, T. Romero, V. Graf, A. Asai, A. Bhagia, A. Wettig, A. Liu, A. Rangapur, C. Anastasiades, C. Huang, D. Schwenk, H. Trivedi, I. Magnusson, J. Lochner, J. Liu, L. J. V. Miranda, M. Sap, M. Morgan, M. Schmitz, M.

might serve as a strategic tool in corporate AI competition, with the risk of «openwashing» practices, where model providers release only a portion of the necessary components (typically the weights), while information on training and fine-tuning data is withheld to avoid scientific and legal scrutiny[381].

In short, the path to the real adoption of open-source artificial intelligence is still in its infancy, so we will have to await practical and technological developments before seeing it used in the public sector as well. In any case, although the adoption of an open source approach aims to promote transparency and innovation, values encouraged by the AI Act itself, opening an AI system entails managing critical issues which, if not adequately managed, can – in my opinion – compromise the rights of data subjects regarding privacy, in at least four respects. In the first place, despite attempts to anonymise or pseudonymise training data, the opening of the source code and the access to the model weights can facilitate the re-identification of data subjects, thereby violating the data minimisation principle set out in art. 5 of the GDPR. Indeed, machine learning and deep learning algorithms, trained on large amounts of data, can be so complex and rich in correlations as to render anonymisation insufficient[382]. Consequently, exposing the open source model, in combination with reverse engineering techniques[383], could enable the reconstruction or inference of sensitive or personal data, even if the originals

---

Guerquin, M. Wilson, R. Huff, R. Le Bras, R. Xin, R. Shao, S. Skjonsberg, S. Z. Shen, S. S. Li, T. Wilde, V. Pyatkin, W. Merrill, Y. Chang, Y. Gu, Z. Zeng, A. Sabharwal, L. Zettlemoyer, P. W. Koh, A. Farhadi, N. A. Smith, H. Hajishirzi, Olmo 3, available at arXiv, 15 December 2025; for the public repository, see https://github.com/allenai/OLMo and https://huggingface.co/docs/transformers/en/model_doc/olmo3).

[381] A. Liesenfeld, M. Dingermanse, Rethinking open source generative AI: open-washing and the EU AI Act, in FAccT' 24: Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency, Association for Computing Machinery, New York, 2024, pp. 1774-1787, spec. 1778.

[382] See L. Rocher, J.M. Hendrickx, Y.A. de Montjoye, Estimating the success of re-identifications in incomplete datasets using generative models, in Nature Communications, vol. 10, 3069, 2019, pp. 1-9, where the insufficiency of de-identification techniques in complex datasets is mathematically demonstrated. On the capacity of models to memorize specific data, see N. Carlini, F. Tramèr, E. Wallace, M. Jagielski, A. Herbert-Voss, K. Lee, A. Roberts, T. Brown, D. Song, U. Erlingsson, A. Oprea, C. Raffel, Extracting Training Data from Large Language Models, in USENIX Security Symposium, USENIX Association, 2021, pp. 2633-2650.

[383] Reverse engineering «is the process of analyzing a subject system to identify the system's components and their interrelationships and create representations of the system in another form or at a higher level of abstraction» (E.J. Chikofsky, J.H. Cross II, Reverse Engineering and Design Recovery: A Taxonomy, in IEEE Software, 7, 1, 1990, p. 15).

had been anonymised[384]. Paradoxically, greater transparency of the code, parameters, and training data would increase the risk of increasing the system's vulnerability to security and privacy risks. Secondly, the GDPR, in art. 6, requires that personal data be collected for specified, explicit, and legitimate purposes and not further processed in a manner incompatible with those purposes. If the open source AI system is trained on personal data originally collected for a specific purpose (for example, scientific research), its public release in a form that is freely usable and modifiable by anyone, for any purpose, makes it almost impossible to guarantee respect for purpose limitation. The reuse of existing datasets for training AI models is already a critical issue in itself, and opening the code worsens the problem, since third parties can use and modify the model, which cannot be limited[385]. Thirdly, open source publication makes it difficult to establish a legal basis for processing personal data. If the processing is based on consent, it is difficult to ensure that explicit and informed consent was obtained for the use of data in a context of free and potentially unlimited reuse[386]. If, instead, the processing is based on the controller's legitimate interest, the assessment of such interest must pass the triple test enshrined by art. 6, par. 1, point (f), of the GDPR: verification of the legitimate purpose pursued, necessity of the processing, and balancing with the rights and fundamental freedoms of the data subjects. In the open source context, where use can be detached from the original provider's control, maintaining a legitimate interest becomes particularly difficult, especially for general-purpose AI models[387]. Fourthly, the intrinsic opacity of some machine learning algorithms, even if open source, makes it difficult, if not impossible, to effectively exercise the rights of data subjects laid down in articles 15-22 of the GDPR, such as the rights of access,

---

[384] For the legal framing of the violation of GDPR principles through inversion attacks, see M. Veale, L. Edwards, P. Druschel, Algorithms that remember: model inversion attacks and data protection law, in Philosophical Transactions of the Royal Society A, 376, 2018, pp. 1-15.

[385] On this point, see R. Mühlhoff, Updating purpose limitation for AI: a normative approach from law and philosophy, in International Journal of Law and Information Technology, 33, 2025, pp. 1-23, where the Authors argue that purpose limitation becomes inapplicable in the context of machine learning since the reuse of models for secondary purposes cannot be technically constrained after release.

[386] On the inadequacy of consent as a legal basis for processing characterized by unpredictable future uses, as in the case of general-purpose models, see G. Pistilli, B. Trevelin, Can AI be Consentful?, available at arXiv, 8 July 2025, where the impossibility for the data subject to give truly "informed" consent regarding unknown outputs and reuses is highlighted.

[387] On this point, see European Data Protection Board (EDPB), Opinion 2024/28 on certain data protection aspects related to AI models, 2024.

rectification, completion, or erasure of incorrect or incomplete data[388]. In conclusion, we can argue that the intention to make an AI system open source aims for transparency but, in the context of personal data, raises a series of legal and technical challenges that require careful calibration to avoid undermining the privacy rights guaranteed by the GDPR.

5. The principle of non-exclusivity of the artificial administrative decision: human oversight

5.1. The genesis of the principle: from Art. 22 GDPR to the Council of State's triptych of algorithmic legality

The principle of non-exclusivity of the algorithmic decision (*principio di non esclusività della decisione algoritmica*), also known as the requirement for human intervention (*riserva di umanità*)[389], is an essential cornerstone of the exercise of administrative power in automated administrative procedures. This principle, elaborated by the case law of the Council of State, finds its normative foundation in supranational law, particularly in Art. 22 of Regulation EU 2016/679 (GDPR), which establishes the right of the natural person not to be subject to a decision that produces legal effects or significantly affects them, if such determination is based solely on an automated process. In this context, the legal system requires that an essential element of human control and validation remain, since the decision-making

[388] Regarding the legal difficulties of translating such opacity into an effective exercise of the rights of access and explanation (articles 13-15 GDPR), see the fundamental work of S. Wachter, B. Mittelstadt, L. Floridi, Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation, in International Data Privacy Law, vol. 7, n. 2, 2017, pp. 76-99. Specifically on the technical impossibility of guaranteeing erasure in already trained AI models, given the difficulty of removing the influence of individual data from the model weights without a complete retraining (so-called problem of «machine unlearning»), see T.T. Nguyen, T.T. Huynh, Z. Ren, P. Le Nguyen, A. Wee-Chung Liew, H. Yin, Q.V.H. Nguyen, A Survey of Machine Unlearning, in ACM Transactions on Intelligent Systems and Technology, vol. 16, n. 5, Article 108, September 2025, pp. 1-46.

[389] The idea of "requirement for human intervention" was put forward in the article J. Ponce Solé, Inteligencia artificial, Derecho administrativo y reserva de humanidad: algoritmos y procedimiento administrativo debido tecnológico, in Revista General de Derecho Administrativo, 50, 2019, pp. 1-52, who in turn, in note 47, points out that he borrowed this expression from Professor Silvia Díez, who used it orally during a STEM seminar held in November 2018. In the Italian context, this concept was received and explored mainly by Giovanni Gallone in his volume "Riserva di umanità e funzioni amministrative", CEDAM, Padova, 2023.

process must include a human contribution capable of controlling, validating, or refuting the automatic decision[390]. From an operational and technical point of view, the management model associated with this principle is identified in the mathematical and information technology field as HITL (human-in-the-

[390] Part of the legal scholarship finds the legal basis of the requirement for human intervention also in the Italian Constitution and, in particular, in articles 28, 54, 97 and 98 (G. Gallone, *op. ult. cit.*, pp. 41-48), the systematic reading of which would demonstrate «che la Carta Costituzionale contempla uno statuto delle pubbliche funzioni che, muovendo lungo un circuito che va dalla loro imputazione fino alla individuazione delle responsabilità ad esse connesse, assume sempre come termine irrinunciabile la persona umana. È chiaro, di riflesso, come nel modello di "amministrazione umana" fatto proprio dalla Carta fondamentale, le forme di automazione delle funzioni amministrative siano destinate ad assumere una posizione marginale. Esse appaiono relegate al piano dell'organizzazione dell'azione amministrativa e delle risorse materiali necessarie per il perseguimento degli obiettivi costituzionali del buon andamento e dell'imparzialità. Mentre la persona è il vero fulcro dell'amministrazione, l'automazione altro non è che semplice strumento» (p. 49). According to the Author, however, the central constitutional basis of the requirement for human intervention in the performance of administrative functions cannot be traced only in the aforementioned model of administration, but must be sought much deeper. The requirement for human intervention, in fact, represents « (…) uno dei diversi corollari del principio personalista che innerva il nostro ordinamento e che risulta sancito all'art. 2 Cost. L'uomo è, nella sua irriducibile unicità (ma anche nella sua dimensione sociale), il protagonista assoluto della Carta. Ed è proprio questa centralità nell'impianto che impedisce ogni sua parificazione, in termini di valore, alla macchina (alla quale, peraltro, non è riconosciuto in Costituzione alcuno specifico status di protezione). Ciò è ancor più evidente se si lega il principio personalista a quello della dignità della persona. La rilevanza della persona, anzi la sua vera e propria costituzionalizzazione, trova, infatti, un fondamento essenziale nel rapporto istituito con la sua dignità (…). La persona è, quindi, ad ogni latitudine del sistema multilivello di protezione dei diritti fondamentali, inseparabile dalla sua dignità. E la dignità dell'uomo si misura nella relazione in cui lo stesso viene posto non solo rispetto alle altre persone (secondo la direttrice dell'uguaglianza come "dignità sociale"), ma anche, benché sia un versante del dettato costituzionale poco battuto, rispetto a tutto ciò che non è uomo e, quindi, alla macchina» (pp. 52-54). The same Author further notes how, although Law 241/1990 does not expressly regulate automation, the RUP (Arts. 4-6) should exclude «(…) un qualche tipo di interpretazione evolutiva che permetta di intendere il concetto di "responsabile del procedimento" in senso lato ed oggettivo fino a farvi rientrare lo strumento dell'algoritmo», confirming that this role «non può che essere rivestita da una persona fisica» (ibid., p. 110). Finally, according to another part of the legal scholarship, where cases falling within the scope of European Union competences are involved, the necessity of human control over the performance of the automated procedural sequence could be inferred from Art. 41, par. 2 of the Charter of Fundamental Rights of the European Union, which recognises the right to good administration (V. Neri, Diritto amministrativo e intelligenza artificiale, un amore possibile, in Urbanistica e appalti, 5, 2021, p. 593).

loop)[391], in which the machine must interact with the human being 392 to produce its results[392]. The need for human contribution addresses the necessity of ensuring downstream verification of algorithmic outcomes, thereby guaranteeing that the decision is attributable to the competent authority, as established by the principle of legality. Indeed, there must always be a designated entity to which legal liability is imputed, ensuring the capacity to audit the validity and internal consistency of the algorithmic output[393].

More recently, the principle of non-exclusivity of the algorithmic decision has been explicitly codified also in Art. 30, paragraph 3, letter b), of the code of public contracts (legislative decree no. 36/2023), which established that «le decisioni assunte mediante automazione rispettano i principi di (…) non esclusività della decisione algoritmica, per cui comunque esiste nel processo decisionale un contributo umano capace di controllare, validare ovvero smentire la decisione automatizzata».

5.2. Human oversight in Art. 14 of the AI Act and its transposition in Art. 14 of Law 23 September 2025, no. 132

The principle at issue has found European recognition also in the specific matter of artificial intelligence. The necessity of human oversight over artificial intelligence systems dates back to 2019, when the High-Level Expert Group on Artificial Intelligence, set up by the European Commission, identified human agency and oversight as one of the seven essential

---

[391] On the relationship between human-in-the-loop and artificial intelligence, see, among others, I.P. Di Ciommo, La prospettiva del controllo nell'era dell'Intelligenza Artificiale: alcune osservazioni sul modello Human In The Loop, in federalismi.it, 19 April 2023, pp. 68-90; P. Benanti, Human in the loop. Human decisions and artificial intelligence, Mondadori, Milano, 2022; T. Enarsson, L. Enqvist, M. Naarttijärvi, Approaching the human in the loop - legal perspectives on hybrid human/algorithmic decision-making in three contexts, in Information & Communications Technology Law, 31, 1, 2022, pp. 123-153; B. Green, The flaws of policies requiring human oversight of government algorithms, Computer Law & Security Review, 45, 2022; D. Amoroso, G. Tamburrini, La questione del controllo umano significativo sui sistemi robotici ad autonomia crescente, in A. D'Aloia (ed.), Intelligenza artificiale e diritto. Come regolare un mondo nuovo, Franco Angeli, Milano, 2021, pp. 31-58; A. Z. Huq, A Right to a Human Decision, in Virginia Law Review, 106, 3, 2020, pp. 611-688; R. Koulu, Human control over automation: EU policy and AI ethics, in European Journal of Legal Studies, 1, 2020, pp. 9-46.

[392] Cons. Stato, sec. VI, judgment of 13 December 2019, no. 8472, § 15.2.

[393] Ibid., § 14.2.

requirements for trustworthy AI[394]. The fundamental objective of human oversight is to guarantee that a high-risk AI system does not compromise human autonomy nor cause other adverse effects. To do this, the AI Act expressly declares that its objective is to «promote the uptake of human-centric (…) artificial intelligence» (Art. 1, par. 1). The Ethics Guidelines for Trustworthy AI published by the High-Level Expert Group on Artificial Intelligence (HLEG), distinguish three main approaches to human oversight, used as governance models for AI: 1) human-in-the-loop (HITL), which refers to the «capability for human intervention in every decision cycle of the system, which in many cases is neither possible nor desirable»; 2) human-on-the-loop (HOTL), which refers to the «capability for human intervention during the design cycle of the system and monitoring the system's operation»; 3) human-in-command (HIC), which refers to the «capability to oversee the overall activity of the AI system (including its broader economic, societal, legal and ethical impact) and the ability to decide when and how to use the system in any particular situation»[395].

The European normative foundation of human oversight now lies in Art. 14 of the AI Act. This provision primarily addresses the providers of the systems but also directly affects the operational capacities of the deployers (and, by extension, the Public Administration)[396]. This rule, in paragraph 1, prescribes that high-risk AI systems «shall be designed and developed in such

---

[394] Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, Ethics Guidelines for Trustworthy AI, available at European Commission, 8 April 2019, p. 16.

[395] Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, Ethics Guidelines for Trustworthy AI, cit., p. 16.

[396] On the concept of «human oversight» in the AI Act, see *ex multis* G. Lazcoz Moratinos, Human Oversight (Article 14), cit., pp. 252-274; G. Lazcoz Moratinos, Human Oversight or Monitoring in Article 14 of the Artificial Intelligence Act: A Mere Mandatory Requirement for High-Risk Systems?, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 717-737; A.M. Corrêa, S. Garsia, A. Elbi, Better together? Human oversight as means to achieve fairness in the European AI Act governance, in Cambridge Forum on AI: Law and Governance, 1, 2025, pp. 1-17; M. Fink, Human Oversight under Article 14 ot the EU AI Act, 14 February 2025, available at SSRN; J. Beck, T. Burri, From 'human control' in international law to 'human oversight' in the new EU Act on artificial intelligence, in G. Mecacci, D. Amoroso, L. Cavalcante Siebert, D. Abbink, J. van den Hoven, F. Santoni de Sio (eds.), Research Handbook on Meaningful Human Control of Artificial Intelligence Systems, Edward Elgar Publishing, Cheltenham, 2024, pp. 104-130; L. Enqvist, 'Human oversight' in the EU artificial intelligence act: what, when and by whom?, in Law, Innovation and Technology, 2 (15), 2023, pp. 508-535; J. Laux, Institutionalised distrust and human oversight of artificial intelligence: towards a democratic design of AI governance under the European Union AI Act, in AI & Society, 39, 2024, pp. 2853-2866.

a way, including with appropriate human-machine interface tools, that natural persons can effectively oversee them during the period in which they are in use» (paragraph 1). Human oversight aims specifically «to prevent or minimise the risks to health, safety or fundamental rights that may emerge when a high-risk AI system is used in accordance with its intended purpose or under conditions of reasonably foreseeable misuse (…)» (paragraph 2). Art. 14, paragraph 3, introduces a fundamental distinction between two types of supervision measures, establishing shared responsibility across the AI value chain. On the one hand, there are measures embedded directly into the system by the provider; on the other, there are measures the provider identifies as necessary that the deployer must implement. This implies, for example, that if the Public Administration purchases an AI system and the provider requires that a specific individual be responsible for its supervision, the public authority has a legal obligation to allocate such human resources within its organisation. The subsequent paragraph 4 of Art. 14 defines qualitatively the cognitive and operational capacities that the system must enable in the human supervisor. The Regulation lists five specific capacities that must be guaranteed. First, the supervisor must be placed in a position to «properly understand the relevant capacities and limitations of the high-risk AI system» (lett. a). The reason is clear: it is necessary to counter the phenomenon of the black box, since a human person cannot supervise what he does not understand. Therefore, the system must provide intelligible explanations of how it works, allowing the operator to know not only what the system decided but also the limits of reliability within which that decision is valid. Second, the system must enable the supervisor «to duly monitor its operation, including a view of detecting and addressing anomalies, dysfunctions and unexpected performance» (lett. a). This implies, for example, the presence of control dashboards and alert systems that notify the official when the system is operating outside expected parameters. Third, and perhaps the most critical point, the operator must be made aware of the risk of “automation bias,” that is, the tendency to rely excessively on the machine's output. The text of the rule requires that the supervisor can «remain aware of the possible tendency of automatically relying or over-relying on the output produced by a high-risk AI system» (lett. b). Fourth, the system must enable the supervisor to «correctly interpret the high-risk AI system's output» (lett. c), in order to avoid the statistical correlations being mistaken for causal links, an error that can lead to administrative decisions vitiated by misuse of power. Finally, the fifth point establishes the primacy of man over the machine: the supervisor must have the technical and procedural faculty «to decide, in any particular situation, not to use the high-risk AI system or to otherwise disregard, override

or reverse the output of the high-risk AI system» (lett. d). Furthermore, the supervisor must be able «to intervene in the operation of the high-risk AI system or interrupt the system through a 'stop' button or a similar procedure that allows the system to come to a halt in a safe state» (lett. e). For the PA, the final administrative act must always be subject to modification by the official responsible for the procedure, regardless of what the AI system processes.

If Art. 14 defines the machine's inherent control potential, Art. 26 of the AI Act regulates the behaviour of those who use it. Indeed, the rule establishes that deployers «shall take appropriate technical and organisational measures to ensure they use such systems in accordance with the instructions for use accompanying the systems» (par. 1). The subsequent paragraph 2 provides that «Deployers shall assign human oversight to natural persons who have the necessary competence, training and authority, as well as the necessary support». In the context of Public Administration as the deployer, «competence» requires that it not limit itself to a passive adoption of algorithmic outputs, but must ensure that human oversight is entrusted to natural persons with preparation superior to the common baseline of AI literacy set by Article 4 of the Regulation. The level of competence must be sufficiently high to guarantee effective human oversight pursuant to Art. 14, par. 1, and Art. 26, par. 2, of the AI Act. Consequently, the already analysed Art. 14, par. 4, of the AI Act can be used to concretise the competence requirements for natural persons and requires the understanding of the relevant capacities and limitations of the high-risk AI system, awareness of automation bias, correct interpretation of the output, and the decision not to use or to interrupt the use of an AI system in a specific case[397]. Competence should be taught and maintained over time through the other requirement, «training»[398]. The «authority» and «support», instead, refer to the actual power to apply the skills deriving from competence. On the one hand, «authority» is perhaps the most critical aspect from an administrative law perspective, as the supervisor should have the legal authority to challenge the machine's output. On the other hand, the requirement of «support» should imply that the public deployer makes available to supervisors the technical, temporal, and informational resources essential for meaningful oversight, for

[397] T. Radtke, Human Oversight under the AI Act and its interplay with Art. 22 GDPR, in B. Raue, A. von Ungern-Sternberg, L.K. Kumkar, T. Rüfner (eds.), Artificial Intelligence and Fundamental Rights. The AI Act of the European Union and its implications for global technology regulation, cit., p. 103.

[398] Ibidem.

example by guaranteeing access to information provided by the provider in the instructions for use, which must be clear and understandable, as well as the incorporation of human-machine interfaces that facilitate traceability and explainability of the decision-making process. The quality of the administrative decision, moreover, depends on the quality of the data. Not by chance, paragraph 4 of the article under examination establishes that, if the deployer exercises control over input data, he must ensure that these are «relevant and sufficiently representative in view of the intended purpose of the high-risk AI system». Paragraph 5 of Art. 26, then, entrusts the deployer with active monitoring tasks: the deployer must monitor the functioning of the system and, should they detect that use in accordance with the instructions may entail a risk to health, safety or fundamental rights, must immediately suspend its use and inform the provider and the supervisory authority. Therefore, the public administration cannot hide behind the excuse that "the system works this way" and should intervene proactively to protect citizens. Furthermore, in the event of a serious incident, an immediate notification obligation is triggered, which is essential to activate correction procedures on a wider scale. Finally, paragraph 6 of Art. 26 imposes the preservation of logs generated automatically by the system for a period appropriate to the purpose, and in any case of at least six months. This is fundamental both for transparency and for justiciability: indeed, in appeals to the Administrative Judge, the logs will allow reconstruction of the logical-IT process that led to the act, enabling the judge to verify whether human oversight was effective or simulated[399].

Ultimately, at the European level, both the GDPR and the AI Act provide specific provisions to ensure human oversight, operating in a relationship of normative and integrative complementarity, since the AI Act neither abrogates nor replaces the provisions of the GDPR, but strengthens them in specific contexts linked to high risk. However, as scholars have observed, the scope of the GDPR's guarantee is limited by its application to the processing of personal data[400] and by the broad exceptions provided in

---

[399] On the preservation of recordings of events («log»), governed by Art. 12 of the AI Act, see *ex multis* A.G. Orofino, Record-Keeping (Article 12), cit., pp. 213-216; W. Arellano Toledo, A. Merchán Murillo, The Obligation to Keep Records of High-Risk Systems in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 649-663.

[400] See the observations of O. Pollicino, Regolare l'intelligenza artfificiale: la lunga vita dei diritti fondamentali, in O. Pollicino, F Donati, G. Finocchiaro, F. Paolucci (eds.), La disciplina dell'intelligenza artificiale, cit., pp. 15-16, according to whom «sebbene la norma rifletta l'impegno a garantire che l'intervento umano rimanga una componente critica delle

paragraph 2 of Article 22, which allow automated decisions (consent, performance of a contract or legal authorisation)[401]. The AI Act, for its part, addresses application limits by introducing stricter requirements for human oversight, but only for high-risk systems. The approach of such regulation focuses – as seen – mainly on the design phase of the system (obligations of the provider) to guarantee its supervisability, requiring that the human operator be able to understand fully the capacities and limits of the system, interpret outputs correctly, remain aware of the risk of automation bias and intervene, override or interrupt the use of the AI system. In synthesis, while the GDPR establishes a right to the non-exclusivity of the automated decision based on personal data, requiring human intervention as a safeguard during use, the AI Act, instead, imposes a normative obligation of compliance on providers and deployers of high-risk AI systems so that human oversight is possible and effective by design, guaranteeing that systems are at the service of man. Furthermore, the AI Act establishes an interesting link with the GDPR, as it requires that the deployer (often the data controller pursuant to the GDPR) uses the transparency information provided by the provider to understand the capacities and limits of the system, thus supporting the fulfillment of data protection impact assessment obligations (DPIA under Art. 35 GDPR) and guaranteeing that the persons in charge of human control (ex Art. 22 GDPR) are adequately informed and competent[402]. Despite differences in approach and purpose (protection of personal data under the GDPR and management of technological risk under the AI Act), it can be affirmed that the two Regulations are designed to interact positively, providing an

---

decisioni che hanno un impatto significativo sugli individui, evitando così la disumanizzazione che potrebbe derivare da processi puramente automatizzati, tuttavia, l'applicazione dell'art. 22 del GDPR è relegata al solo uso dell'ADM che non comprende affatto l'elemento umano nel processo decisionale. In altre parole, si applica a situazioni in cui la decisione viene presa senza il coinvolgimento dell'uomo e, quindi, deve essere garantita una supervisione sulla decisione per non incorrere in pregiudizi o risultati discriminatori».

[401] See A. Mihai Pop, E. Ferraris, IA: lo human first e il processo amministrativo, Sinappsi, XV, 2, 2025, p. 94, who observe how the second paragraph of Art. 22 GDPR provides for important derogations «rendendo, *de facto*, il divieto di trattamenti automatizzati non la regola, bensì l'eccezione. (…) In particolare, la deroga relativa all'accordo dell'interessato acuisce il rischio del c.d. blind consent, ossia la tendenza di prestare il proprio consenso, contrattuale o meno, ai fornitori dei servizi senza effettuare una sostanziale lettura dei termini e delle condizioni del trattamento», a tendency deriving «dal senso di urgenza di ottenere un rapido accesso ai servizi».

[402] G. Lazcoz Moratinos, Human Oversight (Article 14), A. Huergo Lora, op. cit., in pp. 251-252.

integrated normative framework for regulating automated decision-making processes that affect fundamental rights.

Recently, in Italy, Law no. 132/2025 on artificial intelligence, in paragraph 2 of Art. 14, emphasized that «l'utilizzo dell'intelligenza artificiale avviene in funzione strumentale e di supporto all'attività provvedimentale, nel rispetto dell'autonomia e del potere decisionale della persona che resta l'unica responsabile dei provvedimenti e dei procedimenti in cui sia stata utilizzata l'intelligenza artificiale», effectively cementing, through legislation, the orientation of the Council of State.

5.3. The intensity of human oversight: from the detailed verification to the review of manifest defects

Although the principle of human oversight is now rooted both in case law and in law, one of the most difficult questions to resolve, in my opinion, remains the definition of the degree of supervision required during the use of AI systems, which must both ensure human oversight that is not merely apparent (in order to avoid the phenomenon of so-called rubber stamping) and guarantee that the «indiscutibili vantaggi»[403] that automation offers to the Public Administration are not lost (which would be lost if a detailed examination and verification of the correctness of every single step in the legal and logical reasoning performed by the AI systems were required), that is – citing the new Art. 14 of the Italian Law 132/2025 – to increase the efficiency of its activity, reduce the time for defining proceedings and increase the quality and quantity of services provided to citizens and businesses. The necessity of balancing automation and humanity, therefore, responds to an extremely practical need: what is the point of using AI in the public sector if its adoption entails meticulously rechecking the algorithmic analysis and, ultimately, more costs than benefits?[404] Such an eventuality, moreover, according to part of the legal scholarship, would be in contrast to the principle of non-aggravation of

[403] To use the words of the Council of State in the repeatedly cited judgement no. 2270/2019.

[404] Previti shares these concerns, observing that «nonostante sia sempre opportuno garantire una soglia minima di supervisione del processo di automazione, l'introduzione generalizzata di una forma di controllo a valle per tutti gli atti amministrativi non parrebbe operare un compromesso ottimale tra i vantaggi e i rischi derivanti dall'utilizzo delle tecnologie in questione» (L. Previti, La difficile regolazione delle decisioni amministrative algoritmiche: alla ricerca di un modello italiano, in Ius Publicum, 29 April 2021, p. 45).

the administrative procedure, as enshrined by Art. 1, paragraph 2, of Law 241/1990[405].

There is no normative provision that specifies which approach to human oversight, among those recalled at the beginning of this paragraph, must be adopted: human-in-the-loop (HITL), human-on-the-loop (HOTL) or human-in-command (HIC). All the normative provisions analysed previously state that public officers must supervise AI systems, but none clarify the extent to which this duty must be fulfilled. Supervision, to be concrete and effective, must necessarily involve some form of human intervention (albeit minimal); otherwise, it makes no sense. Attempting to resolve this question is fundamental for two reasons: 1) on the level of human oversight, to guarantee that the public officer knows the modalities and limits of his operation, in order to prevent the final act signed by him from being affected by unlawfulness; 2) on the level of accountability, to guarantee that the public officer can orient his conduct in advance in order not to give rise to both civil and administrative liability[406]. If one does not attempt to resolve this legal question, the paradoxical risk is what we could define as an "escape from the machine" or, in the public sector, a further reason for the so-called "defensive administration" (*amministrazione difensiva*) or "fear of signing" (*paura della firma*), i.e. reluctance to assume responsibility, for which it would be just as well not to employ artificial intelligence. This problem, moreover, becomes all the more critical in Italian administrative law, which provides, in Art. 6, paragraph 1, letter e), for the general principle of coherence between the outcome of the fact finding activity (which, in our case, is performed by the AI) and the final act, with the consequence that the possibility for the official

---

[405] Thus, T. Monaco, Intelligenza artificiale e procedimento amministrativo, principi e responsabilità della nuova era digitale, in ApertaContrada, 30 October 2024, p. 3. Taking the opposite view, Gallone argues that «non sempre la scelta del funzionario di discostarsi dal risultato computazionale deve essere letta nel senso della sostanziale inutilità procedimentale dell'automazione, come se quest'ultima rappresentasse *ex post* un ingiustificato aggravio procedimentale. Il ricorso all'automazione comporta, di regola, l'arricchimento della piattaforma conoscitiva del funzionario anche ove questi decida di non fare proprio il risultato computazionale. Del resto, per potersi discostare da esso, la persona fisica deve preliminarmente apprezzare, in termini di correttezza ed attendibilità, il prodotto dell'automazione e questo comporta, inevitabilmente, un approfondimento delle valutazioni a cui lo stesso è chiamato. Si apre, così, una dialettica con il risultato computazionale (…). Tale ulteriore momento di verifica consente, in potenza, l'affidamento della scelta a cui è chiamata l'Amministrazione e, quindi, di meglio realizzare l'obiettivo del buon andamento» (G. Gallone, *ult. op. cit.*, pp. 167-168).

[406] For an in-depth analysis on the civil and administrative liability of the public officer, see Section 9 of this Chapter.

to deviate from such outcome – fulfilling a heightened duty to give reasons – constitutes the exception. According to part of the legal scholarship, this principle would take on a further peculiar nuance, given that the favour towards the transposition of the algorithmic result into the act would seem to underlie a form of rebuttable presumption of fact (*presunzioni semplici*) of correctness of the automation output which is based on the generally greater reliability of the software; consequently, the option preferred by the legal system would be the direct transposition of the computational result within the final act, while the alternative (viewed with general disfavour) would require a further burden by the public officer, namely the fulfilment of a heightened duty to give reasons, requiring a specific statement of reasons that refutes the product of automation, the breach of which would entail the unlawfulness of the final act[407].

The resolution of the question of balancing automation and humanity is not undisputed, to the point that at least four different theses can be identified.

5.3.1. The theory of the gradation of supervision based on the discretionary or non-discretionary nature of the administrative power

A first theory proposes a gradation of supervision based on the nature of the power exercised, distinguishing, that is, between non-discretionary activity and discretionary activity: within the former fall typically serial or standardized administrative procedures, where AI mechanically applies rules to objective facts and for which, therefore, human control could be lighter[408];

---

[407] G. Gallone, op. ult. cit., p. 169.

[408] It was the Council of State itself, moreover, that highlighted that, when faced with «procedure seriali o standardizzate, implicanti l'elaborazione di ingenti quantità di istanze e caratterizzate dall'acquisizione di dati certi ed oggettivamente comprovabili e dall'assenza di ogni apprezzamento discrezionale (…), l'assenza di intervento umano (…) e l'affidamento di tale attività a un efficiente elaboratore elettronico appaiono come doverose declinazioni dell'art. 97 Cost. coerenti con l'attuale evoluzione tecnologica» (Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270; in the same sense, see Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881; T.A.R. Lazio, Roma, sec. III *stralcio*, judgement of 21 June 2022, no. 8313). See also the observations of Mihai Pop and Ferraris, according to whom «(…) anche nel contesto di una attività amministrativa vincolata, si può concludere che non vi può essere una sostituzione del contributo umano con un sistema automatizzato-artificiale, anche se si può arrivare a sostenere che più l'attività della PA è vincolata, minore deve essere il 'controllo umano'. Ciò senza, tuttavia, mai superare la red line, rappresentata dalla necessità di mantenere sempre

on the contrary, within the latter activity fall usually the more complex administrative procedures or those bearing elements of novelty, in which a competent human decision-maker should obligatorily make the final choice[409].

---

l'Uomo come *dominus*» (A. Mihai Pop, E. Ferraris, *op. cit.*, in p. 97). Interesting is the position of French senators, for whom «Il n'est effectivement pas indispensable qu'un agent vérifie le montant de l'impôt dû par un contribuable, tel qu'il a été calculé par un tableur informatique, en fonction de ses revenus déclarés et du barème. (…) l'autorité organisatrice du concours ayant compétence liée pour rejeter une demande d'admission à concourir formulée par une persone déjà trois fois candidate, cette décision peut être automatisée sans inconvénient» (Rapport Sénat n. 350 (2017-2018) by Mme Sophie Joissains, fait au nom de la commission des lois constitutionnelles, de législation, du suffrage universel, du Règlement et d'administration générale (1) sur le projet de loi, adopté par l'Assemblée nationale après engagement de la procédure accélérée relatif à la protection des donnés personnelles, tabled on 14 March 2018, p. 116).

[409] A. Stepanov, L'acte administratif algorithmique, in Revue Française de Droit Administratif, January-February, 2025, pp. 26-27, who imagines a «continuum "de la machine automate à la machine assistant"» (borrowing the words of D. Bourcier, Modéliser la décision administrative, in J. Chevallier, G.J. Guglielmi, D. Lochak, Y. Poirmeur, E. Fayet, M.C. Kessler, F. Dubois, M. Enguéléguélé, G. Lefèvre, M. Loiselle, B. Mercuzot, D. Menna, N. Decoopman, M. Bachir-Benlahsen, D. Bourcier, Le droit administratif en mutation, PUF, Paris, 1993, p. 272) based on the remark that «il existe une gradation de la "discrétionnarité"» […]. In such perspective, while «les actes les plus encadrés par la loi peuvent être intégralement automatisés par le biais des systèmes fondés sur des règles préprogrammées», as the margin of appreciation increases «l'intervention algorithmique sera [moins] performante, et plus le rôle de la machine devra être limité». It follows that, in the context of discretionary activity, «le choix final doit impérativement être effectué par un décideur humain compétent», the only one capable of guaranteeing a «véritable maîtrise» of the procedure and «capable d'identifier les erreurs et les cas "dérogatoires" [...] et, le cas échéant, de réviser ou d'annuler les résultats du traitement». An interesting perspective is offered by Cluzel-Métayer and Hammoudi, who argue that the intensity of human intervention should be proportional to contextual or legal uncertainty, observing in particular that «Si le résultat fourni par l'algorithme se suffit à lui-même pour produire une décision claire, précise et complète – c'est-à-dire sans nécessiter d'interprétation humaine supplémentaire –, il pourrait relever d'un régime de décision entièrement automatisée. À l'inverse, si une marge d'appréciation demeure ou si l'application du résultat requiert une interprétation contextuelle ou juridique, l'intervention humaine devrait s'imposer avec une intensité proportionnelle à cette incertitude» (L. Cluzel-Métayer, S. Hammoudi, Le contrôle de l'administration sur l'intelligence artificielle, in Revue Française de Droit Administratif, March-April, 2025, p. 208).

Some legal systems, such as the German[410] and Norwegian[411] ones, reflect this caution, explicitly excluding the use of fully automated procedures when discretion or margins of evaluation by the Public Administration are involved.

5.3.2. The theory of the deferred right to be heard: human oversight as a subsequent instance activated by the private party's objection

A second theory suggests establishing a deferred opportunity to be heard to balance speed with the right to a defence. According to this approach, the administration would adopt a preliminary automated decision, while the official's human contribution would become mandatory only when the private party presents written submissions and objections. In this way, the official would be exempted from the systematic re-check of every file having a serial character, but would have to intervene with a second-stage human review should he be solicited by the private party, examining in a participatory manner the reasons of the interested party and specifically stating reasons for the choice to confirm or refute the machine's result[412].

5.3.3. The theory of the integral automation of favourable administrative decisions

Following this, a third theory has gained traction: automation should preserve the efficiency gains in mass proceedings by fully automating administrative decisions favourable to the interested party, while reserving

---

[410] In Germany, § 35a VwVfG provides that an administrative act can be issued entirely by automatic devices, provided that this is allowed by the regulations in force and there is no margin of discretion or evaluation.

[411] In Norway, section § 4 a of the Law on labor and welfare administration (known as NAV-loven), states that automated decisions by the Norwegian social security agency NAV cannot be based on discretionary conditions provided by law or regulations, unless the outcome of the decision is unambiguous. Although a general rule of this kind does not yet exist in the Norwegian Public Administration Law (Forvaltningsloven), the legislative commission has proposed a new Forvaltningslov (based on report NOU 2019:5 and subsequent Prop. 79 L 2024-2025) which intends to extend similar rules to the whole public administration. The proposal provides that automation is limited to cases where the legal basis does not require a complex discretionary judgement, or where the criteria are standardizable, with the exception of the case of indubitability, which allows minimal flexibility, permitting automation even in the presence of vague terms only if the result is evident and not contestable.

[412] D. Diaco, Amministrazione umana vs Amministrazione algoritmica: prolegomeni su un modello procedimentale a partecipazione successiva, in Judicium, 10 November 2023, p. 8.

intensive human intervention only for unfavourable decisions[413]. The underlying idea is that automating favourable decisions allows greater resources to be devoted to examining those that the system has recommended for rejection[414].

5.3.4. The theory of human oversight limited to manifest defects

Finally, a fourth theory has gained traction, supporting the need to limit human intervention to strictly necessary cases to maximise efficiency and speed, the main benefits of automating administrative activity. In this context, part of the legal scholarship maintains that, following the completion of the fact-finding phase by the artificial intelligence system, the public officer, in order not to undermine the benefits of automation, should generally accept its outcomes, except for the possibility to deviate from them only in cases of manifest system malfunctions[415], of material error committed during input, of incorrectness of the upstream choice (in the initial decision with which one opts for automation) of the algorithm to be employed, as well as of manifest

---

[413] O. Mir, Algorithms, Automation, and Administrative Procedures at EU Level, cit., pp. 60-61, who observes that «automating the granting of aid or authorization is obviously not the same as automating the refusal or revocation of aid or authorization. Nor is the imposition of a penalty or prohibition the same as its revocation. Procedural guarantees are particularly necessary in the case of decisions unfavorable to individuals, as evidenced by Article 41(2) CFR in limiting the right to a hearing to administrative decisions which 'adversely affect' the persons to whom they are addressed». On this point, the Author recalls the example of the ETIAS System, which is based on the principle of «automating only the granting of authorization but not the refusal of authorization, which can only be done manually, by human; in case of doubt, the official cannot blindly rely on the system but «must take an individual assessment of the security, illegal immigration, or epidemic risks that the applicant may pose». However, the Author warns that there are «multipolar administrative procedures, where there are different parties with conflicting interests, and where the administrative decision may be favourable to one or more stakeholders and unfavourable to others». Furthermore, the administrative proceeding aims also at the «due satisfaction of public interests», it is necessary that «mechanisms must be articulated to ensure the correctness of the automated decision, even if it is favourable to the interested party».

[414] Conseil d'État, Intelligence artificielle et action publique : construire la confiance, servir la performance, 31 August 2022, available at Conseil d'État, p. 78.

[415] S. Tranquilli, Rapporto pubblico-privato nell'adozione e nel controllo della decisione amministrativa "robotica", in Diritto e Società, 2, 2020, pp. 296-297.

unreasonableness[416], injustice, illogicality or erroneousness of the result[417] and, more generally, of manifest unlawfulness of the administrative decision[418]. Moreover, the previously cited Ethics Guidelines for Trustworthy AI published by the High-Level Expert Group on Artificial Intelligence (HLEG) appear consistent with this thesis, which state that the governance model of human-in-the-loop, the most intense as it implies the capacity for human intervention in every decision cycle of the system, «in many cases is neither possible nor desirable»[419].

6. The principle of non-discrimination of the artificial administrative decision

Even in the face of transparent artificial intelligence systems and those upon which human oversight is exercised, it is necessary that they do not produce discriminatory effects on the interested parties: hence arises the principle of algorithmic non-discrimination, which constitutes a specific manifestation of the more general right to equality and non-discrimination, protected at the constitutional level (art. 3 Cost.[420]) and by European Union law (art. 21 of the Charter of Fundamental Rights of the European Union[421] and art. 14 of the ECHR[422]). The necessity of this principle stems from the

---

[416] R. Cavallo Perin, La responsabilità della pubblica amministrazione al tempo dell'intelligenza artificiale, in Diritto amministrativo, 4, 2024, p. 1076.

[417] G. Gallone, *ult. op. cit.*, pp. 170-171. F. Santangeli, Riflessioni sul controllo giudiziale del potere. L'amministrazione digitale. Intelligenza artificiale e controllo giudiziale, in Judicium, 20 December 2024, p. 12.

[418] N. Durante, La discrezionalità amministrativa ed i vizi del procedimento amministrativo, nell'epoca dell'intelligenza artificiale, in www.giustizia-amministrativa.it, 2024, p. 8.

[419] Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, *Ethics Guidelines for Trustworthy AI*, cit., p. 16.

[420] According to art. 3 of the Italian Constitution, «Tutti i cittadini hanno pari dignità sociale e sono eguali davanti alla legge, senza distinzione di sesso, di razza, di lingua, di religione, di opinioni politiche, di condizioni personali e sociali. È compito della Repubblica rimuovere gli ostacoli di ordine economico e sociale, che, limitando di fatto la libertà e l'eguaglianza dei cittadini, impediscono il pieno sviluppo della persona umana e l'effettiva partecipazione di tutti i lavoratori all'organizzazione politica, economica e sociale del Paese».

[421] Art. 21, paragraph 1, of the EU Charter of Fundamental Rights states that «any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited».

[422] According to art. 14 of the European Convention on Human Rights, «the enjoyment of the rights and freedoms set forth in this Convention shall be secured without discrimination

nature of artificial intelligence systems, which learn from vast datasets that, if flawed by bias, tend to replicate and even amplify such discrimination in their outputs. This phenomenon is well synthesised by the computer science principle «garbage in, garbage out» (GIGO), which highlights how the quality of the result depends directly on the quality of the initial data[423]. Artificial intelligence, as a human artefact, is not exempt from the prejudices of its programmers or the imbalances present in social reality, and as a result, automated decisions can also generate forms of discrimination.

6.1. The phenomenology of algorithmic bias: direct and indirect discrimination

When we speak of «algorithmic bias», we can have two different meanings: one statistical and the other moral. The first indicates the discrepancy between an algorithm's predictions and reality, as detected from previously observed test data; the second, which I intend to adopt for the remainder of this work, is «the encoding of wrongfully discriminatory social patterns into an algorithm»[424].

Bias, according to Council Directive 2000/78/EC of 27 November 2000, can creep in both directly and indirectly[425]. Direct discrimination occurs «where one person is treated less favourably than another is, has been or would be treated in comparable situation»[426]. In legal terms, the criterion for establishing direct discrimination is the causal link: one asks whether, but for the protected characteristic, the individual would not have suffered the unfavourable treatment[427]. In the context of AI, however, direct discrimination is considered less common, since complex algorithmic systems, unlike human

---

on any ground such as sex, race, colour, language, religion, political or other opinion, national or social origin, association with a national minority, property, birth or other status».

[423] On the GIGO principle, see G. Canbek, Gaining insights in datasets in the shade of "garbage in, garbage out" rationale: Feature space distribution fitting, in WIREs Data Mining and Knowledge Discovery, 3, 2022, pp. 1-18; S.G. Mayson, Bias in, Bias Out, in Yale Law Journal, 128, 2019, pp. 2218–2300.

[424] This definition is by K. Vredenburgh, Fairness, in J.B. Bullock, Y.C. Chen, J. Himmelreich, V.M. Hudson, A. Korinek, M.M. Young, B. Zhang (eds.), The Oxford Handbook of AI Governance, cit., p. 129.

[425] For an in-depth analysis on the topic, see C. Campbell, D. Smith, Distinguishing Between Direct and Indirect Discrimination, in The Modern Law Review, 86(2), 2023, pp. 307-330.

[426] Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation, art. 2, par. 2, lett. a).

[427] Y.F. Ng, Combatting the Code. Regulating Automated Government Decision-Making in Comparative Context, Cambridge University Press, Cambridge, 2025, p. 83.

beings, rarely base their decisions explicitly on a single protected characteristic[428]. Indirect discrimination, on the contrary, focuses on the effects of an act, rather than on the intent or the direct cause of the differentiation[429]. It, indeed, occurs «where an apparently neutral provision, criterion or practice would put persons having a particular religion or belief, a particular disability, a particular age, or a particular sexual orientation at a particular disadvantage compared with other persons». Such disparity is considered unlawful unless «that provision, criterion or practice is objectively justified by a legitimate aim and the means of achieving that aim are appropriate and necessary»[430]. The category of indirect discrimination proves particularly relevant and powerful for addressing the challenges posed by AI, especially in relation to the phenomenon of the black box: indeed, since machine learning systems generate their operating rules through complex statistical correlations often inexplicable to the human eye, establishing the traditional causal chain (typical of direct discrimination) turns out to be extremely difficult. To resolve this problem, it is held that the proof of indirect discrimination must focus solely on verifying the disproportionately negative impact that the system's output has on a protected group, without the need to understand the internal mechanisms that generated the result[431]. The greatest risk in the ambit of indirect discrimination is the so-called discrimination by proxy, where algorithms use apparently neutral data (such as zip code, the language used or job stability), which are actually highly correlated to protected characteristics (such as ethnic origin or disability), to perpetuate stereotypes and historical social inequalities[432]. In the context of public services, for example, an algorithm used to assign social housing or subsidies could systematically exclude certain minorities, not because of their ethnicity (data not used), but because it penalises those who live in historically disadvantaged neighbourhoods. An emblematic case in this sense is the Dutch welfare benefits

---

[428] D. Morondo Taramundi, Discrimination by Machine-Based Decisions: Inputs and Limits of Anti-discrimination Law, in B. Custers, E. Fosch-Villaronga (eds.), Law and Artificial Intelligence, Springer, Berlin, 2022, p. 77.

[429] F. Perrone, Discrimination by algorithm: the role of courts in AI regulation on grounds of union activity, in M. Artigot i Golobardes, G. Grasso, P. Iamiceli, M.R. Maugeri (eds.), Artificial Intelligence, Judicial Decision-Making and Fundamental Rights, JuLIA Project, 2024, p. 202.

[430] Council Directive 2000/78/EC, cit., art. 2, par. 2, lett. b).

[431] D. Morondo Taramundi, op. cit., p. 78.

[432] T. Rademacher, Artificial Intelligence and Law Enforcement, in T. Wischmeyer, T. Rademacher (eds.), Regulating Artificial Intelligence, Springer, Cham, 2020, p. 246, according to whom «'Proxy' describes data that—without being unlawful themselves—implicitly encode sensitive or prohibited classes of information».

scandal that arose from the «SyRI» algorithm which, introduced by the Dutch government to combat social fraud through the massive cross-referencing of administrative data, was declared unlawful by the District Court of The Hague for violation of art. 8 of the European Convention on Human Rights, as it was not applied uniformly to the population, but deployed selectively exclusively in neighborhoods characterized by low income and high density of residents of foreign origin. Such practice generated a bias of socio-economic and geographic nature, as it subjected the most indigent citizens to an invasive and preventive surveillance based on mere statistical correlations, effectively transforming the condition of poverty and residence in disadvantaged areas into proxy variables for the calculation of fraud risk, while exempting the wealthier classes from similar automated checks[433]. Another example is the case of the shift management algorithm named «Frank», used in Italy by Deliveroo to assign priorities in the booking of work sessions, with the score assignment depending on two main parameters: reliability (respect for booked shifts) and participation (availability during work peaks); such algorithm, however, was declared unlawful by the Tribunal of Bologna for indirect discrimination as the penalization of unjustified absences ended up unfairly hitting riders who exercised rights such as striking or sick leave, effectively disincentivizing the exercise of such rights[434]. On the same interpretive path lies the more recent

[433] For an in-depth analysis on the SyRI case, see A. Rachovitsa, N. Johann, The Human Rights Implications of the Use of AI in the Digital Welfare State: Lessons Learned from the Dutch SyRI Case, in Human Rights Law Review, 22, 2022, pp. 1-15; N. Appelman, R. O. Fathaigh, J. van Hoboken, Social Welfare, Risk Profiling and Fundamental Rights: The Case of SyRI in the Netherlands, in Journal of Intellectual Property, Information Technology and Electronic Commerce Law, 12, 2021, pp. 257-271; M. van Bekkum, F. Zuiderveen Borgesius, Digital Welfare Fraud Detection and the Dutch SyRI Judgement, in European Journal of Social Security, 23(4), 2021, pp. 323-340; S. Bekker, Fundamental Rights in Digital Welfare States: the Case of SyRI in the Netherlands, in O. Spijkers, W.G. Werner, R.A. Wessel (eds), in Netherlands yearbook of international law 2019, T.M.C. Asser Press, The Hague, 2021, pp. 289–307; L. Cotino Hueso, SyRI, ¿A quién sanciono? Garantías frente al uso de la inteligencia artificial y decisions automatizadas en el sector público y la sentencia holandesa de febrero de 2020, in La Ley Privacidad, 4, 2020; A. Meuwese, Regulating algorithmic decision-making one case at the time: a note on the Dutch 'SyRI' judgement, in European Review of Digital Administration & Law, 1-2, 2020, pp. 209-211.

[434] The case in question was the subject of the order of Trib. Bologna, labour sec., order of 31 December 2020, issued by judge Chiara Zompi. For a comment on this order, see M.V. Ballestrero, Ancora sui rider. La cecità discriminatoria della piattaforma, in Labor, 1, 2021, p. 103 ff.; G. Gaudio, La CGIL fa breccia nel cuore dell'algoritmo di Deliveroo: è discriminatrorio e antisindacale il ranking reputazionale che non distingue le assenze giustificate, in Rivista Italiana di Diritto del Lavoro, II, 2021, p. 175 ff.; M. Biasi, L'algoritmo

ruling of the Tribunal of Palermo in November 2023 against the company Foodinho, controlled by Glovo, which centres on the so-called "excellence score". In this affair, judges deemed this mechanism discriminatory since, by systematically rewarding availability during evening and holiday shifts, it ended up indirectly penalising workers who, for religious, family or health reasons, could not guarantee performance in those specific time slots, confirming that the presumed neutrality (or blindness) of the algorithm cannot justify the violation of fundamental rights[435].

6.2. Bias in data, in the algorithm and in the interaction: taxonomy of technological biases

Researchers have developed several taxonomies to systematically organise algorithmic biases, aiming to provide comprehensive frameworks for identifying and analysing the mechanisms through which prejudices manifest in artificial intelligence systems.

A first classification distinguishes three main phases of the algorithmic process in which biases can emerge: bias in modelling, bias in training and bias in usage[436].

A second, more detailed framework proposes a structure organised into three fundamental categories: "learning" (which includes inductive bias, hyper-parameter bias and model bias), "a biased world" (which mainly

---

di Deliveroo sotto la lente del diritto antidiscriminatorio…e del relativo apparato rimediale, in Argomenti di diritto del lavoro, 3, 2021, pp. 780-791; V. Pietrogiovanni, Deliveroo and Riders' Strikes: Discriminations in the Age of Algorithms, in International Labour Rights Case Law, 7, 2021, pp. 317-321; M. Faioli, Discriminazioni digitali e tutela giudiziaria su iniziativa delle organizzazioni sindacali, in Diritto delle relazioni industriali, 1, 2021, pp. 204-214; A. Perulli, La discriminazione algoritmica: brevi note introduttive a margine dell'Ordinanza del Tribunale di Bologna, in Lavoro Diritti Europa, 1, 2021, pp. 1-7.

[435] For a comment on Trib. Palermo, Labour and social security sec., judgement of 17 November 2023, Judge Dr. Fabio Montalto, see C. Pareo, I modelli organizzativi fondati su meccanismi premiali indifferenti alla presenza di fattori protetti sono discriminatori, in Argomenti di diritto del lavoro, 3, 2024, pp. 649-658; P. De Petris, Il potenziale discriminatorio multifattoriale dell'algoritmo di Glovo: il diritto antidiscriminatorio impone un ripensamento dei modelli organizzativi delle piattaforme digitali?, in Rivista di Diritto Antidiscriminatorio, 3-4, 2024, pp. 366-378.

[436] X. Ferrer, T. van Nuenen, J.M. Such, M. Coté, N. Criado, Bias and Discrimination in AI: A Cross-Disciplinary Perspective, in IEEE Technology and Society Magazine, 40(2), 2021, pp. 72-73.

includes historical bias) and "data generation" (with five types of bias, including specification bias and inherited bias)[437].

A third taxonomy identifies four main typologies based on the source of the bias: data bias, user bias, processing bias, and human bias, recognising that all biases are at least indirectly human, but distinguishing those directly introduced by persons from those mediated by technical systems[438].

A fourth prominent classification identifies five specific biases in automated systems: training data bias, algorithmic focus bias, algorithmic processing bias, transfer context bias and interpretation bias[439].

A fifth classification organises biases by considering the feedback loop between humans and algorithms, distinguishing between pre-existent bias (which exists independently of the algorithm), technical bias (caused by the developed systems), and emergent bias (which emerges when systems are used in different contexts or when social concepts change)[440].

As is intuitive, in psychology and the cognitive sciences, the number of cognitive biases is vast and cannot be treated exhaustively here, so I will focus solely on those I deem most relevant and useful for this dissertation[441].

To this end, in the remainder, I will adopt a classification of biases into three macro-categories: bias in data, bias in algorithms, and bias in interaction and usage.

---

[437] T. Hellstrom, V. Dignum, S. Bensch, Bias in Machine Learning – What is it Good for?, in A. Saffiotti, L. Serafini, P. Lukowicz (eds.), Proceedings of the First International Workshop on New Foundations for Human-Centered AI (NeHuAI) co-located with 24th European Conference on Artificial Intelligence (ECAI 2020), in CEUR-WS.org, 2020, pp. 3-10.

[438] K. Orphanou, J. Otterbacher, S. Kleanthous, K. Batsuren. F. Giunchiglia, V. Bogina, A. Shulner, A. Hartman, T. Kuflik, Mitigating Bias in Algorithmic Systems—A Fish-eye View, in ACM Computing Surveys, 55(5), Article 87, December 2022, pp. 87:1-87:37.

[439] D. Danks, A.J. London, Algorithmic Bias in Autonomous Systems, in C. Sierra (ed.), Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI-17), 2017, pp. 4691-4697.

[440] T.P. Pagano, R.B. Loureiro, F.V.N. Lisboa, R.M. Peixoto, G.A.S. Guimarães, G. O.R. Cruz, M.M. Araujo, L.L. Santos, M.A.S. Cruz, E.L.S. Oliveira, I. Winkler, E.G.S. Nascimento, Bias and Unfairness in Machine Learning Models: A Systematic Review on Datasets, Tools, Fairness Metrics, and Identification and Mitigation Methods, in Big Data Cognitive Computing, 7(1), 15, 2023, pp. 1-31; B. Friedman, H. Nissenbaum, Bias in Computer Systems, in ACM Transactions on Information Systems, 14(3), July 1996, pp. 330-347.

[441] Some psychologists have attempted to classify the number of different cognitive biases, with an estimate reaching 187 different cognitive biases and another reaching 288 (G. Ellis, So, What Are Cognitive Biases?, in Id. (ed.), Cognitive Biases in Visualizations, Springer, Cham, 2018, p. 2). On Wikipedia, for example, more than 200 different types of bias are listed.

Bias in data constitutes the most critical and widespread category of algorithmic prejudice, since it forms the foundation on which artificial intelligence systems are built. Training data can be distorted, incomplete, obsolete, or disproportionate, or contain embedded historical biases, all of which harm the training of algorithms that propagate the biases present in the data[442]. The critical nature of this phase is underscored by the fact that reducing cognitive bias in datasets can mitigate prejudice in subsequent phases of the machine learning process[443]. A first type is «historical bias», which emerges when data captures the discriminatory beliefs of the people involved in the data generation process at a given historical moment[444]; this type of bias also occurs when data reflects social prejudices or pre-existing systematic imbalances, as in the case of recruitment algorithms trained on historical data that demonstrate gender bias in hiring choices[445]. A second type of data bias is «representation bias», which occurs when certain groups are under-represented or over-represented in the training data, leading to distorted predictions[446]. Let us consider the case of the Public Administration that uses AI to plan services (e.g., kindergartens, transport) relying solely on data collected through apps or web portals. In this case, elderly or poor citizens, or those with limited digital skills would be rendered invisible, with the consequence that public decisions based on such data would be discriminatory by omission, excluding the most fragile segments of the population. A third type is «label bias», which refers to an imbalance in the distribution of labels or categories in the training dataset, where some elements carry greater weight or representation than others, and this imbalance does not accurately reflect

---

[442] P. Drozdowski, C. Rathgeb, A. Dantcheva, N. Damer, C. Busch, Demographic Bias in Biometrics: A Survey on an Emerging Challenge, in IEEE Transactions on Technology and Society, 1(2), 2020, p. 90.

[443] R. González-Sendino, E. Serrano, J. Bajo, P. Novais, A Review of Bias and Fairness in Artificial Intelligence, in International Journal of Interactive Multimedia and Artificial Intelligence, 10 November 2023, p. 9.

[444] S. Raza, A. Shaban-Nejad, E. Dolatabadi, H. Mamiya, Exploring Bias and Prediction Metrics to Characterise the Fairness of Machine Learning for Equity-Centered Public Health Decision-Making: A Narrative Review, in IEEE Access, 12, 2024, p. 180818.

[445] R. Chandra, K. Sanjaya, A.R. Aravind, A.R. Abbas, R. Gulrukh, T.S. Senthil Kumar, Algorithmic Fairness and Bias in Machine Learning Systems, in E3S Web of Conference, 399, 2023, p. 2; N. Mehrabi, F. Morstatter, N. Saxena, K. Lerman, A. Galstyan, A Survey on Bias and Fairness in Machine Learning, in ACM Computing Survey, 54, 6, Article 115, July 2021, p. 115:5.

[446] A. Rashed, A. Kallich, M. Eltayeb, Analyzing Fairness of Computer Vision and Natural Language Processing Models, in Information, 16(3), 182, 2025, p. 4.

the model's use case[447]. A fourth type is «sampling bias», which arises from inconsistencies between the training and test datasets, where the model learns distorted characteristics from the training data and produces unfair predictions[448]. A fifth type is «measurement bias», which results from inaccuracies in the characteristics or labels used for training, often caused by faulty measurement processes[449]; an emblematic case is that of the COMPAS software, used in various courts of the United States to assess the risk that a defendant commits new crimes in the future based on elements such as prior arrests or arrests of family members and friends[450]. A sixth type of bias in data

---

[447] G.L. Huang, A. Zaslavsky, Contextual knowledge graph approach to bias-reduced decision support systems, in Journal of Decision Systems, 33(1), 2024, p. 36.

[448] Ibidem.

[449] A. Rashed, A. Kallich, M. Eltayeb, *ult. loc. cit.*

[450] The case concerns Eric Loomis, sentenced by the Supreme Court of Wisconsin to six years of imprisonment after the court had used the COMPAS software to assess his risk of recidivism. The core of the controversy on algorithmic discrimination concerns a journalistic investigation by ProPublica of 2016, published in parallel with the judicial affair. ProPublica analyzed the risk scores assigned by COMPAS to over 7,000 people arrested in Florida, comparing them with the actual recidivism rates in the two subsequent years. The investigation revealed a systematic prejudice against African American defendants. In particular, the algorithm generated false positives at a rate almost double for blacks compared to whites: African Americans were erroneously classified as high risk of recidivism (without then committing new crimes) much more often than white counterparts. Conversely, the algorithm showed an opposite prejudice favorable to whites, producing more false negatives. White defendants who subsequently committed new crimes were erroneously labeled as "low risk" much more frequently compared to recidivist African Americans. This statistical imbalance suggested that, although the algorithm did not explicitly use race as a variable, the other proxy variables (such as criminal history, education or place of residence) ended up disproportionately penalizing minorities (for the ProPublica investigation, see J. Angwin, J. Larson, S. Mattu, L. Kirchner, Machine Bias, 23 May 2016, available at ProPublica; J. Larson, S. Mattu, L. Kirchner, J. Angwin, How We Analyzed the COMPAS Recidivism Algorithm, 23 May 2016, available at ProPublica). In his judicial appeal, Eric Loomis also raised a question of gender discrimination. The defense contested the fact that COMPAS explicitly used gender as a variable in the risk calculation. According to Loomis, this violated the right to due process because the penalty was influenced by membership in a protected category, and not only by individual conduct. The Supreme Court of Wisconsin addressed these objections in a pragmatic but controversial way. Regarding the question of gender, the Court admitted that the use of gender is problematic, but concluded that in the case of COMPAS it served a non-discriminatory purpose aimed at promoting statistical accuracy. Since statistically men and women have different recidivism rates, the algorithm used gender to correct predictions, not to punish. The Court held that eliminating gender would have paradoxically made the algorithm less precise for women, overestimating their risk. Regarding racial discrimination and the doubts raised by ProPublica, the Court did not deny the risks

is «temporal bias», which refers to changes in the context represented before and after modelling, causing the model to fail to adapt to new data or evolving situations[451].

In the macro-category of bias in algorithms fall those systematic errors that arise from design decisions and the intrinsic characteristics of machine learning algorithms, regardless of the quality of the training data. Since algorithmic systems are sets of design choices that incorporate explicit and implicit value judgements by system developers, biases can infiltrate at different points in the development process[452]. Algorithmic biases can be deliberately introduced through smoothing or regularisation parameters to mitigate biases in the data (in this case, one speaks of «algorithmic processing bias») or introduced during modelling when objective categories are used to make subjective judgements (in this case, one speaks of «algorithmic focus bias»)[453]. Furthermore, algorithmic biases can manifest through model assumptions, optimization techniques or other design choices: model assumptions, such as the choice of a linear model or the assumption of independence between characteristics, can introduce bias if they do not accurately reflect the underlying data generation process; optimization techniques, such as regularization or the choice of a loss function, can lead to bias if they prioritize certain objectives over others; other design choices, such as the selection of hyperparameters or the choice of an ensemble method, can introduce distortions in AI systems, which can propagate and aggravate over time[454].

---

but chose to manage them by imposing disclaimers. It established that every time a judge consults a COMPAS report, a written note must be attached explicitly warning of the limitations of the instrument, including the possibility that the algorithm disproportionately classifies minorities as high risk. Judges were therefore instructed to consider these scores with extreme skepticism and never as a determining factor for incarceration. For the full text of the judgement, see https://law.justia.com/cases/wisconsin/supreme-court/2016/2015ap000157-cr.html. On the legal implications of such algorithm, see *ex multis* F. Lagioia, R. Rovatti, G. Sartor, Algorithmic fairness through group parities? The case of COMPAS-SAPMOC, AI & Society, 38, 2023, 459-478; A. L. Washington, How to Argue with an Algorithm: Lessons from the COMPAS-ProPublica Debate, in Colorado Technology Law Journal, 17, 2018, pp. 131-160.

[451] G.L. Huang, A. Zaslavsky, *ult. loc. cit.*

[452] H.J.P. Weerts, An Introduction to Algorithmic Fairness, available at arXiv, 12 May 2021, p. 6.

[453] X. Ferrer, T. van Nuenen, J.M. Such, M. Coté, N. Criado, cit., p. 73.

[454] E. Ferrara, The Butterfly Effect in artificial intelligence systems: Implications for AI bias and fairness, in Machine Learning with Applications, 15, 2024, p. 3.

The third and final macro-category concerns bias in interaction and usage, which represents a critical form of prejudice that emerges from the dynamic relationship between users and algorithmic systems, often creating harmful feedback loops that perpetuate and amplify existing discrimination. A first type of such category is «bias in the context», which occurs when the economic objective of a company distorts the result of the algorithm: since companies earn more by satisfying the largest slice of the audience to maximise profit, the algorithm is programmed or learns automatically to give priority to what the majority likes, discriminating, however, against the minority[455]. In addition, there are «transfer context bias», which occurs when algorithms are used in situations for which they were not intended, and «interpretation bias», which arises from the user's misinterpretation of the outputs or of the functioning of the algorithm[456]. Other relevant biases are «automation bias» (which was discussed regarding human oversight), which derives from the user's misplaced trust in the neutrality of the machine, which leads him to perceive stochastic predictions as objective and indisputable facts rather than as statistical estimates[457], as well as «feedback-loop bias», which occurs when an algorithm, despite having a neutral design, absorbs discriminatory patterns from user behavior and subsequently replicates such prejudices in its results[458]. But the greatest source of bias in the interaction with the user arises from «exposure or presentation bias», in the sense that users can interact only with what is presented to them and which is decided by the system[459].

6.3. The regulatory framework: from the GDPR to art. 10 of the AI Act on data governance

The principle of algorithmic non-discrimination found a first regulatory reference in Recital 71 of the GDPR which, although focused on profiling and the processing of personal data, establishes that «the controller should use appropriate mathematical or statistical procedures for the profiling,

---

[455] R. Sethi, V.R. Vatsa, P. Chhaparwal, Identification and Mitigation of Algorithmic Bias Through Policy Instruments, in International Journal of Advanced Research (IJAR), 8(07), 2020, p. 1519.

[456] D. Danks, A.J. London, Algorithmic Bias in Autonomous Systems, cit., p. 4694.

[457] N. Gorenc, AI embedded bias on social platforms, in International Review of Sociology, 35(2), 2025, p. 325.

[458] S. Silva, M. Kenney, Algorithms, Platforms, and Ethnic Bias, in Communications of the ACM, 62, 11, 2019, p. 38.

[459] R. Baeza-Yates, U.M. Fayyad, The Attention Economy and the Impact of Artificial Intelligence, in H. Werthner, E. Prem, E.A. Lee, C. Ghezzi (eds.), Perspectives on Digital Humanism, Springer, Cham, 2022, p. 130.

implement technical and organisational measures appropriate to ensure, in particular, that factors which result in inaccuracies in personal data are corrected and the risk of errors is minimised, secure personal data in a manner that takes account of the potential risks involved for the interests and rights of the data subject and that prevents, *inter alia*, discriminatory effects on natural persons on the basis of racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status or sexual orientation, or that result in measures having such an effect». This demonstrates the awareness of the European lawmaker, sealed by the subsequent Recital 85, that «a personal data breach may, if not addressed in an appropriate and timely manner, result in physical, material or non-material damage to natural persons such as (…) discrimination»[460].

Precisely by virtue of the GDPR, Italian administrative case law has also elevated non-discrimination to a principle of algorithmic legality[461].

The principle at issue was recently codified in national sectoral regulations, such as the Italian Code of Public Contracts (d.lgs. 36/2023). In particular, art. 30, paragraph 3, letter c) establishes that «le decisioni assunte mediante automazione rispettano il principio di non discriminazione algoritmica, per cui il titolare mette in atto misure tecniche e organizzative adeguate al fine di impedire effetti discriminatori nei confronti degli operatori economici». More specifically, the subsequent paragraph 4 of the same article provides that contracting authorities and granting entities take all appropriate technical and organisational measures suitable to ensure that factors leading to inaccuracies of data are rectified and the risk of errors is minimized, as well as to prevent discriminatory effects towards natural persons based on nationality, ethnic origin, political opinions, religion, personal beliefs, trade union membership, somatic characteristics, genetic status, state of health, gender or sexual orientation.

---

[460] On the relationship between the principle of algorithmic non-discrimination and personal data, see *ex multis* A.G. Grasso, GDPR Feasibility and Algorithmic Non-Statutory Discrimination, Edizioni Scientifiche Italiane, Napoli, 2023; C. Colapietro, Gli algoritmi tra trasparenza e protezione dei dati personali, in federalismi.it, 5, 2023, pp. 151-174; A. Adinolfi, Processi decisionali automatizzati e diritto antidiscriminatorio dell'Unione europea, in A. Adinolfi, A. Simoncini (eds.), Protezione dei dati personali e nuove tecnologie. Ricerca interdisciplinare sulle tecniche di profilazione e sulle loro conseguenze giuridiche, Edizioni Scientifiche Italiane, Napoli, 2022, pp. 31-52; A. Soriano, Data Protection for Prevention of Algorithmic Discrimination, Aranzadi, Cizur Menor, 2021.

[461] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472; Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881; Cons. Stato, sec. IV, judgement of 4 June 2025, no. 4857; Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929.

At the Union level, moreover, the AI Act contains numerous provisions on the principle of algorithmic non-discrimination aimed at regulating the safety of AI as a product and protecting fundamental rights[462]. In the first place, Recital 21 establishes that «in order to ensure a level playing field and an effective protection of rights and freedoms of individuals across the Union, the rules established by this Regulation should apply to providers of AI systems in a non-discriminatory manner». Recital 27, then, explicitly recalls the Ethics guidelines for trustworthy AI developed by the independent AI HLEG, citing the principle of «diversity, non-discrimination and fairness», which requires that AI systems be developed in a way that includes diverse actors and promotes equal access, avoiding discriminatory impacts and unfair biases prohibited by Union or national law. The translation of this ethical principle into a legal provision occurs through the provision of binding requirements for high-risk systems, demonstrating how the AI Act intends to operate a "juridification" of AI ethics. Recital 31, instead, warns that AI systems providing social scoring of natural persons by public or private actors may lead to discriminatory results and the exclusion of certain groups. Consequently, art. 5, par. 1, letter c), introduces an explicit ban for social scoring, prohibiting «the placing on the market, the putting into service or the use of Al systems for the evaluation or classification of natural persons or groups of persons over a certain period of time based on their social behaviour or known, inferred or predicted personal or personality characteristics, with the social score leading to either or both of the following: (i) detrimental or unfavourable treatment of certain natural persons or groups of persons in social contexts that are unrelated to the contexts in which the data was originally generated or collected; (ii) detrimental or unfavourable treatment of certain natural persons or groups of persons that is unjustified or disproportionate to their social behaviour or its gravity». This provision has a direct impact on the Public Administration as well, as it prevents the development of systems that aggregate behavioural data of citizens (fines, use of social services, etc.) to generate a reliability score that determines access to other public services. The ban aims to prevent systemic and pervasive

[462] For a discussion of the principle of algorithmic non-discrimination in the AI Act, see R. de Caria, Generative AI and Non-discrimination Law in the EU, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, *cit.*, pp. 221-236; F. Lütz, The AI Act, egender quality and non-discrimination: what role for the AI office?, in ERA Forum, 25, 2024, pp. 79-95; L. Deck, J.L. Müller, C. Braun, D. Zipperling, N. Kühl, Implications of the AI for Non-Discrimination Law and Algorithmic Fairness, in EWAF'24: European Workshop on Algorithmic Fairness, July 01-03, 2024, Mainz, Germany, 2024.

discrimination, where a behaviour in one area (e.g., late payments) unfairly penalises a citizen in another, unrelated area (e.g., access to kindergarten or healthcare). Subsequently, Recital 32 warns that technical inaccuracies in AI systems intended for the remote biometric identification of natural persons can lead to biased results and have discriminatory effects, particularly with respect to age, ethnicity, race, sex, or disabilities. For this reason, art. 5, par. 1, letter g), prohibits the use of biometric categorisation systems that classify natural persons individually based on their biometric data to deduce or infer race, political opinions, trade union membership, religious or philosophical beliefs, sex life or sexual orientation[463]. Of particular interest for the Public Administration are Recital 56, relating to education and training, as well as Recital 57, relating to employment. On the one hand, indeed, Recital 56 warns that, where AI systems are designed and used inadequately, such systems can be particularly intrusive and violate the right to education and training, as well as the right to non-discrimination, and perpetuate historical patterns of discrimination, for example against women, certain age groups, persons with disabilities or persons of certain racial or ethnic origins or a certain sexual orientation. On the other hand, Recital 57 warns that throughout the recruitment process, as well as for evaluation and promotion of persons or the continuation of work-related contractual relationships, such systems can perpetuate historical patterns of discrimination, for example against women, certain age groups, persons with disabilities or persons of certain racial or ethnic origins or a certain sexual orientation. In the Public Administration, all this concerns public recruitment processes and the management of public personnel, with the consequence that the use of automated systems for CV screening or for the evaluation of competition tests must be strictly controlled to avoid gender, age or ethnic origin bias, ensuring respect for the principles of efficiency and impartiality provided by art. 97 of the Italian Constitution. Furthermore, of particular interest to the Public Administration is Recital 58, which relates to access to certain essential services and benefits, both public and private. It states that AI systems used to evaluate the creditworthiness or credit score of natural persons must be classified as high-risk AI systems[464], since they determine the access of such persons to financial resources or essential services such as housing, electricity and telecommunication services: AI systems used for such purposes, indeed, can lead to discrimination between persons or groups and can perpetuate historical patterns of discrimination,

[463] Biometrics is allowed in the only cases indicated in point 1 of Annex III to the AI Act.

[464] Such systems are indicated in point 5 of Annex III to the AI Act.

such as those based on racial or ethnic origin, gender, disability, age or sexual orientation, or can create new forms of discriminatory impact. Still, in the public context, Recital 60 indicates the need to classify as high-risk AI systems used in migration, asylum, and border control management, as they affect persons who often find themselves in a particularly vulnerable position and who depend on the outcomes of the actions of the competent public authorities. The accuracy, non-discriminatory nature, and transparency of AI systems used in such contexts are therefore particularly important to ensure respect for the fundamental rights of the persons concerned, in particular their rights to free movement, non-discrimination, protection of private life and personal data, international protection, and good administration. In administrative proceedings to issue visas, for example, it is necessary that biases in the training data not lead to refusals on the basis of nationality or ethnicity. As regards data, Recital 67 recalls how high-quality data and access to high-quality data play a fundamental role in providing a structure and ensuring the performance of many AI systems, particularly when using techniques involving model training, in order to guarantee that the high-risk AI system functions as intended and safely and does not become a source of discrimination prohibited by Union law. Datasets should also have appropriate statistical properties, including as regards the persons or groups of persons in relation to whom the high-risk AI system is intended to be used, with specific attention to the mitigation of possible biases in the datasets that might affect the health and safety of persons, have a negative impact on fundamental rights or lead to discrimination prohibited by Union law, especially where data outputs influence inputs for future operations (feedback loops). Biases can, for example, be inherent in the underlying datasets, especially when historical data is used, or generated when systems are implemented in real-world settings. The results provided by AI systems could be influenced by such inherent biases, which tend to increase gradually and thus perpetuate and amplify existing discrimination, particularly against persons belonging to certain vulnerable groups, including racial or ethnic groups. The European Artificial Intelligence Regulation shifts the burden of prevention upstream, during the design and development phase of AI systems, to realise the principle of non-discrimination by design. Art. 10 is the pivotal provision for this purpose, as it requires that training, validation, and testing datasets be subject to appropriate governance practices[465]. In particular, art. 10, par. 2, point f),

[465] On art. 10 of the AI Act, see *ex multis* A. Palma Ortigosa, Data and Data Governance (Article 10), in A. Huergo Lora (ed.), op. cit., pp. 183-205; M. Loza Corera, Data and Data

requires «examination in view of possible biases that are likely to affect the health and safety of persons, have a negative impact on fundamental rights or lead to discrimination prohibited under Union law, especially where data outputs influence inputs for future operations». Consequently, the provider must adopt «appropriate measures to detect, prevent and mitigate possible biases identified according to point (f)». The AI Act subsequently introduces a revolutionary provision that resolves the conflict between the data minimisation principle imposed by the GDPR and the need to detect bias, establishing, in paragraph 5 of Article 10, that «to the extent that it is strictly necessary for the purpose of ensuring bias detection and correction in relation to the high-risk AI systems (...) the providers of such systems may exceptionally process special categories of personal data». This provision, therefore, allows providers to process data on race, political opinions, sexual orientation, and similar characteristics solely to test whether the algorithm discriminates against these categories. However, such processing is subject to strict and cumulative conditions to ensure security: 1) bias detection cannot be effectively fulfilled by processing synthetic or anonymized data; 2) the data are pseudonymized and subject to technical limitations on re-use; 3) the data are subject to state-of-the-art security measures and accessible only to authorized personnel; 4) the data are not transmitted to third parties; 5) the data are deleted once the bias has been corrected[466]. The technical documentation laid down in art. 11 and Annex IV of the AI Act, in this regard, must describe in detail the metrics used to measure and mitigate biases, the characteristics of the training data, and the system's operating logic. Even the Public Administration, in its capacity as deployer, has important responsibilities to guarantee that the use of AI systems does not violate fundamental rights. A central obligation – previously discussed – is the assignment of human oversight to natural persons with the necessary competence, training, and authority. Art. 14, in this regard, specifies that the human overseer must be able, among other things, to remain aware of the risk of automation bias, that is, the tendency to trust the machine excessively (par. 4, point b). Finally, it is necessary to recall art. 26, paragraph 4, of the AI

Governance and Connections to Data Protection Principles in Article 10 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), op. cit., pp. 595-627; L. Ossmann-Magiera, L. Markschies, Data Governance under the AI Act, in B. Raue, A. von Ungern-Sternberg, L. K. Kumkar, T. Rüfner (eds.), Artificial Intelligence and Fundamental Rights, cit., pp. 75-89.

[466] For an interesting perspective on art. 10, par. 5, of the AI Act, see M. van Bekkum, Using sensitive data to de-bias AI systems: Article 10(5) of the EU AI act, in Computer Law & Security Review, 56, 2025, pp. 1-11.

Act, which establishes that, to the extent that the deployer exercises control over the input data, that deployer shall ensure that the input data are relevant and sufficiently representative in the light of the intended purpose of the high-risk AI system. In this regard, the AI Act, in art. 3, par. 1, number 33), defines «input data» as «data provided to or directly acquired by an AI system on the basis of which the system produces an output».

More recently, the principle of algorithmic non-discrimination has been expressly recognised in the Italian law on artificial intelligence (no. 132/2025), which includes various provisions, some of which are also relevant to the public sector. In the first place, art. 3, dedicated to general principles, states in paragraph 1 that «la ricerca, la sperimentazione, lo sviluppo, l'adozione, l'applicazione e l'utilizzo di sistemi e di modelli di intelligenza artificiale per finalità generali avvengono nel rispetto dei diritti fondamentali e delle libertà previste dalla Costituzione, dal diritto dell'Unione europea e dei princìpi di (…) non discriminazione». In the subsequent paragraph 2, moreover, it is enshrined that «lo sviluppo di sistemi e di modelli di intelligenza artificiale per finalità generali avviene su dati e tramite processi di cui devono essere garantite e vigilate la correttezza, l'attendibilità, la sicurezza, la qualità, l'appropriatezza e la trasparenza, secondo il principio di proporzionalità in relazione ai settori nei quali sono utilizzati». In the second place, art. 7, dedicated to the use of AI in the health and disability sector, establishes that «l'introduzione di sistemi di intelligenza artificiale nel sistema sanitario non può selezionare e condizionare l'accesso alle prestazioni sanitarie secondo criteri discriminatori».

6.4. The role of public officers' training: prompt engineering as a tool for bias control

In conclusion, although the described legislation devotes – correctly – numerous provisions to the technical aspects of training data governance, we can only observe that public officers, in order to guarantee respect for the principle of algorithmic non-discrimination, should instead pay particular attention, on the operational level, to the control of input data[467]. Resolving

[467] A control on training data, indeed, would not be possible on the part of public officers because the most recent AI models, such as LLMs, are trained on billions or even trillions of words. According to an OpenAI estimate, 1 token equals approximately 0.75 words (https://help.openai.com/en/articles/4936856-what-are-tokens-and-how-to-count-them). For example, LLaMA 3.1 (405B) is trained on more than 15 trillion tokens (https://ai.meta.com/blog/meta-llama-3-1/); DeepSeek-V3 on 14.8 trillion tokens (DeepSeek-AI, DeepSeek-V3 Technical Report, available at arXiv, 18 February 2025); Qwen 2.5 on 18 trillion tokens (Qwen Team, Qwen2.5 Technical Report, available at arXiv, 3 January 2025).

the problem of algorithmic discrimination would, in my opinion, require greater investment in training public officers to acquire specialised skills to better understand the behaviour of artificial intelligence systems, even before legal measures are considered. In particular, regarding control over input data, they should be trained in order to learn the techniques of «prompt engineering», which is the art and science of the design and optimisation of prompts (and, therefore, of input data)[468] to guide AI systems, in particular those based on LLMs, towards the generation of the best possible response[469]. Indeed, by carefully creating prompts, one can provide the model with context, instructions and examples that help it understand our intentions and respond

---

[468] A prompt is a request, question or instruction given to an artificial intelligence system to guide it to generate a specific output, whether it be text, code, images or another form of content.

[469] Extensive research provides clear evidence that effective prompt engineering substantially improves AI system performance across various metrics and applications. Studies have demonstrated that carefully crafted prompts can significantly enhance the performance of large language models, generating more accurate and contextually relevant results that deliver increased value from AI systems (P. Korzynski, G. Mazurek, P. Krzypkowska, A. Kurasinski, Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT, in Entrepreneurial Business and Economics Review, 3, 2023, pp. 25-38). The relationship between prompt quality and output effectiveness is well-established, with well-crafted prompts unlocking the full potential of AI models while poorly designed ones lead to irrelevant or nonsensical outputs (O. Fagbohun, R.M. Harrison, A. Dereventsov, An Empirical Categorization of Prompting Techniques for Large Language Models: A Practitioner's Guide, available at arXiv, 18 February 2024, p. 3). The performance improvements from prompt engineering manifest in multiple ways, including enhanced accuracy, better alignment with user intentions, and improved controllability. Proper prompt design helps models better understand user intentions, reduces misunderstandings and error outputs, and improves both system performance and user experience (Maximizing User Experience with LLMOps-Driven Personalized Recommendation Systems, available at arXiv, 1 April 2024, pp. 4-5). Quantitative research provides compelling evidence for the performance benefits of prompt engineering. The magnitude of performance improvements varies by technique and application, with chain-of-thought prompting showing particularly strong results. Empirical studies report gains of 15 to 30 percentage points on reasoning benchmarks when moving from zero-shot to chain-of-thought prompts, with similar improvements observed in multimodal visual question answering when concise visual exemplars are provided (N. Chaudhary, S.M.J. Uddin, S.S. Chandra, A. Ovid, A. Albert, Prompt to Protection: A Comparative Study of Multimodal LLMs in Construction Hazard Recognition, available at arXiv, 9 June 2025, pp. 5-6). Query optimization tasks also demonstrate strong performance gains, with one study showing an average improvement of 11.46% when using query transformation methods (D. Park, G.T. An, C. Kamyod, C.G. Kim, A Study on Performance Improvement of Prompt Engineering for Generative AI with a Large Language Model, in Journal of Web Engineering, 22(8), 2024, p. 1188, 1201).

in a meaningful way[470]. In this way, the public officer could test a series of prompts to assess the presence of bias, such as negative prompting[471] and the Chain-of-Thought (CoT)[472].

7. The participation of private parties in artificial administrative proceedings

In the previous paragraphs, we analysed how the use of artificial intelligence in the public sector impacts traditional principles of administrative law, revisiting them, and how it creates new rights for interested parties. In this paragraph, we will focus on how these principles impact the rules on participation in administrative proceedings. In particular, we will examine two legal concepts: the communication of an administrative procedure's commencement (Articles 7 and 8 of Law No. 241/1990) and the communication of reasons preventing the acceptance of an application, or advance notice of rejection (Article 10-bis of the same law).

---

[470] Currently, the most prominent guides to learn prompt engineering are those drafted by OpenAI (Prompting, available at OpenAI), Anthropic (Prompt engineering overview, available at Claude) and Google (L. Boonstra, Prompt Engineering, February 2025, available at Kaggle).

[471] Negative prompting is a technique used mainly to specify what must not be included in the final result. An example of input given by the public officer could be that of evaluating an application for the assignment of public residential housing, indicating to the AI system to base itself exclusively on income criteria and the absence of ownership of suitable housing in the same Municipality, as well as to explicitly ignore geographical origin, gender, age, nationality, religion or marital status of the applicants, even if present in the attached documents. In this way, one could reduce the risk that the AI uses statistical correlations present in its training data (e.g. associating certain neighborhoods with greater insolvency).

[472] Chain-of-Thought (CoT) prompting is a prompt engineering technique that can improve the reasoning capabilities of LLMs by generating intermediate reasoning steps. An example of CoT prompting in the case of an application for the issuance of a tourist visa could follow that of instructing the AI system to analyse the aforesaid application by strictly following the following steps: 1) list the present documents and verify if they satisfy the minimum requirements provided by law; 2) evaluate the danger of non-return basing itself only on job stability and family ties demonstrated in the attached documents; 3) check if in the previous step stereotypes linked to the nationality of the applicant were used and, if so, adjust its approach, relying only on individual data; 4) express an opinion (favorable or contrary) stating reasons for it exclusively with points 1 and 2.

7.1. The communication of an administrative procedure's commencement

7.1.1. The function of the legal concept and the inadequacy of the current art. 8 of Law no. 241/1990 in the automated context

The legal mechanism of the communication of an administrative procedure's commencement (*comunicazione di avvio del procedimento*), governed by articles 7 and 8 of Law no. 241 of 1990, represents the keystone of the transition from a model of administration based on public authority and unilateral decision-making to a relational paradigm based on the principle of fair administrative procedure (*principio del giusto procedimento amministrativo*)[473]. This notification requirement is not merely an empty formality, but a necessary instrument to ensure the effectiveness of the private party's participation in the public decision-making process, allowing the emergence of the interests involved already in the fact finding phase[474]. From a structural perspective, art. 7 specifies that the obligation to communicate

---

[473] For an in-depth analysis on the communication of a procedure's commencement, see D. Nardo, La comunicazione di avvio del procedimento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, cit., pp. 121-134; P. Chirulli, La partecipazione al procedimento (artt. 7 e 8 l. n. 241 del 1990 s.m.i.), in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, cit., pp. 399-411; A. Cauduro, Gli obblighi dell'amministrazione pubblica per la partecipazione procedimentale, Jovene, Napoli, 2023, p. 111 ff.; M.C. Romano, La comunicazione di avvio del procedimento, in A. Romano (ed.), L'azione amministrativa, Giappichelli, Torino, 2016, p. 293 ff.; A. Rallo, Contributo allo studio della comunicazione dell'atto amministrativo, Editoriale Scientifica, Napoli, 2008; S. Civitarese Matteucci, Modalità e contenuti della comunicazione di avvio del procedimento, in N. Paolantonio, A. Police, A. Zito (eds.), La pubblica amministrazione e la sua azione, Giappichelli, Torino, 2005, pp. 201-211; V. Fanti, La «nuova» comunicazione nel procedimento amministrativo, in Urbanistica e appalti, 2005, pp. 1252-1261; M.A. Sandulli, La comunicazione di avvio del procedimento tra forma e sostanza (spunti dai recenti progetti di riforma), in Foro amministrativo – TAR, 5, 2004, p. 1595 ff.; D. De Carolis, La "forma" e la "sostanza" della comunicazione dell'avvio del procedimento, in S. Civitarese Matteucci, G. Gardini (eds.), Dal procedimento amministrativo all'azione amministrativa, Bologna, 2004, p. 110 ff.; G. Gardini, Comunicazione di avvio e partecipazione procedimentale: costi e benefici di una regola di democrazia, Giornale di diritto amministrativo, 2001, pp. 484 ff.; S. Verzaro, In tema di comunicazione del procedimento amministrativo; l'art. 7 e la normativa previgente, in Giurisprudenza italiana, III, 1997, p. 225 ff.; G. Gardini, La comunicazione degli atti amministrativi. Uno studio alla luce della legge 7 agosto 1990, n. 241, Giuffrè, Milano, 1996.

[474] D. Nardo, La comunicazione di avvio del procedimento, in A. Giordano (ed.), Il procedimento amministrativo, cit., p. 123 and 126. The rationale behind this legal concept is the «necessità di approntare un correttivo al modello burocratico weberiano dell'amministrazione pubblica, ideato a partire dalla seconda metà del XIX secolo» (p. 125).

lies with the RUP, who must notify the initiation of the administrative action to three categories of parties: the direct recipients of the effects of the final act, parties required by law to intervene, and third parties who, while not being immediate recipients, could suffer prejudice from the concluding determination, provided they are identified or easily identifiable. The identification of this latter category requires the administration to make a diligent effort to identify the substantial adversely affected third parties (*controinteressati sostanziali*), that is, those who hold a legally protected interest that could be negatively affected by the act[475].

The content of the communication, analytically described by article 8, must include the indication of the competent administration, the object of the proceeding, the office and the name of the person responsible for the administrative proceeding, the date by which the proceeding must be concluded, and the remedies available in case of inertia. Recently, in line with the push towards the digitisation of public administration, the Simplifications Decree has supplemented these requirements by requiring the entity to communicate its digital domicile and the telematic methods for accessing the electronic file and exercising participatory rights[476]. Although the omission of part of the minimum content of the communication is qualified by the prevailing case law as a mere irregularity not vitiating the final act[477], the lack

---

[475] E. Casetta, F. Fracchia, op. cit., p. 391, who observe that the delimitation of the *controinteressati sostanziali* requires making a predictive assessment that is not always easy, taking into account that the parties must be easily identifiable, avoiding unduly burdensome inquiries for the administration. See also T. Bonetti, Partecipazione, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 511, for whom the qualification in the category of adversely affected third parties (*controinteressati*), if they have an interest opposite to that of the recipient of the final act, or as third parties with a concurrent interest (*cointeressati*), where they are bearers of an interest, parallel and akin, to that of the recipient of the final act, also depends on the distinction between favorable and unfavourable administrative acts, with respect to the administrative power exercised towards the recipient, since the same act could be favourable for the recipient and, at the same time, unfavourable for another party.

[476] Decree-Law 16 July 2020, no. 76, concerning «Misure urgenti per la semplificazione e l'innovazione digitali» (*Decreto Semplificazioni*), converted, with modifications, into Law 11 September 2020, no. 120.

[477] This interpretation was formed especially regarding the failure to indicate the office, the RUP, the date of conclusion of the proceeding and the remedies available in case of inertia. On the failure to indicate the office, see T.A.R. Calabria, Catanzaro, sec. II, judgement of 30 May 2019, no. 1106; T.A.R. Campania, Napoli, sec. II, 17 October 2017, no. 4842). On the failure to indicate the RUP, see *ex multis* Consiglio di Stato, sec. IV, judgement of 6 March 2023, no. 2273; Cons. Stato, sec. II, judgement of 9 June 2020, no. 3673; T.A.R. Campania,

of essential information suitable to allow informed participation (such as the object of the proceeding) frustrates the very function of this legal concept, rendering the final act unlawful. The ordinary method of transmission is personal communication, but the lawmaker, in paragraph 3 of article 8, admits alternative and suitable forms of publicity if the number of recipients is such as to make individual notification impossible or excessively burdensome.

The obligation to communicate, however, is not absolute and may be subject to derogations, whether express or arising from interpretation. Indeed, article 7, paragraph 1, exempts the administration where impediments arise from specific needs for speed, provided that such impediments are explicitly stated in the final act[478]. In such hypotheses, the case law requires that the assessment regarding the existence of the prerequisites for exemption from the obligation to give communication be linked not to the abstract qualification of the act one intends to adopt, but to the concrete existence of a situation of proven necessity and qualified urgency, that is, such as not to allow said communication without compromising the satisfaction of the public interest to which the final act is aimed[479]. In parallel, paragraph 2 of Article 7 allows the faculty to adopt precautionary measures before the communication, in which case the notification is postponed rather than dispensed with. Further limits are set by Article 13, which excludes from the scope of application of Chapter III normative acts, general administrative acts, and planning and programming acts, for which sector-specific regulations apply, often providing alternative forms of publicity and consultation. It is likewise debated whether the obligation exists in administrative proceedings at the instance of a party: while a case law orientation considers it superfluous since the private citizen, having presented the application, is already aware of the pendency of the

---

Napoli, sec. III, judgement of 9 September 2020, no. 3733; T.A.R. Lombardia, Milano, sec. II, judgement of 8 November 2019, no. 2348. On the failure to indicate the date of conclusion of the proceeding, see T.A.R. Sicilia, Palermo, sec. II, judgement of 20 April 2015 no. 987; Cons. Stato, sec. IV, judgement of 22 March 2013, no. 1632. On the failure to indicate the remedies available in case of inertia, see T.A.R. Sicilia, Palermo, sec. III, judgement of 29 March 2011, no. 575.

[478] T.A.R. Lombardia, Milano, sec. IV, judgement of 13 May 2025, no. 1649; Cons. Stato, sec. I, Adunanza di Sezione, final opinion of 18 October 2017, no. 2652; T.A.R. Lombardia, Milano, sec. II, judgement of 5 November 2014, no. 2653; T.A.R. Lazio, Roma, sec. II, judgement of 12 May 2014, no. 4898; Cons. Stato, sec. II, judgement of 15 March 2011, no. 1169.

[479] T.A.R. Lazio, Latina, sec. I, judgement of 30 July 2022, no. 717; T.A.R. Liguria, Genova, sec. II, judgement of 25 October 2016, no. 1049; T.A.R. Lombardia, Milano, sec. III, judgement of 31 January 2011, no. 273; T.A.R. Toscana, Firenze, sec. II, judgement of 16 June 2010, no. 1930; Cons. Stato, sec. VI, judgement of 10 September 2009, no. 5439.

procedure, the prevailing scholarship supports its necessity to provide further information not contained in the receipt of filing[480].

An issue of significant academic interest concerns the "downgrading" (*dequotazione*) of the defect of failure to provide notice under article 21-octies, paragraph 2, of Law no. 241/1990. According to this provision, the act is not voidable if the administration demonstrates in court that the substantive content could not have been different from that adopted in the specific case, thereby valuing the principle of the result-oriented administration (*principio dell'amministrazione del risultato*). Under this rule, failure to provide notice of initiation is treated as a procedural defect whose effect on the availability of annulment is subject to a "but-for" test (*prova di resistenza*)[481]. However, to avoid burdening the public entity with a *probatio diabolica*, case law has imposed an initial burden of pleading the relevant facts (*onere di allegazione*) on the appellant, who cannot merely allege the formal omission but must indicate which factual or evaluative elements they would have introduced into the proceeding if they had been notified[482].

The mechanism of the communication of a procedure's commencement thus serves as the gateway to the participatory stage of the administrative proceeding, that is, the genetic moment in which the private citizen is informed that administrative power is being exercised toward them, thereby establishing the necessary conditions for them to engage in a dialogue with the proceeding authority. However, the current regulatory framework, designed for interactions with human persons, appears inadequate to govern

---

[480] For a reconstruction of this debate, see D. Nardo, op. cit., p. 131.

[481] The *prova di resistenza* serves as a judicial criterion to verify whether the identified unlawfulness (specifically a formal or procedural defect) has actually harmed the substantial interest of the appellant by affecting the outcome of the final decision.

[482] Such *probatio diabolica* would consist of burdening the Public Administration with demonstrating that any possible participation of the private party would not have changed the outcome of the proceeding (R. Giovagnoli, I vizi formali e procedimentali, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, cit., 2017, p. 1168). To avoid this, the Council of State has preferred to interpret the rule under examination by consolidating the principle according to which «le garanzie procedimentali non possono ridursi a mero rituale formalistico, con la conseguenza che, nella prospettiva del buon andamento dell'azione amministrativa, il privato non può limitarsi a denunciare la lesione delle pretese partecipative, ma è anche tenuto ad indicare o allegare, specificamente, gli elementi, fattuali o valutativi, che, se introdotti in fase procedimentale, avrebbero potuto influire sul contenuto finale del provvedimento» (*ex plurimis*, see Cons. Stato, sec. VI, judgement of 29 November 2022, no. 10489; Cons. Stato, sec. VI, judgement of 2 November 2022, no. 9541; Cons. Stato, sec. VI, judgement of 27 October 2022, no. 9183; Cons. Stato, sec. VI, judgement of 27 April 2020, no. 2676; Cons. Stato, sec. VI, judgement of 28 February 2019, no. 1405).

the complexity of automated administrative action. In my opinion, in fact, the minimum content of the communication established by the cited article 8 was sufficient to guarantee the right to be heard only in a traditional context, in which, that is, the applicant, receiving such communication, knew they were interfacing with a human official, embedded within a system of administrative hierarchy, who would apply legal rules to facts ascertained according to the rules of common sense and experience. The «persona responsabile del procedimento» (art. 8, paragraph 2, lett. c) indicated in the act was the centre of real attribution of the fact-finding process, the individual with whom to dialogue, present written submissions and documents, and who would finally draft the decision proposal. Artificial intelligence and, in general, the phenomenon of administrative automation, however, disrupt this model of participatory administrative procedure. As noted previously, Italian administrative case law has elaborated on the principles of the knowability and comprehensibility of the algorithms used in administrative proceedings. If such principles require the technical rule to be translated into an intelligible legal rule, I believe that such translation should be offered at the very moment in which the proceeding is initiated.

The need to reform article 8 of Law 241/1990 is moreover consistent with what is now provided by the AI Act in paragraph 11 of article 26, according to which «deployers of high-risk AI systems laid down in Annex III that make decisions or assist in making decisions related to natural persons shall inform the natural persons that they are subject to the use of the high-risk AI system». Although this rule does not specify the exact procedural moment in which to inform natural persons of being subject to the use of AI systems, in the Italian administrative system, based on the principle of fair administrative procedure, such a moment – from my point of view – should coincide with the initiation of the proceeding itself. Waiting for the adoption of the final act to communicate the use of AI (perhaps in a note in the margin of the statement of reasons) would empty the transparency obligation of meaning, transforming it into a belated notification of a fait accompli. A constitutionally oriented reading (art. 97 of the Constitution) and compliant with the principles of effectiveness and impartiality imposes, in my opinion, placing this disclosure in the first act of contact between the administration and the applicant, namely in the communication laid down in art. 7 Law 241/1990.

In light of these observations, the current formulation of Article 8 appears lacunose, since the list of elements that must be indicated in the communication (administration, object, person responsible, deadlines, remedies, etc.) does not contemplate any reference to the technological tools

used. On the contrary, one could object that the obligation to indicate the use of AI is implicitly derivable from the duty to indicate the object of the proceeding or from the broad interpretation of the principle of algorithmic transparency, as stated by the Council of State. However, relying solely on case-law interpretation is risky, as Italian administrative practice shows a certain resistance to full algorithmic disclosure, often justified by the protection of software suppliers' intellectual property or by secrecy[483]. Without a cogent and explicit rule, administrations could continue to omit such information, forcing citizens into exhausting judicial battles to obtain access to the algorithms.

A more insidious risk arises from the application of Article 21-octies, paragraph 2, of Law no. 241/1990, whose mechanism preventing annulment, designed for formal or procedural defects in the context of non-discretionary activity, risks being used to neutralise the omission of communicating the use of AI. The administration could argue that, dealing with an algorithm that applies non-discretionary parameters, the result would not have changed even if the applicant had been informed. Such reasoning, however, is fallacious and dangerous when applied to artificial intelligence. The intrinsic opacity of machine learning and deep learning systems makes it structurally impossible to state with certainty that the result is inevitable or legally predetermined. Unlike a deterministic algorithm, a probabilistic AI system produces different outputs not only in the face of minimal variations in data (both input and training) and context, but also, especially, when given identical inputs[484].

---

[483] This phenomenon emerged with particular evidence in the litigation relating to the management of the mobility of teaching staff (c.d. "Buona Scuola" case), where the Italian Ministry of Education and Research repeatedly denied access to the source code of the algorithm used for territorial assignments on the basis of the qualification of the software as an intellectual work protected by copyright law.

[484] P.J. O'Malley, Generative AI Systems and Corporate Governance, in M. Zou, C. Poncibò, M. Ebers, R. Calò (eds.), The Cambridge Handbook of Generative AI and the Law, cit., p. 379. The mechanism by which, in case of identical inputs, a generative AI system can produce different outputs is well explained by Sapienza: «Utilizzando l'input dell'utente, detto prompt, il modello è in grado di generare una risposta plausibile attraverso la generazione probabilistica di sequenze di testo, in cui il modello cerca di predire il token successivo sulla base di quelli precedenti e del contesto che viene offerto. (…) Il sistema sceglierà una parola (or rather, token) probabile per proseguire nella generazione del testo. Nel farlo, esso non seguirà sempre la regola della "parola più probabile", ma inserirà occasionalmente una parola meno probabile per prevenire risposte standardizzate e garantire un certo margine di flessibilità e pseudo-creatività degli output. Questo significa che, a parità di prompt, il sistema potrebbe generare un numero potenzialmente infinito di risposte semanticamente accettabili» (S. Sapienza, Decisioni algoritmiche e diritto, Giuffrè, Milano, 2025, p. 23-25).

Therefore, omitting the communication of the use of AI, or degrading it to a formal defect that does not warrant annulment under Art. 21-octies, would risk undermining the essential core of decisional transparency and the controllability of power. A legislative reform is therefore necessary to clarify this point by excluding breaches of the duty to provide the algorithmic information notice from the rule preventing annulment.

7.1.2. A reform proposal: the obligation of disclosure of the use of AI and of the methods of supervision at the initiation of the proceeding

It is proposed, therefore, to implement the following modification of art. 8 of Law 241/1990, inserting a new specific information obligation through the introduction of letter c-quater) to paragraph 2 of said article, with the following wording: «c-quater) l'eventuale utilizzo di sistemi di intelligenza artificiale o di processi automatizzati che assistano o sostituiscano l'attività istruttoria o decisoria, con l'indicazione sintetica delle finalità del sistema e delle modalità di supervisione umana». In particular, by indicating the system's purposes, it would be ensured that the applicant knows why the administration is using AI (for example, to accelerate procedural times). Furthermore, the reference to the methods of human oversight would allow the applicant to know who controls the machine and how (depending on the different models analysed previously).

The introduction of letter c-quater) would also redefine the role of the RUP (laid down in articles 4, 5, 6 of Law 241/1990), as they would no longer be only the guardian of compliance with deadlines and of the traditional fact-finding phase, but would become what we could define as the "guardian of algorithmic legality". Indicating in the communication of an administrative procedure's commencement the methods of human oversight would mean assigning to the person responsible for the administrative proceeding a specific responsibility: verifying that the algorithm is functioning correctly, that it is not producing discriminatory results, and that the input data used is of adequate quality[485]. The person responsible for the administrative proceeding would thus become the necessary human interface between the private party and the machine, the point of contact where the flexibility of human administrative judgement would temper computational rigidity. The reform of art. 8, by requiring this role to be made explicit, would hold the official

[485] All this consistently with the limits that were clarified in the paragraph on human oversight and that will be clarified in that on liability in the Public Administration for damage caused by AI.

responsible and prevent them from hiding behind the impersonality of the IT system, reaffirming the centrality of the person in administrative action, as also hoped for by recent national and European provisions on the matter.

7.2. The communication of reasons preventing the acceptance of an application, or advance notice of rejection

The concept of the communication of reasons preventing the acceptance of an application (*comunicazione dei motivi ostativi all'accoglimento dell'istanza*), otherwise known as advance notice of rejection (*preavviso di rigetto*), is governed by art. 10-bis of Law no. 241/1990[486] and imposes on the

[486] On the communication of reasons preventing the acceptance of an application, see F. Trimarchi Banfi, La funzione amministrativa dopo la riforma del preavviso di diniego, Diritto processuale amministrativo, 4, 2023, pp. 809-831; P. Chirulli, S. Tuccillo, Il preavviso di rigetto (art. 10-bis l. n. 241 del 1990 s.m.i), in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, cit., pp. 413-442; A. Cauduro, Gli obblighi dell'amministrazione pubblica per la partecipazione procedimentale, cit., p. 122 ff.; M. Ramajoli, Preavviso di rigetto, preclusioni, giusto procedimento e giusto processo, in Diritto processuale amministrativo, 3, 2022, pp. 595-616; W. Giulietti, La comunicazione dei motivi di non accoglimento dell'istanza, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, cit., pp. 143-160; D. Vaiano, Il preavviso di rigetto, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, cit., pp. 640-654; M.C. Romano, P. Lazzara, Art. 10-bis. Comunicazione dei motivi ostativi all'accoglimento dell'istanza, in A. Romano (ed.), L'azione amministrativa, cit., p. 382 ff.; A. Fabri, Alcune questioni sul c.d. preavviso di rigetto, in Diritto e processo amministrativo, 2014, p. 661 ff.; S. Pellizzari, L'art. 10 bis della legge 241 del 1990: le potenzialità del "dialogo procedimentale" nel contesto della semplificazione amministrativa, in A. Sandulli, G. Piperata (eds.), La legge sul procedimento amministrativo. Vent'anni dopo, cit., pp. 133-148; O.M. Caputo, Preavviso di diniego, osservazioni e difetto di specifica confutazione. Natura del vizio, in Urbanistica e appalti, 2009, p. 357 ff.; G. Fonderico, La comunicazione dei motivi ostativi, la tutela processuale e la semplificazione, in Giornale di diritto amministrativo, 5, 2009, pp. 621-625; D. Vaiano, Preavviso di rigetto e principio del contraddittorio nel procedimento amministrativo, in A. Romano, E. Casetta, F.G. Scoca (eds.), Studi in onore di Leopoldo Mazzarolli. Diritto processuale amministrativo, vol. IV, CEDAM, Padova, 2007, p. 447 ff.; L. Ferrara, La comunicazione dei motivi ostativi all'accoglimento dell'istanza nel riformato quadro delle garanzie procedimentali, in A. Romano, E. Casetta, F.G. Scoca (eds.), Studi in onore di Leopoldo Mazzarolli. Attività, organizzazione, servizi, vol. II, CEDAM, Padova, 2007, p. 83 ff.; S. Fantini, Il preavviso di rigetto come garanzia "essenziale" del cittadino e come norma sul procedimento, in Urbanistica e appalti, 2007, p. 1388 ff. C. Videtta, Note a margine del nuovo art. 10 bis della l. n. 241 del 1990, in Foro amministrativo – TAR, 2006, pp. 655-671; M. Clarich, Il preavviso di provvedimento negativo, in G. Sciullo (ed.), Le nuove regole dell'azione amministrativa, BUP, Bologna, 2006, p. 49 ff.; E. Mele, Preavviso di diniego e garanzie partecipative, in Foro amministrativo – TAR, 2006, p. 3983 ff.; S. Vacca, Comunicazione dei motivi ostativi all'accoglimento dell'istanza ex art. 10 bis, l. n. 241 del 1990 e modalità di esercizio del potere

Public Administration an obligation to disclose the reasons preventing the acceptance of an application before the formal adoption of a negative act, allowing the applicant to present written submissions and documents within ten days. This instrument is not limited to a mere participatory guarantee but pursues the purposes of effectiveness and economy, aiming to reduce judicial litigation by facilitating the anticipated resolution of conflicts in the proper procedural stage[487]. From a theoretical perspective, art. 10-bis has filled a gap in the 1990 system, extending dialectical guarantees to holders of legitimate interests to obtain a benefit (*interessi legittimi pretensivi*), which were previously reserved almost exclusively for bearers of defensive legitimate interests (*interessi legittimi oppositivi*)[488].

The physiognomy of this legal concept was profoundly altered by the reform operated with Decree-Law no. 76/2020 (converted into Law no. 120/2020), which intended to strengthen the effectiveness of the participatory rights based on the principle of loyal cooperation and good faith, principles now explicitly recalled by art. 1, paragraph 2-bis, of Law no. 241/1990[489]. One of the most incisive innovations lies in the transition from the interruptive to the suspensive character of the communication of reasons preventing the acceptance of an application with respect to the deadlines for the conclusion

---

amministrativo: prima ricostruzione di un complesso fenomeno di alterazioni procedimentali, Foro amministrativo – TAR, 2006, 1824 ff. S. Tarullo, Commento all'art. 10-bis, in N. Paolantonio, A. Police, A. Zito (eds.), La pubblica amministrazione e la sua azione, cit., p. 213 ff.; G. Bottino, Commento all'art. 10 bis, l. n. 241/1990, in V. Italia (ed.), L'azione amministrativa, Giuffrè, Milano, 2005, p. 394 ff.; E. Frediani, Partecipazione procedimentale, contraddittorio e comunicazione: dal deposito di memorie scritte e documenti al "preavviso di rigetto", in Diritto amministrativo, 4, 2005, pp. 1004-1041.

[487] T.A.R. Campania, Napoli, sec. III, judgement of 20 February 2018, no. 1090.

[488] D. Vaiano, Il preavviso di rigetto, op. cit., p. 642.

[489] On this reform, see M. Trimarchi, Note sul preavviso di rigetto dopo la legge n. 120 del 2020, in Diritto e processo amministrativo, 2, 2022, p. 415 ff.; P. Chirulli, La comunicazione dei motivi ostativi all'accoglimento dell'istanza dopo i "decreti semplificazioni", in Rivista giuridica di urbanistica, 2022, pp. 104-115; M.R. Calderaro, Il preavviso di rigetto ai tempi della semplificazione amministrativa, in federalismi.it, 11, 2022, 126-157; A. Gualdani, Le novità in tema di preavviso di rigetto, in PA Persona e Amministrazione, 2022, pp. 533-560; L. Tarantino, La novella dell'art. 10-bis della l. 241/1990 e la posizione della giurisprudenza, www-giustizia-amministrativa.it, 2022; L. Ferrara, La preclusione procedimentale dopo la novella del preavviso di diniego: alla ricerca di un modello di rapporto e di giustizia, Diritto amministrativo, 3, 2021, pp. 573-585; M.R. Spasiano, Nuovi approdi della partecipazione procedimentale nel prisma del novellato preavviso di rigetto, Il diritto dell'economia, 2, 2021, pp. 25-54; G. Serra, Brevi note in merito alla riforma dell'art. 10-bis della L. 241/90 ad opera del c.d. Decreto Semplificazioni (D.L. n. 76/2020), in lexitalia.it, 6, 2020;

of the proceeding: the previous formulation, providing that the terms began to run *ex novo* from the presentation of the written submissions, risked in fact incentivizing dilatory conduct; the current regime establishes, instead, that the terms are suspended and begin to run again ten days after the presentation of the submissions or from the expiration of the deadline for their presentation[490].

Art. 10-bis also provides for a significantly heightened duty to give reasons, a constraint on the administration that, despite the private party's written submissions, intends to confirm the denial. The authority, in fact, is required to give a reason for the non-acceptance of such submissions in the statement of reasons of the final act, indicating exclusively the further precluding grounds that are a direct consequence of the submissions themselves. This regime determines a progressive exhaustion of administrative discretion, preventing the administration from availing itself of an unlimited *jus variandi* and obliging it to «scoprire le carte» all at once during the pre-decisional phase[491]. It follows that a denial act is unlawful where it adds, to its statement of reasons, justifications that differ from and go beyond those that were previously subject to the participatory exchange via the advance notice of rejection[492].

The aspect of greatest systematic impact concerns, however, the so-called administrative and judicial «one shot» principle introduced by the 2020 amendment, according to which, in case of judicial annulment of the denial act adopted following communication under Art. 10-bis, the administration,

---

[490] P. Chirulli, S. Tuccillo, Il preavviso di rigetto, op. cit., p. 416; P. Garofoli, Le garanzie partecipative: un inquadramento, in A. Giordano (ed.), op. cit., p. 108.

[491] E. Casetta, F. Fracchia, op. cit., pp. 402-405; P. Garofoli, op. cit., p. 115; P. Chirulli, S. Tuccillo, op. cit., p. 420.

[492] In particular, it has been highlighted how, although neither an identity between the advance notice of rejection and the final determination of the proceeding nor a precise and detailed correspondence between the contents of the two acts is required, as the public administration may well deem, in the final act, to have to better specify its legal positions, it is however necessary that the substantial content of the concluding denial act fits into the scheme outlined by the cited communication under art. 10-bis, excluding any possibility of basing the definitive denial on completely new reasons, not deduced from the statement of reasons of the preparatory act, given that otherwise the interested party could not engage in dialogue with the administration also on said differential aspects nor present their own written submissions before the concluding determination of the office. On the point, *ex multis*, see T.A.R. Lazio, Roma, sec. II-ter, judgement of 3 January 2023, no. 137; Cons. Stato, sec. IV, judgement of 21 May 2021, no. 3924; T.A.R. Veneto, Venezia, sec. III, judgement of 21 January 2019, no. 72; Cons. Stato, sec. IV, judgement of 9 March 2018, no. 1508; T.A.R. Calabria, Catanzaro, sec. II, judgement of 12 January 2016, no. 49; Cons. Stato, sec. V, judgement of 30 December 2015, no. 5868; Cons. Stato, sec. V, 3 May 2012, no. 2548.

in exercising its power again, cannot adduce for the first time precluding grounds already emerging from the fact-finding phase of the annulled act. This preclusion, although referring textually only to proceedings at the instance of a party, marks an attempt by the lawmaker to scratch the dogma of the inexhaustibility of administrative power, favouring the stabilisation of *res judicata* and the certainty of the substantial interest requested by the appellant[493]. From this perspective, the participation of the private citizen ceases to be a mere faculty and becomes a procedural burden: the applicant is required to actively collaborate to bring out all relevant elements, knowing that only such activism will allow them to benefit from the preclusive effects arising from the annulment judgment[494].

The substantial relevance of advance notice of rejection is also confirmed by the change in the invalidity regime resulting from its omission. The 2020 amendment modified the text of art. 21-octies, paragraph 2, of Law no. 241/1990 to clarify that the rule preventing annulment for formal and procedural defects does not apply to the missed communication of the advance notice of rejection if the act has a discretionary nature[495]. While, for the missed communication of a procedure's commencement under Article 7, the administration can still demonstrate in court that the content of the act could not have been different, such *prova di resistenza* is precluded in the case of a violation of Article 10-bis for discretionary acts, rendering the omission always invalidating[496]. This regulatory differentiation values the pre-decisional phase as an indispensable moment of dialectical confrontation, preventing the court from substituting its own assessment for that of the administration when evaluating the utility of the missed participation. The possibility of applying the rule of non-voidability in the presence of non-discretionary administrative

---

[493] F. Fichera, La motivazione, cit., p. 688.

[494] A. Zito, Consumazione del potere e discrezionalità, in AIPDA, Annuario 2022. "Discrezionalità e amministrazione", Editoriale Scientifica, Napoli, 2023, p. 77.

E.M. Santoro, I vizi non invalidanti del provvedimento, in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, cit., pp. 718 and 726. On the theme, see R. Fusco, Il necessario contraddittorio col privato nell'esercizio dei poteri discrezionali: l'efficacia invalidante del preavviso di rigetto (nota a Cons. St., Sez. II, 14 marzo 2022, n. 1790), in Giustizia Insieme, 6 July 2022; M. D'Arienzo, Brevi note sull'applicabilità dell'art. 21-octies, comma 2, l. 241/1990 al preavviso di rigetto alla luce della recente giurisprudenza amministrativa, in giustamm.it, 2021.

[496] Thus, *ex multis*, see Cons. Stato, sec. II, judgement of 14 March 2022, no. 1790. The current formulation of the rule removes, in fact, the procedural model correlated to the exercise of a discretionary power from the rules generally preventing annulment for procedural defects, in case of omission of the advance notice of rejection (Cons. Stato, sec. III, judgement of 22 October 2020, no. 6378).

activity remains, instead, firm, where it is evident that the procedural outcome was obligatory[497].

The application of Art. 10-bis is subject to specific limitations: the provision does not apply to competitive procedures or to proceedings regarding social security and assistance administered by social security entities[498]. Outside of these exceptions, this legal concept manifests a notable far-reaching scope, finding application also in special proceedings such as that of landscape authorization, in which art. 146 of Legislative Decree no. 42/2004, in paragraph 8, shifts the burden of the communication of reasons preventing the acceptance of an application directly to the Superintendence (*Soprintendenza*) if it intends to render a negative opinion, highlighting how the communication under Art. 10-bis has become a pervasive guarantee standard in administrative law.

7.2.1. The notice of rejection as a key moment for the right to be heard on algorithmic output

In the ecosystem of administrative decisions made with the aid of artificial intelligence, the applicability of the regulations on advance notice of rejection is debated among scholars.

7.2.1.1. The critical theory of incompatibility

A part of legal scholarship maintains that the legal concept at issue is difficult to apply in practice within an automated procedural framework, as its implementation would betray the very essence of participation, which aims to reduce litigation through a real dialectical confrontation. The reason for such incompatibility lies in the widespread lack of technical and IT skills in public offices and among interested citizens, a factor that prevents a shared understanding of the machine's decision-making dynamics. Specifically, it has been observed that those responsible for the administrative proceeding would

---

[497] E.M. Santoro, op. cit., pp. 727-728.

[498] The case law has extensively interpreted the notion of "competitive procedure", including in it all selections characterized by a plurality of aspirants and by criteria of reciprocal comparison that would render the advance notice of rejection incompatible with the needs of celerity (T.A.R. Campania, Napoli, sec. III, judgement of 16 June 2025, no. 4530; Cons. Stato, sec. III, judgement of 22 February 2019, no. 1236; T.A.R. Lazio, Roma, sec. II-quater, 21 November 2016, no. 11560), including public procurement procedures for the awarding of public contracts (Cons. St., Ad. Plen., judgement of 29 February 2016, no. 6) and procedures for the granting of public funding (T.A.R. Campania, Napoli, sec. III, judgement of 6 November 2023, no. 6019; T.A.R. Lazio, Roma, sec. III-bis, judgement of 20 April 2023, no. 6875).

find themselves in the objective impossibility of usefully communicating the reasons for a denial before the formal act, since they themselves are often unable to justify or translate into legal language the reasoning process followed by the algorithm to reach a certain negative conclusion[499].

7.2.1.2. The theory of "subsequent participation": the algorithmic output as an administrative "decision proposal"

Other scholars, proposing the transition from a model of preventive participation to an innovative scheme of subsequent participation, maintain that the procedural sequence outlined by Law 241/1990 is not directly transposable into the macrosystem of integral automation, since the algorithmic fact-finding process, based on the processing of enormous masses of data, would empty the traditional interlocutory moment of effectiveness. In such a context, the concept of advance notice of rejection would assume a systematic centrality, being requalified as the elective instrument for establishing a fully human dialectical exchange arising from the machine's technical processing. According to this Author, the output generated by AI should not be established as a definitive act, but as a draft decision or proposal for an act with a merely preparatory nature (*atto endoprocedimentale*), on which to graft the advance notice of rejection. Such a solution would allow fulfilling the obligation of an enhanced statement of reasons that the legal scholarship requires for automated acts, guaranteeing the private party the possibility to understand the legal and logical reasoning followed by the algorithm and to specifically contest its results before the administration, in its traditional composition of a natural person, adopts the final act[500]. In this way, it has been highlighted how such a model would make citizens' participation paradoxically "more reasoned" and incisive, as the interested party would have the possibility to calibrate their written submissions and briefs on a solid, already established basis, namely the reasoning expressed by the computer program[501]. A particularly disruptive aspect of this theoretical approach concerns the following. To counteract the risk of a diminished human role in the face of the overwhelming practical force of technology, the traditional exclusions from the obligation to provide advance notice of

---

[499] A. Di Martino, Tecnica e potere nell'amministrazione per algoritmi, cit., pp. 210-212. In support of this reflection, the judgement of T.A.R. Puglia, Bari, no. 552 of 22 April 2022 is recalled, in which the administration explicitly admitted not being able to provide clarifications regarding the final calculation of a score, declaring not to know deeply the algorithm of the form used.

[500] D. Diaco, Amministrazione umana vs Amministrazione algoritmica, cit., p. 8.

[501] Ibid., p. 11.

rejection – such as those relating to competitive procedures or social security proceedings – should no longer apply. In fact, the need to ensure human intervention and the supervision of the human responsible for the administrative proceeding over the machine's choices would require that every proposed algorithmic rejection, regardless of the subject matter involved, be subject to a re-evaluation that includes the contribution of the private party[502].

Along the same line of reflection lie other scholars who hypothesise that, at the end of a fully automated fact-finding phase, the administration must communicate to the interested party a proposal for an act, together with any precluding grounds, and assign a deadline for the presentation of written submissions before the act becomes definitive and effective[503]. Another Author strengthens this perspective, hoping that public officers personally renew the evaluation in all cases in which, following a proposal for a negative act issued by the machine, the written submissions laid down in Art. 10-bis of Law no. 241/1990 follow, bringing into relief the obligation of enhanced reasoning, by virtue of which the administration is required to give reasons for the non-acceptance of the applicant's deductions, justifying the deviation or confirmation of the automated input in light of the supervening submissions[504].

Finally, according to another orientation, the use of AI should be framed in preparatory and instrumental terms, believing that the output processed by the system in the fact-finding phase is assimilable to a proposal or a technical evaluation, rather than a decision in the proper sense (in the sense of an act endowed with external effects)[505]. The communication of reasons for denying an application would constitute the elective space in which to subject the "techno-decision" to a test of coherence and reasonableness through confrontation with the recipients, allowing the *ex ante* correction of any functional defects or logical gaps in the algorithmic black box. In this vision, art. 10-bis would serve as an instrument to ensure that the administration does not undergo technological "capture" and instead uses the machine's statistical-probabilistic correlations as an information base on which to graft a dialectical confrontation, thereby reducing judicial litigation through the pre-emptive resolution of algorithmic inconsistencies[506].

---

[502] Ibid., p. 9.

[503] C. Polidori, Procedimento amministrativo e algoritmi, cit., p. 21.

[504] N. Durante, Intelligenza artificiale e "lavoro" del giudice amministrativo, in www.giustizia-amministrativa.it, 2024, p. 8.

[505] G. Gardini, L'uso preparatorio dell'AI come limite agli eccessi regolativi. Per una valutazione "in concreto" dell'intelligenza artificiale applicata all'agire pubblico, in Istituzioni del Federalismo, 2, 2025, p. 281.

[506] Ibid., p. 286.

7.2.2. A reform proposal: the obligation of autonomous human review following the written submissions of the interested party

In light of the theories outlined above, I believe that the current formulation of article 10-bis, while containing *in nuce* the elements for an effective participatory proceeding («dell'eventuale mancato accoglimento di tali osservazioni è data ragione nella motivazione del provvedimento finale»), is insufficient to guarantee the stability of the system in the face of the challenges of AI and that it is necessary to intervene legislatively to structure a specific "enhanced" model of participation for decisions adopted using AI systems. In this regard, I propose inserting a new paragraph (or an additional sentence to the existing paragraph) into article 10-bis, formulated in the following terms: «Nei procedimenti in cui l'istruttoria o la proposta di decisione siano state elaborate, in tutto o in parte, mediante l'utilizzo di sistemi di intelligenza artificiale o processi automatizzati, qualora l'istante presenti osservazioni ai sensi del presente articolo, il responsabile del procedimento o l'autorità competente ha l'obbligo di rinnovare personalmente ed autonomamente la valutazione dell'istanza, prescindendo dalle risultanze algoritmiche contestate. Dell'avvenuto riesame effettuato da persona fisica, nonché delle ragioni specifiche che hanno condotto a confermare o riformare l'esito algoritmico, deve essere data ragione nella motivazione del provvedimento finale». Thanks to this new formulation, on the one hand, in uncontested administrative proceedings, automation could proceed expeditiously; on the other hand, the applicant's opposition through the written submissions would act as a "trigger" to deactivate automation and impose human oversight. A dynamic balance between efficiency and procedural safeguards would thus be achieved: AI would manage routine, and humans would manage conflict and complexity. The adverb «autonomamente» and the clause «prescindendo dalle risultanze algoritmiche» would require the official not to limit themselves to verifying if the algorithm functioned correctly according to its parameters (in terms of verification of internal coherence), but to evaluate the case *ex novo* (in terms of substantive review).

The reflections conducted so far lead us to conclude that the incorporation of artificial intelligence into administrative proceedings requires a recalibration of the concepts of participation examined. The proposed reforms to articles 7 and 10-bis outline a two-step participatory process that restructures the relationship between citizens and algorithms on new bases of transparency and human-machine interaction. The first fundamental step of

this renewed arrangement is represented by the communication of a procedure's commencement under Art. 7 of Law no. 241/1990. In this initial stage, the applicant should be made aware not only of the existence of the proceeding but also of the specific algorithmic method with which it will be investigated or decided. This preventive information notice, analogous to that provided by art. 26, par. 11 of the AI Act, would transform the administered individual from a passive recipient to a conscious interlocutor, putting them in a position to know that an automated system will examine their application. The second step, the decisive one, consists of the advance notice of rejection under Art. 10-bis. Here, participation would evolve from general knowledge to specific contestation: the applicant, having received the communication of the negative outcome processed by the AI, would have the possibility to assess the substantive merits of the algorithmic output, highlighting errors in the input data, discriminatory biases or fallacies in the application logic of the machine. It is at this juncture that the participatory dialogue would achieve its greatest effectiveness, transforming the interaction with the algorithm from passive subjection to active participation. For this mechanism to function, however, it is indispensable that the reasoning of the advance notice of rejection be reinforced and structured according to the canons of Explainable AI: it cannot limit itself to notifying a numerical score or a binary outcome (accepted/rejected), but should make explicit the reasoning process followed by the AI, using the reasoning scheme we proposed previously[507], as the private party can formulate precise and pertinent submissions only if provided with the keys to decode the machine's reasoning.

8. The (possible) conflicts between the AI Act and Italian Law no. 132/2025: the risk of "gold plating"

The Artificial Intelligence Regulation has two main objectives: on the one hand, to ensure a high level of protection of health, safety and fundamental rights; on the other, to ensure the free movement of AI systems in the internal market, preventing regulatory fragmentation among Member States. To reconcile these potentially conflicting objectives, the European lawmaker has adopted an asymmetric risk-based approach, categorising systems into four distinct levels: unacceptable, high, limited and minimal risk.

For Public Administration, Annex III is of great importance, as it identifies sectors where the use of AI is presumptively high-risk. Falling into this category, in particular, are systems intended to be used for education and vocational training (e.g. assignment to educational institutions); employment

[507] See Section 4.1. of this Chapter.

and worker management (e.g. screening of candidates); access to and enjoyment of essential public services and benefits (e.g. evaluation of eligibility for subsidies, revocation of benefits, public housing rankings, etc.); migration, asylum and border control management (e.g., asylum applications, visas and residence permits); critical infrastructure. Therefore, if the P.A. decides to implement an AI system for a task that does not fall under Annex III, the AI Act does not require the provider to equip the system with mechanisms for human oversight, transparency, explainability, etc., nor does it oblige the user entity to guarantee compliance with such obligations. According to the logic of the internal market, this system is a safe product and must circulate freely.

Yet, in administrative law, there are very many matters, formally excluded from Annex III of the AI Act, in which the use of AI is destined to significantly affect the rights and freedoms of the individual and the principle of efficiency of the Public Administration: let's consider important sectors such as procurement, concessions, authorizations, construction and urban planning, environment and pollution, expropriations for public utility, cultural heritage, landscape, commerce and crafts, hunting and fishing, elections, etc. The absence of European guarantees for these systems would create a paradox whereby an administration could legitimately entrust an administrative decision to a minimal-risk algorithm, without any human oversight, thereby wiping out a decade of national case law achievements, matured based on Articles 97 (efficiency and impartiality) and 24 (right of defense) of the Constitution, merged into the so-called triptych of algorithmic legality: transparency, accountability and non-discrimination of the algorithmic decision. Therefore, in the context of administrative law, deregulating the numerous sectors cited (and many others) would expose citizens to the risk of opaque, unreviewable administrative action.

But it is here that an important question arises: how can the Italian State impose procedural guarantees on systems that the European Union has deliberately chosen to leave free from constraints? It is no coincidence that the Italian lawmaker, with the recent enabling law on artificial intelligence no. 132/2025, in paragraph 5 of art. 3, has expressly stated that «la presente legge non produce nuovi obblighi rispetto a quelli previsti dal regolamento (UE) 2024/1689 per i sistemi di intelligenza artificiale e per i modelli di intelligenza artificiale per finalità generali»[508].

[508] As stated in the dossier of 27 June 2025 of the Research Service of the Italian Parliament, drafted jointly by the Senate of the Republic and the Chamber of Deputies, concerning the provisions and delegation to the Italian Government regarding artificial

Nevertheless, the subsequent art. 14 of the same law establishes that «le pubbliche amministrazioni utilizzano l'intelligenza artificiale (…) assicurando agli interessati la conoscibilità del suo funzionamento e la tracciabilità del suo utilizzo» (paragraph 1) and that «l'utilizzo dell'intelligenza artificiale avviene in funzione strumentale e di supporto all'attività provvedimentale, nel rispetto dell'autonomia e del potere decisionale della persona che resta l'unica responsabile dei provvedimenti e dei procedimenti in cui sia stata utilizzata l'intelligenza artificiale» (paragraph 2). As is evident, the wording of these provisions (which refer generically to «intelligenza artificiale»), in enshrining the principles of transparency and non-exclusivity of the algorithmic decision previously developed by administrative case law, applies to all AI systems used by the P.A., regardless of whether the European Union classifies them as high, limited or minimal risk[509].

This being the case, it would seem that we are faced with a legal contradiction: on the one hand, the AI Act states that for limited-risk systems used by the P.A., human oversight is not required; on the other hand, Article 3 of the Italian law states that no new obligations are introduced with respect to the AI Act; on the other hand, art. 14 imposes obligations of human oversight and transparency for all systems in use by the P.A., including those at limited risk. How is this contradiction resolved? Is art. 14 a violation of the prohibition placed by art. 3?

Part of the legal scholarship has already had the opportunity to dwell on this problem, observing, on the one hand, that many automated administrative decisions could fall into the limited or minimal risk categories (evading the more stringent obligations of transparency and human oversight) and warning, on the other hand, that an excess of national regulatory zeal could result in a violation of the prohibition of "gold plating" (which occurs

---

intelligence (now merged into Law 132/2025), «le disposizioni della presente legge si intendono 'ricettive' del dispositivo dell'AI Act. Dunque non si hanno obblighi altri rispetto a quelli posti da quella fonte» (p. 16). For further details, please refer to the full text of the dossier available at Italian Senate.

[509] This interpretation is confirmed by the cited dossier of 27 June 2025, which, analyzing art. 14, specifies that «L'articolo 14 pone talune previsioni di ordine generale circa l'utilizzo dell'intelligenza artificiale nei procedimenti della pubblica amministrazione, alla stregua di principi quali la conoscibilità, tracciabilità, strumentalità rispetto alla decisione spettante comunque alla persona responsabile dell'agire amministrativo», followed by the observation that «i principi così formulati concernono un ambito di utilizzo dell'intelligenza artificiale – da parte delle pubbliche amministrazioni – sul quale, se allo stato non sono intervenute pronunzie della Corte costituzionale, si è profilata ormai una prima giurisprudenza amministrativa» (p. 49).

when a Member State, in implementing EU rules, adds bureaucratic burdens or higher standards than those required by the Union, thus fragmenting the single market[510]), endangering the primacy of European Union law and generating application uncertainties lethal for an innovative sector like AI. To obviate this danger, these scholars support not only the opportunity but also the legal necessity of a national regulatory intervention accompanying the AI Act, arguing that such intervention is permissible within the framework of relations between domestic and Union law for several reasons. First, the AI Act does not aim for radical uniformity but rather for the approximation of laws, leaving room for manoeuvre for Member States. Second, the Regulation does not cover the use of AI in sectors that fall outside Union law or that do not prejudice national competences in matters of national security. It is proposed, therefore, to interpret the national intervention not as gold plating (the addition of superfluous bureaucratic burdens), but as a form of spontaneous harmonisation, aimed at extending the guarantees provided for high-risk systems also to those that, although not falling under Annex III, are used by the PA, thus raising the level of protection of fundamental rights. In conclusion, according to this part of legal scholarship, the operational proposal

---

[510] With regard to gold plating, the first statutory reference to be recalled is Law 24 December 2012, no. 234, laying down «Norme generali sulla partecipazione dell'Italia alla formazione e all'attuazione della normativa e delle politiche dell'Unione europea», which at art. 32 (headed «Principi e criteri direttivi generali di delega per l'attuazione del diritto dell'Unione europea») establishes that «Salvi gli specifici principi e criteri direttivi stabiliti dalla legge di delegazione europea e in aggiunta a quelli contenuti nelle direttive da attuare, i decreti legislativi di cui all'articolo 31 sono informati ai seguenti principi e criteri direttivi generali: (…) c) gli atti di recepimento di direttive dell'Unione europea non possono prevedere l'introduzione o il mantenimento di livelli di regolazione superiori a quelli minimi richiesti dalle direttive stesse, ai sensi dell'articolo 14, commi 24-bis, 24-ter e 24-quater, della legge 28 novembre 2005, n. 246» (paragraph 1). In particular, paragraph 24-ter of art. 14 of Law 246/2005 specifies that «Costituiscono livelli di regolazione superiori a quelli minimi richiesti dalle direttive comunitarie: a) l'introduzione o il mantenimento di requisiti, standard, obblighi e oneri non strettamente necessari per l'attuazione delle direttive; b) l'estensione dell'ambito soggettivo di applicazione delle regole rispetto a quanto previsto dalle direttive, ove comporti maggiori oneri amministrativi per i destinatari; c) l'introduzione o il mantenimento di sanzioni, procedure o meccanismi operativi più gravosi o complessi di quelli strettamente necessari per l'attuazione delle direttive». For an in-depth analysis of the prohibition of gold plating, see C. Burelli, Il gold plating e l'armonizzazione "spontanea", due tecniche legislative a confronto, in Riv. Ital. Dir. Pubbl. Comunitario, 5-6, 2022, pp. 617-689, who subdivides this phenomenon into two types: active and passive. While "active" gold plating is understood as «la circostanza per cui il legislatore nazionale aggiunge – per l'appunto, attivamente – ulteriori e diversi requisiti rispetto a quelli previsti nella disciplina "comunitaria" rilevante», "passive" gold plating is understood as «l'ipotesi in cui il legislatore, non abrogando delle disposizioni nazionali preesistenti alla normativa UE, mantiene dei requisiti ulteriori» (p. 632).

would not be to create a new law on AI, but to implement targeted and circumscribed interventions within the fundamental Italian Administrative Procedure Act[511].

I do not believe this theoretical approach can be endorsed, as it rests on an erroneous assumption about the nature of the normative conflict described. The theory of spontaneous harmonisation, in fact, attempts to justify an exception to a risk (gold plating) that, upon closer inspection, does not legally exist in the present case, and this for two reasons.

The first is that the concept of gold plating refers only to the transposition phase of European Union directives and indicates the introduction of regulatory levels higher than those required by the directive itself, burdening the national legal system. In the case of the AI Act, we are facing a Regulation, an act that is directly applicable and does not require transposition[512]. With respect to Regulations, the defect to be avoided is not gold plating, but the violation of the prohibition on introducing acts that hinder the uniform application of EU law. Speaking of gold plating in relation to a Regulation is therefore conceptually inappropriate, with the consequence that art. 3, paragraph 5, of Law 132/2025 should be understood more correctly as a clause of non-interference with maximum market harmonisation, rather than as a prohibition of gold plating in a technical sense[513]. This theory, in my

---

[511] G. Gallone, L'improcrastinabile esigenza di tracciare una via "italiana" per l'intelligenza artificiale nel procedimento amministrativo. Opportunità e legittimità di un intervento regolatorio nazionale a corredo dell'AI Act, in Giustizia Insieme, 26 June 2025. The proposed amendments include the explicit insertion among the general principles (art. 1) of the requirement for human intervention or non-exclusivity of algorithmic decision-making, the recognition of AI as a tool of administrative action (art. 3-bis), and the mandatory provision of human intervention by the person responsible for the procedure in the fact-finding and decision-making phase (arts. 6 and 10-bis). Finally, an update of the rules on access (arts. 22 et seq.) is hoped for to ensure the knowability and explainability of the algorithm's functioning, aligning Law 241/1990 with the principles already expressed by the new Public Contracts Code.

[512] Moreover, the Regulation explicitly specifies those areas where Member States retain a discretionary margin for domestic implementation. This is evident, for instance, in the designation of national competent authorities responsible for the enforcement of the AI Act (art. 70) and the definition of the rules relating to penalties, although the Regulation establishes their maximum ceilings (art. 90).

[513] Moreover, it should not be overlooked that, even hypothetically admitting the applicability of the prohibition of gold plating to European regulations, the cited paragraph 1 of art. 32 of Law 234/2012 would consequently become applicable, which in turn recalls paragraph 24-quater of art. 14 of Law 246/2005, which states that «L'amministrazione dà conto delle circostanze eccezionali, valutate nell'analisi d'impatto della regolamentazione, in

opinion, is corroborated by the position expressed by the European Commission in the detailed opinion C(2024) 7814 sent to Italy on 5 November 2024, which criticized several articles of the Italian bill on artificial intelligence (now merged with amendments into Law 132/2025), accusing it of violating the principle, elaborated by the case law of the Court of Justice of the European Union, of non-duplication of the provisions of a European regulation in national law, concealing their origin in Union law[514].

The second reason is that, even assuming, hypothetically, a risk of gold plating (or rather, of violation of the prohibition of duplication of the

---

relazione alle quali si rende necessario il superamento del livello minimo di regolazione comunitaria. Per gli atti normativi non sottoposti ad AIR, le Amministrazioni utilizzano comunque i metodi di analisi definiti dalle direttive di cui al comma 6 del presente articolo». On this point, the Italian Constitutional Court, with judgement no. 100 of 27 May 2020, clarified that the prohibition of gold plating is not a principle of EU law, but an internal directive criterion aimed at avoiding the introduction of additional administrative and technical burdens that, compared to the minimum required by EU law, end up hindering competition to the detriment of companies and citizens. This prohibition must therefore be interpreted in a functional key: it operates against "unnecessary" burdens, but does not impose lowering the level of guarantees when these serve to protect constitutional values of superior importance – such as the transparency of administrative action, efficiency and the protection of competition itself – with respect to which the needs of mere simplification result as recessive. In this perspective, the heightened duty to give reasons required for *in-house* awards was deemed legitimate precisely because it is a pro-competitive and transparency measure, addressed to the administration and not to private parties, and therefore not attributable to prohibited gold plating. On a systematic level, the same argumentative scheme, in my opinion, would allow justifying, in a constitutionally oriented key, even more rigorous levels of regulation on the subject of algorithmic legality: the reinforced obligations of transparency, explainability, human oversight and non-discrimination, that is, could be defined as forms of "axiological" gold plating, admissible to the extent that they result instrumental to guaranteeing the effectiveness of arts. 3, 24 and 97 of the Constitution in administrative procedures that employ AI systems.

[514] The CJEU case law recalled in the European Commission's opinion is that elaborated on the occasion of case 34/73 (Fratelli Variola) and case 50/76 (Amsterdam Bulb). Unfortunately, the full text of opinion C(2024) 7814 has not been made public. However, the textual content of the observations was read and officially transcribed in the Summary Report no. 214 of the Senate of 27 November 2024, available on the Italian Senate. The opinion contested in particular: at art. 2, the definitions of «modelli di IA» and «sistemi di IA» not aligned with the European ones; at art. 5, the restrictions on data localization deemed unjustified if not for national security reasons; at art. 7, the additional information obligations in the health sector; at art. 12, the prohibitions on the use of AI for intellectual professions if not limited to high-risk systems; at art. 14, the limitations on the use of AI in the justice sector to ancillary activities only; at arts. 18 and 22, the deficiencies in terms of independence for the designated national Authorities (AgID and ACN); at art. 23, the overlap of labelling obligations with what is already provided by art. 50 of the European regulation.

provisions of a European regulation in national law), in the case of article 14, no unlawfulness would arise, as, in my opinion, there is a radical diversity of the object of regulation. On the one hand, the AI Act regulates artificial intelligence as a "product", establishing the technical and safety requirements that an AI system must meet to be placed on the single market. On the other hand, instead, the Italian law regulates administrative action and the methods of exercising public power: the principles of algorithmic legality elaborated by administrative case law (knowability, non-exclusivity, non-discrimination) and now codified in art. 30, paragraph 3, of Legislative Decree 36/2023 as well as in art. 14 of Law 132/2025, refer in fact to the level of procedural guarantees in the relations between State and citizen. Therefore, Italy is not imposing new obligations on AI systems as a "product" (which remain compliant with EU rules even if they pose limited risk), but is imposing an obligation of conduct on the deploying administration at the procedural level. Consequently, the national public authority is not prohibited from purchasing a limited-risk AI system (which the EU leaves free from technical design and development requirements), but, at the moment it uses it to decide on citizens' rights, it must respect the principles of algorithmic legality. In other words, we could argue that if the EU regulates the technology, Italy regulates the administrative function. Consequently, in my opinion, it would not be necessary to invoke spontaneous harmonisation to save the norm; it should be considered *ab origine* legitimate because it concerns a matter (the national administrative procedure) that is not the subject of harmonisation under the Regulation.

Ultimately, my argument is that Law no. 132/2025 – pending the implementing legislative decrees – is capable of filling the protection void left by the AI Act for non-high-risk systems not through spontaneous harmonisation, but by legitimately exercising national competence on the administrative procedure. Law no. 132/2025 does not appear to violate Union law because, at art. 14, it does not ask the software to be different from how Europe wants it, but asks the Administration to be different from a machine, guaranteeing the constitutional principles of algorithmic legality and at the same time, through art. 3 – non-interference in the single market.

9. The liability of the public administration for damage caused by AI systems

The principle of liability, an essential corollary of the principle of legality, finds its primary normative basis in Article 28 of the Constitution, which establishes the direct liability of officials and employees of the State and public entities for acts performed in violation of rights, providing that

civil liability also extends to the State and the public entities themselves. The purpose of this constitutional provision is twofold: on the one hand, to promote a sense of responsibility in the public officer as a measure to prevent the violation of the rights of the applicant[515]; on the other hand, to guarantee the applicant compensation for the damage through the co-extension of liability to the Administration[516].

However, the assertion of the Public Administration's liability has historically been complex. Initially, liability was recognised primarily for private law activity (*iure gestionis*), while its applicability to public law activity (*iure imperii*) was debated[517]. Only subsequently was the liability of the Public Administration also recognised in public law matters. Subsequent legal scholarship and case law, even before the Constitution entered into force, had affirmed the theory of direct liability, or liability for the administration's own act[518], thereby overcoming the principle of indirect liability of the employer for the acts of others[519]. The last stage of this evolution, culminating in the historic judgement of the Italian Supreme Court of Cassation, Joint Sections, judgement no. 500/1999, was the fall of the dogma of the non-compensability of damages caused by the violation of legitimate interests[520].

9.1. Civil liability

In the evolutionary perspective just described, the civil liability of the Public Administration is viewed as part of a complex system that also comprises criminal, administrative, accounting, disciplinary and managerial liability, placing itself within the broader context of the model of «amministrazione di risultato», the objective of which is the achievement of specific policy goals and the reporting of the economic and social results achieved[521].

---

[515] M. Protto, I profili costituzionali della responsabilità della P.A. e del pubblico dipendente, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 20.

[516] B.G. Mattarella, Lezioni di diritto amministrativo, cit., p. 237.

[517] M. Santise, La natura della responsabilità della P.A. per danni derivanti dall'illegittimo esercizio del potere, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, cit., p. 130.

[518] E. Casetta, F. Fracchia (eds.), op. cit., p. 622.

[519] M. Protto, op. cit., p. 27.

[520] On this, see R. Chieppa, L'evoluzione della responsabilità della pubblica amministrazione nell'ordinamento italiano, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, cit., p. 44 ff.

[521] F. Caringella. R. Chieppa, B.G. Mattarella (directed by), op. ult. cit., p. XI.

The configuration of the civil liability of the Public Administration depends on the nature of the injurious activity: whether it derives from physical acts (*attività materiale*) or from the exercise of the function of adopting administrative acts.

Regarding damages arising from physical acts or private law conduct, where the administration operates in accordance with the rules of ordinary law[522], case law has consistently applied the norms of ordinary law, tracing liability back to the tortious scheme set out in Article 2043 of the civil code, since, in these hypotheses, the administration acts on an equal footing with private individuals[523].

9.1.1. The legal nature of the liability of the Public Administration for the unlawful exercise of public functions: the debate between the theory of *contatto sociale qualificato* and the tortious nature pursuant to Article 2043 of the Italian Civil Code.

---

[522] G. Vigliotti, L'attività materiale, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 285, who specifies that «I comportamenti paritetici vengono in rilievo quando la pubblica amministrazione opera secondo le regole del diritto comune, senza avvalersi di prerogative pubblicistiche. In tali situazioni, l'amministrazione agisce alla stregua di un soggetto privato e i rapporti con i destinatari sono regolati dalle norme civilistiche». Private-law acts and pre-contractual and contractual conduct fall into this category.

[523] M. Interlandi, La responsabilità per danni da comportamenti materiali, in F. Caringella, R. Chieppa. B.G. Mattarella (directed by), Responsabilità, *cit.*, p. 115. For an in-depth analysis on the subject of the civil liability of the Public Administration for damages deriving from physical acts, executive activities not supported by a legal basis, behaviors not connected to the exercise of power (so-called «comportamenti meri») or violations of rules of ordinary law (e.g. articles 2043, 2050, 2051, civil code), see F. Bocchini, Azione amministrativa materiale e diritti dei cittadini, CEDAM, Padova, 2011; G.D. Comporti, Il cittadino viandante tra insidie e trabocchetti: viaggio alla ricerca di una tutela risarcitoria praticabile, in Diritto amministrativo, 2009, p. 663 ff.; R. Caranta, La responsabilità extracontrattuale delle pubbliche amministrazioni, Giuffrè, Milano, 1993; R. Alessi, L'illecito e la responsabilità civile degli enti pubblici, Giuffrè, Milano, 1972; G. Duni, Lo Stato e la responsabilità patrimoniale, Giuffrè, Milano, 1968; S. Rodotà, Il problema della responsabilità civile, Giuffrè, Milano, 1964; E. Casetta, L'illecito degli enti pubblici, Giappichelli, Torino, 1953 (reprint version 2023); R. Alessi, La responsabilità della pubblica amministrazione, Giuffrè, Milano, 1939; C. Vitta, Nuovi cenni sulla responsabilità dell'amministrazione pubblica per fatti illeciti, in Giurisprudenza italiana, 1929, IV, p. 1 ff.; G. Vacchelli, La responsabilità civile della pubblica amministrazione ed il diritto comune, Hoepli, Milano, 1892.

The picture, however, becomes complicated regarding the liability deriving from the unlawful exercise of administrative power[524]. In this regard,

[524] On the subject of liability for violation of legitimate interests, for adoption of unlawful acts, for delay in the conclusion of the proceeding and for the violation of the rules of fairness and good faith in the exercise of power, see M. Santise, La natura della responsabilità della P.A. per danni derivanti dall'illegittimo esercizio del potere, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, *cit.*, pp. 129-144; M. Antonioli, Rapporto senza potere e tutela dell'affidamento. Le nuove frontiere della responsabilità civile della P.A., Giappichelli, Torino, 2022; G.M. Racca, La responsabilità delle organizzazioni pubbliche nella trasformazione digitale e i principi di collaborazione e buonafede, Diritto amministrativo, 3, 2022, 601 ff.; M. Trimarchi, Sulla responsabilità precontrattuale della pubblica amministrazione, Diritto amministrativo, 3, 2022, 705 ff.; C. Scognamiglio, Sulla natura della responsabilità della pubblica amministrazione da lesione dell'affidamento del privato sorto a seguito di un comportamento della medesima, Corr. giur., 2020, 1025; G.D. Comporti, La responsabilità relazionale a tutela degli affidamenti dei cittadini, Giur. it., 2020, 2538; M. Renna, Responsabilità della pubblica amministrazione: A) Profili sostanziali, in Enc. dir., Annali, IX, Giuffrè, Milano, 2016, 801 ff.; S. Vernile, La relatività del tempo (amministrativo): la validità del provvedimento tardivo e la tutela risarcitoria (e indennitaria) tra esigenze di tutela del privato e perseguimento dell'interesse pubblico, Dir. econ., 2/2015, 403 ff.; A. Travi, Annullamento del provvedimento favorevole e responsabilità dell'amministrazione, Foro it., I/2011, 2398; F. Trimarchi Banfi, La responsabilità civile per l'esercizio della funzione amministrativa. Questioni attuali, Giappichelli, Torino, 2009; S. Cimini, La colpa nella responsabilità civile delle Amministrazioni pubbliche, Giappichelli, Torino, 2008; E. Follieri, Il modello per lesione di interessi legittimi nella giurisdizione di legittimità del giudice amministrativo: la responsabilità amministrativa di diritto pubblico, Diritto processuale amministrativo, 1, 2006, p. 18 ff.; M. Renna, Obblighi procedimentali e responsabilità dell'amministrazione, Diritto amministrativo, 3, 2005, 557 ff.; M.C. Cavallaro, Potere amministrativo e responsabilità civile, Giappichelli, Torino, 2004; A. Romano Tassone, La responsabilità della p.a. tra provvedimento e comportamento, Diritto amministrativo, 2004, 224; A. Zito, Il danno da illegittimo esercizio della funzione amministrativa. Riflessioni sulla tutela dell'interesse legittimo, Editoriale Scientifica, Napoli, 2003; M.C. Cavallaro, Atto amministrativo illegittimo: un caso di responsabilità contrattuale?, Riv. Giur. Ed., 2002, 909 ff.; M. Bussani, Colpa e responsabilità della P.A. nella lesione di interessi legittimi, Eur. dir. priv., 2002, 452; M. Protto, La responsabilità della p.a. per lesione di interessi legittimi come responsabilità da contatto amministrativo, Resp. civ. prev., 2001, 235 ff.; G.M. Racca, La responsabilità precontrattuale della pubblica amministrazione tra autonomia e correttezza, Jovene, Napoli, 2000; F.G. Scoca, Risarcibilità e interesse legittimo, Dir. pubbl., 2000, 13 ff.; C. Castronovo, L'interesse legittimo varca la frontiera della responsabilità civile, Eur. dir. priv., 1999, 1264 ff.; E. Follieri, Il risarcimento del danno per lesione di interessi legittimi alla luce del d.lgs. n. 80/1998, Riv. dir. priv., 3/1998, 453 ff.; M. Cafagno, La tutela risarcitoria degli interessi legittimi. Fini pubblici e reazioni di mercato, Giuffrè, Milano, 1996; E. Follieri, Risarcimento dei danni per lesione di interessi legittimi, Marino Solfanelli, Chieti, 1984; E. Capaccioli, Interessi legittimi e risarcimento dei danni, in Diritto e processo. Scritti vari di diritto

an interpretive conflict has developed between administrative and civil case law, centred on the nature of liability. On one side, the case law of the Joint Sections of the Court of Cassation has taken a stand, supporting the theory of «contatto sociale qualificato», based on the reading of art. 1173 of the civil code, according to which obligations can derive from «ogni altro atto o fatto idoneo a produrle in conformità dell'ordinamento giuridico». According to this reconstruction, when the private citizen enters into a relationship with the Public Administration – typically through the initiation of an administrative proceeding – a special relationship (*contatto sociale qualificato*) is established which, given the nature and the *status* of the public entity, gives rise to a duty of care and is, indeed, a fact capable of giving rise to reciprocal duties of protection[525] rather than duties to render performance. The logical prerequisite is that the Administration, unlike any private party in tortious liability, is not a stranger at the moment it produces the damage. The Joint Sections, in particular, noted that the contact between the private party and the P.A. becomes «specifico e differenziato» by virtue of the guarantees that assist the interlocutor in the procedural activity[526], whereby the private party holds a – legally relevant – legitimate expectation regarding the correctness of the administrative action[527].

Despite the success of the doctrine of the special relationship (*contatto sociale qualificato*) in the case law of the Court of Cassation, it has met with clear dissent from the Plenary Assembly of the Council of State, which, with judgement no. 7 of 2021, qualified the liability of the P.A. for unlawful exercise of public powers as tortious. According to this currently prevailing approach,

---

pubblico, Cedam, Padova, 1978, 111 ff.; A.M. Sandulli, Lesione di interessi legittimi e obbligazione risarcitoria della pubblica Amministrazione, Riv. trim. dir. e proc. civ., 1963, 1279; G. Miele, Risarcibilità dei danni derivanti da ingiusta lesione di interessi legittimi ad opera della pubblica Amministrazione, Foro it., 1963, IV, 26.

[525] Cass. civ., SS.UU., order of 28 April 2020, no. 8236, § 33: «(…) le Sezioni Unite ritengono di dover valorizzare – generalizzandone gli esiti oltre il mero ambito dell'attività contrattuale della pubblica amministrazione – l'orientamento che connota la responsabilità da lesione dell'affidamento del privato entrato in relazione con la pubblica amministrazione come responsabilità da contatto sociale qualificato dello status della pubblica amministrazione quale soggetto tenuto all'osservanza della legge come fonte della legittimità dei propri atti. Il contatto, o, per meglio dire, il rapporto tra il privato e la pubblica amministrazione deve essere inteso come il fatto idoneo a produrre obbligazioni «in conformità dell'ordinamento giuridico» (art. 1173 c.c.) dal quale derivano, a carico delle parti, non obblighi di prestazione, bensì reciproci obblighi di buona fede, di protezione e di informazione, giusta gli artt. 1175 (correttezza), 1176 (diligenza) e 1337 (buona fede) del codice civile».

[526] Ibid., § 33.1.

[527] Ibid., § 33.2.

within the scope of an administrative proceeding, a relationship of obligation cannot be established for two reasons. The first is that in the administrative relationship there exist two active situations: on the one hand, the power of the P.A. (characterized by the supremacy necessary to pursue the ends determined by law), and, on the other hand, the legitimate interest of the private citizen, with the consequence that such asymmetry cannot be reconciled with the idea of a parity relationship typical of contractual liability. The second reason is that the P.A. cannot be assimilated to a debtor contractually bound to render due performance to the private party. Within the scope of the administrative proceeding, a legal obligation is not imposed on the administration; rather, a power attributed by law must be exercised in conformity with the same and with the canons of correct use of power[528].

---

[528] Cons. Stato, Ad. Plen., judgement of 23 April 2021, no. 7, § 4, where it is observed that «La responsabilità da inadempimento si fonda, ai sensi dell'art. 1218 cod. civ., sul non esatto adempimento della «prestazione» cui il debitore è obbligato in base al contratto. Un vincolo obbligatorio di analoga portata non può essere configurato per la pubblica amministrazione che agisca nell'esercizio delle sue funzioni amministrative e quindi nel perseguimento dell'interesse pubblico definito dalla norma attributiva, che fonda la causa giuridica del potere autoritativo. Sebbene a quest'ultimo si contrapponga l'interesse legittimo del privato, la relazione giuridica che si instaura tra il privato e l'amministrazione è caratterizzata da due situazioni soggettive entrambe attive, l'interesse legittimo del privato e il potere dell'amministrazione nell'esercizio della sua funzione. In questo caso quindi è configurabile non già un obbligo giuridico in capo all'amministrazione -rapportabile a quello che caratterizza le relazioni giuridiche regolate dal diritto privato- bensì un potere attribuito dalla legge, che va esercitato in conformità alla stessa e ai canoni di corretto uso del potere individuati dalla giurisprudenza. Né la fattispecie in esame può essere ricondotta alla dibattuta, in dottrina come in giurisprudenza, nozione di “contatto sociale”, in quanto, a tacer d'altro, oltre a quanto osservato sulla natura del "rapporto amministrativo", la relazione tra privato e amministrazione è comunque configurata in termini di "supremazia", cioè da un'asimmetria che mal si concilia con le teorie sul "contatto sociale" che si fondano sulla relazione paritaria». Consequently, the Court continues, «il paradigma cui è improntato il sistema della responsabilità dell'amministrazione per l'illegittimo esercizio dell'attività amministrativa o per il mancato esercizio di quella doverosa, devoluto alla giurisdizione amministrativa, è quello della responsabilità da fatto illecito. Anche in un'organizzazione dei pubblici poteri improntata al buon andamento, in cui si afferma il modello dell'amministrazione “di prestazione”, quest'ultima mantiene rispetto al privato la posizione di supremazia necessaria a perseguire “i fini determinati dalla legge” (art. 1, comma 1, della L. n. 241 del 1990), con atti di carattere autoritativo in grado di incidere unilateralmente sulla sfera giuridica del privato. Nel rapporto amministrativo contraddistinto dalla ora descritta asimmetria delle posizioni si manifesta ad un tempo l'essenza dell'ordinamento giuridico di diritto amministrativo e allo stesso tempo si creano le condizioni perché la pubblica amministrazione -per ragioni storiche, sistematiche e normative- non possa essere

9.1.2. The elements of the tort: the conduct, the unlawfulness of the damage due to the violation of legitimate interests, and the notion of *colpa d'apparato*

The recognition of the tortious nature entails, as a primary consequence, the application of the evidentiary regime provided for by Article 2043 of the civil code, which is certainly more onerous for the injured party compared to contractual liability. The constituent elements that the private citizen must allege and prove are the tortious conduct, the unjust damage, the causal link, and the subjective element.

The conduct can manifest itself in both commissive and omissive forms and in relation to two types of activity: material, where the P.A. acts in a parity position with private citizens (*iure gestionis*), and related to acts, where what arises is the failure to exercise or the unlawful exercise of public authority (*iure imperii*). For the conduct to be imputed to the P.A., the tort must be committed by the official – a natural person – in the exercise of the duties inherent to the position held[529]. The entity is directly liable (pursuant to art. 2043 of the civil code) when the conduct is aimed at the incorrect pursuit of the public interest. If, on the other hand, the official acts for exclusively private ends (for example, due to corruption), the Administration is liable only indirectly (pursuant to art. 2049 of the civil code), but this only if a necessary functional link (*nesso di occasionalità necessaria*) can be established, that is, if the public officer's position provided the opportunity to commit the tort[530].

After verifying the existence of the conduct, one proceeds to verify whether it caused a prejudice classified as unjust damage, understood as a violation, caused non jure, of the subjective legal positions of others recognised and protected by the legal system. Following the definitive assertion of the atypicity of the tort, in the terms specified by judgment no. 500/1999 of the Court of Cassation, unjust damage is established not only by the violation of a subjective right, but also by the violation of a legitimate interest[531], in

---

assimilata al "debitore" obbligato per contratto ad "adempiere" in modo esatto nei confronti del privato. Nel descritto quadro l'esercizio della funzione pubblica, manifestatosi tanto con l'emanazione di atti illegittimi quanto con un'inerzia colpevole, può quindi essere fonte di responsabilità sulla base del principio generale *neminem laedere* (…)» (§ 9).

[529] E. Casetta, F. Fracchia, op. cit., p. 621.

[530] In these terms the Joint Sections of the Italian Court of Cassation expressed themselves with judgement of 16 May 2019, no. 13246.

[531] Cass. civ., SS.UU., judgement of 22 July 1999, no. 500, § 9, according to which «la lesione di un interesse legittimo, al pari di quella di un diritto soggettivo o di altro interesse

particular in its substantialist dimension. However, compensation for the violation of legitimate interests to obtain a benefit (i.e. those aimed at the expansion of the legal position of the interested party) does not descend from the mere unlawfulness of the act (*danno-evento*), but requires proof of the consequential damage (*danno-conseguenza*)[532] and, above all, the ascertainment that the private citizen would have been entitled to obtain the substantive benefit sought (so-called predictive assessment, or *giudizio prognostico*)[533]. Therefore, if the unlawfulness of the act derives only from formal defects (such as insufficient reasoning) and the Administration would have had to refuse to issue the requested act anyway in the absence of the defect, the damage is therefore excluded.

The unjust damage, thus ascertained, must be causally linked to the conduct of the public entity. Hence the so-called causal link comes into play, which is the objective element linking the tortious fact to the consequential damage (*danno-conseguenza*), and the burden of proving it falls entirely on the injured party. In administrative law, just like in civil law, factual causation (*causalità materiale*) and legal causation (*causalità giuridica*) are distinguished. The first is the link between the tortious conduct and the

---

(non di mero fatto ma) giuridicamente rilevante, rientra infatti nella fattispecie della responsabilità aquiliana solo ai fini della qualificazione del danno come ingiusto. Ciò non equivale certamente ad affermare la indiscriminata risarcibilità degli interessi legittimi come categoria generale. Potrà infatti pervenirsi al risarcimento soltanto se l'attività illegittima della P.A. abbia determinato la lesione dell'interesse al bene della vita al quale l'interesse legittimo, secondo il concreto atteggiarsi del suo contenuto, effettivamente si collega, e che risulta meritevole di protezione alla stregua dell'ordinamento. In altri termini, la lesione dell'interesse legittimo è condizione necessaria, ma non sufficiente, per accedere alla tutela risarcitoria under art. 2043 c.c., poiché occorre altresì che risulti leso, per effetto dell'attività illegittima (e colpevole) della P.A., l'interesse al bene della vita al quale l'interesse legittimo si correla, e che il detto interesse al bene risulti meritevole di tutela alla luce dell'ordinamento positivo». On this point, see also Cons. Stato, Ad. Plen., judgement of 23 April 2021, no. 7, § 12, in the sense that «solo se dall'illegittimo esercizio della funzione pubblica sia derivata per il privato una lesione della sua sfera giuridica quest'ultimo può fondatamente domandare il risarcimento per equivalente monetario. Secondo un orientamento risalente di questa Adunanza plenaria, mai posto in discussione, il risarcimento è quindi escluso quando l'interesse legittimo riceva tutela idonea con l'accoglimento dell'azione di annullamento, ma quest'ultimo sia determinato da una illegittimità, solitamente di carattere formale, da cui non derivi un accertamento di fondatezza della pretesa del privato ma un vincolo per l'amministrazione a rideterminarsi, senza esaurimento della discrezionalità ad essa spettante (cfr. Cons. Stato, Ad. plen., 3 dicembre 2008, n. 13; 3.3 - 3.5)».

[532] The *danno evento* is defined as the «lesione della situazione giuridica lesa», while the *danno conseguenza* is defined as the «danno effettivamente patito» (M. Santise, op. cit., p. 133).

[533] Cass. civ., SS.UU., judgement of 22 July 1999, no. 500, § 9.

injurious event (*danno-evento*)[534], which follows the rules dictated by articles 40 and 41 of the Penal Code[535] and implies that the link may fail in the presence of a natural fact, a fact of a third party or of the injured party that was in itself suitable to determine the event[536]. The second, instead, concerns the delimitation of the compensable consequences and is inspired by the criterion of the «più probabile che non»[537]. To this end, recourse is made to the theory of causal regularity (*regolarità causale*) or adequate causation (*causalità adeguata*), based on which the consequences of the *danno-evento* that stand as an ordinary and predictable development of the conduct are compensable, excluding those determined by exceptional or abnormal factors[538].

The final element of the tort is the subjective element, requiring that the conduct be at least slightly negligent or wilful. However, as observed by scholars, for the Administration as a complex organisation, the identification of the subjective element presents difficulties, since both intent and negligence are psychological conditions that are more readily attributable to natural persons[539]. To overcome the difficulties of imputing such conditions to an immaterial entity, the case law has elaborated the concept of "institutional negligence" (*colpa d'apparato*), which arises when the adoption and execution of the unlawful act take place in violation of the rules of impartiality, correctness and good administration by which the exercise of the function must be inspired[540].

---

[534] M. Santise, ult. loc. cit.

[535] On the point, see judgement no. 7/2021 of the Plenary Assembly of the Council of State, which reaffirmed the distinction between legal causation and factual causation, specifying that «attraverso quest'ultima, logicamente prioritaria rispetto alla prima, si pongono in correlazione accadimenti naturali e per essa si applicano pertanto i criteri di stampo penalistico enunciati dagli artt. 40 e 41 cod. pen.; la causalità giuridica attiene invece alla delimitazione delle conseguenze risarcibili» (§ 18).

[536] M. Interlandi, op. cit., p. 119.

[537] M. Santise, ult. loc. cit.

[538] On the theory of causal regularity or adequate causation, see C.M. Bianca, Diritto civile. La responsabilità, vol. 5, Giuffrè, Milano, 2000, p. 149 ff.

[539] B.G. Mattarella, op. cit., p. 240.

[540] This concept was introduced by the cited judgement no. 500/1999 of the Civil Joint Sections, which at § 11 state that «l'imputazione non potrà quindi avvenire sulla base del mero dato obiettivo della illegittimità dell'azione amministrativa, ma il giudice ordinario dovrà svolgere una più penetrante indagine, non limitata al solo accertamento dell'illegittimità del provvedimento in relazione alla normativa ad esso applicabile, bensì estesa anche alla valutazione della colpa, non del funzionario agente (da riferire ai parametri della negligenza

9.1.3. The relationship between the liability of the Administration and the liability of the public officer: the provisions of Presidential Decree No. 3/1957 and the limitation to gross negligence for public officers

The wording of art. 28 of the Constitution has not, however, dissuaded a part of legal scholarship and case law from continuing to support, even after it entered into force, the theory of the direct liability of the Public Administration. More significantly, the ordinary lawmaker who previously had never dealt with the regulation of the liability of public officers and employees, included an entire chapter (Chapter II of Title II), dedicated to liability, in the Italian Consolidated Act on the Statute of Civil Servants (Presidential Decree no. 3/1957, unmodified, regarding liability, by legislative decree 165/2001), the provisions of which were subsequently extended, via legislation or interpretation, to all individuals contemplated in art. 28 of the Constitution. And so, under the heading «responsabilità verso i terzi», art. 22 of the cited decree of 1957 establishes the personal liability of the employee «che cagioni ad altri un danno ingiusto», defining the damage as unjust «derivante da ogni violazione dei diritti dei terzi commessa con dolo o colpa grave» (art. 23). As observed among scholars, it is clear that this regulation is aimed at generally lightening the civil liability of public officers and employees – according to the logic of the "glass bell" (*campana di vetro*) – deviating from the ordinary one through the substitution of the requirement of ordinary negligence (*colpa*), set out in art. 2043 of the civil code, with that of gross negligence (*colpa grave*)[541], which according to case law consists in the «evidente e marcata trasgressione di obblighi di servizio o regole di condotta», whereby «il comportamento tenuto deve concretizzarsi nell'inosservanza del minimo di diligenza richiesta ad un funzionario pubblico, tenendo conto della posizione rivestita, ovvero in una palese imperizia o una irragionevole imprudenza»; again according to consolidated case law, gross negligence consists in a «sprezzante trascuratezza dei doveri d'ufficio, resa estensiva attraverso un comportamento improntato a una grave diligenza o imprudenza ovvero ad una particolare noncuranza degli interessi pubblici (…) La colpa

---

o imperizia), ma della P.A. intesa come apparato (…) che sarà configurabile nel caso in cui l'adozione e l'esecuzione dell'atto illegittimo (lesivo dell'interesse del danneggiato) sia avvenuta in violazione delle regole di imparzialità, di correttezza e di buona amministrazione alle quali l'esercizio della funzione amministrativa deve ispirarsi e che il giudice amministrativo può valutare, in quanto si pongono come limi esterni alla discrezionalità».

[541] E. Casetta, F. Fracchia (eds.), op. cit., p. 621.

raggiunge il livello della gravità non per effetto del mero inadempimento di uno obbligo o della violazione di una norma, bensì quando la condotta illecita sia stata posta in essere senza quel minimo di diligenza, prudenza o perizia necessaria a impedire il danno. La colpa grave, in altri termini, si sostanzia nella inosservanza dei più elementari dettami di diligenza e delle basilari regole tecniche. La colpa grave, in altri termini, è la "massima negligenza". Non ogni condotta censurabile integra gli estremi della colpa grave, ma solo quella connotata da precisi elementi qualificanti, i quali, non potendosi configurare un criterio generale, vanno accertati caso per caso, in relazione alle modalità del fatto, all'atteggiamento soggettivo dell'autore, al rapporto tra tale atteggiamento e l'evento lesivo»[542]. Where the public entity has been held liable under Article 2043 of the civil code for damage caused to the third party, the public officer, pursuant to Article 18 of Presidential Decree of 10 January 1957, no. 3, must, in turn, compensate for the damage suffered by the entity, because he caused it in violation of service obligations[543].

It appears, therefore, clear how the case of the tort of employees for damage caused to third parties presents relevant differences compared to that of the Public Administration. As observed by case law, while for the liability of the public administration the institutional negligence, even slight (*lieve*), is sufficient, public employees are held liable, even in the direct action of the injured third party, only on the basis of gross negligence, as made explicit by art. 23 of Presidential Decree of 10 January 1957, no. 3, also recalled for the other sectors of public employment, wherein the liability towards third parties of employees is limited to violations committed with intent or gross

---

[542] Thus, most recently, Corte dei Conti, jur. sec., Regione Abruzzo, judgement of 4 March 2025, no. 10. In the same sense, see *ex multis* Corte dei Conti, jur. sec., Regione Abruzzo, judgement of 19 February 2025, no. 8; Corte dei Conti, jur. sec. Regione Abruzzo, judgement of 25 June 2024, no. 94; Corte dei Conti, jur. sec., Regione Calabria, judgement of 26 October 2023, no. 184; Corte dei Conti, jur. sec., Regione Emilia Romagna, judgement of 13 September 2022, no. 144; Corte dei Conti, jur. sec., Regione Liguria, judgement of 19 November 2021, no. 207; Corte dei Conti, jur. sec., Regione Molise, judgement of 26 September 2018, no. 63. Regarding the constitutionality of the aforementioned d.P.R. 3/1957, the Italian Constitutional Court, in its landmark judgement no. 2 of 1968, clarified that statutory provisions governing the liability of public officials or employees are deemed constitutional provided they do not entirely abrogate the liability of the individual or that of the public entity. The Court thereby recognized the legislature's prerogative to establish a special liability regime distinct from ordinary civil law – and more favorable to the employee and the employing administration – as long as liability is not annulled *in toto*.

[543] Art. 22, paragraph 2, of d.P.R. no. 3/1957 provides in fact that «l'amministrazione che abbia risarcito il terzo del danno cagionato dal dipendente si rivale agendo contro quest'ultimo a norma degli articoli 18 e 19»

negligence[544]. Such limitation, moreover, was deemed constitutionally legitimate, with the argument extending to the direct action of the third party by the Constitutional Court in judgement no. 371 of 1998, which deemed the intent of the lawmaker to prepare, towards administrators and public employees, a regulatory framework in which the fear of liability does not lead to delays or inaction in the performance of administrative activity as corresponding to constitutional principles, recognizing that it falls to the lawmaker to determine how much of the risk of the activity must remain chargeable to the apparatus and how much to the employee, in the search for a point of equilibrium such as to render, for employees and public administrators, the prospect of liability an incentive, rather than a disincentive[545]. In addition to the different degrees of negligence, the two types of liability also fall within different jurisdictions: the compensation claim brought against the administration for damages arising from the unlawful exercise of power falls within the jurisdiction of the administrative judge pursuant to art. 7 of the code of the administrative procedure, while direct action against a single employee must be instituted before the ordinary courts, thereby constituting a dispute between private citizens[546].

9.2. Administrative liability

9.2.1. Constitutional foundation and legal nature of administrative liability

Like civil liability, the primary normative basis of administrative liability is found in Article 28 of the Constitution, which establishes the direct liability of public officers and employees for acts that violate rights[547]. Such

---

[544] Cons. Stato, sec. VI, decision of 23 June 2006, no. 3981, § 7.3.

[545] Corte Cost., judgement of 11 November 1998, no. 371.

[546] Cass. civ., SS.UU., order of 3 October 2016, no. 19677. Cass. civ., SS.UU., order of 3 October 2016, no. 19677. As observed by E. Casetta, F. Fracchia (eds.), op. cit., p. 623, it is much more advantageous for the injured third party to seek compensation directly from the public entity under art. 2043 of the civil code both under the evidentiary aspect and therefore of the probability of a favourable outcome of the judgement, and in terms of the solvency of the debtor, whereby the clear intent of the Constituent to hold the individual directly liable towards the aggrieved party has been frustrated.

[547] On the administrative liability of the public officer, see A. Giordano, La responsabilità amministrativo-contabile, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, *cit.*, pp. 679-691; . Sciascia, La responsabilità erariale è ancora compatibile con le esigenze dell'attuale amministrazione o svolge un insostenibile impatto disfunzionale?, in Rivista della Corte dei conti, 1, 2024, pp. 51-62; C. Pinotti, La responsabilità amministrativa:

provision, in consecrating the principle of liability, connects it to the duty to ensure the buon andamento and the impartiality of the Administration, as enunciated by art. 97 of the Constitution, reiterating that from the relationship between employees and Public Administration arise precise duties towards the entire community[548].

Despite a historical debate on the legal nature of administrative liability, the prevailing theory frames it as a «speciale responsabilità patrimoniale di diritto pubblico»[549], which applies to public officers, or individuals equated to them, who, due to willful or negligent breach of their own service obligations, cause economic damage to the Public Administration[550]. Although administrative liability is comparable to compensatory liability in terms of both its legal regime and its function, it cannot be assimilated to civil liability[551]. Indeed, it possesses a hybrid character that combines compensatory purposes with punitive purposes, an aspect that is reflected in its structure and its constituent elements. From this perspective, legal scholarship has theorised this new, so to speak, "hybrid" conformation, positing it as an instrument to guarantee proper functioning (*buon andamento*), rather than the full compensation for the damage[552].

---

problematiche attuali e prospettive future, in Rivista della Corte dei conti – Quaderni, 2, 2022, pp. 95-105; G. Crepaldi, L'elemento soggettivo della responsabilità amministrativa prima e dopo il decreto semplificazioni, in Responsabilità civile e previdenza, 21, 2021, pp. 23-36; S.A. Cerrato, L. Grossi, Elementi fondamentali di responsabilità amministrativo-contabile e danno erariale, Giappichelli, Torino, 2021; L. Torchia, La responsabilità amministrativa, Giornale di diritto amministrativo, 6, 2020, pp. 763-768; V. Tenore, A. Napoli, Studio sulla responsabilità amministrativo-contabile davanti alla Corte dei Conti, Edizioni Scientifiche Italiane, Napoli, 2019; G. Bottino, Rischio e responsabilità amministrativa, Editoriale Scientifica, Napoli, 2017; D. Gasparrini Pianesi, La responsabilità amministrativa per danno all'erario, Giuffrè, Milano, 2017; P. Santoro, L'illecito contabile e la responsabilità amministrativa, Maggioli, Rimini, 2011; F.G. Scoca (ed.), La responsabilità amministrativa ed il suo processo, CEDAM, Padova, 1997.

[548] E.M. Fabrizio, Il danno indiretto, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), La Corte dei Conti, Giuffrè, Milano, 2022, p. 339.

[549] F. Izzo, La responsabilità erariale e la giurisdizione della Corte dei Conti, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Responsabilità, cit., p. 580.

[550] F. Vetrò, La giurisdizione della Corte dei Conti, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), cit., p. 45.

[551] Ibid., 42.

[552] For an in-depth analysis on this theory, to be attributed to Paolo Maddalena, see P. Maddalena, La colpa nella responsabilità amministrativa, in Rivista della Corte dei Conti, 2, 1997, pp. 272-286; Id., La nuova conformazione della responsabilità amministrativa alla luce della recente giurisprudenza della Corte costituzionale, in Amministrazione e contabilità dello Stato e degli enti pubblici, 5, 1999, pp. 399-421.

Jurisdiction in matters of administrative liability is attributed to the Italian Court of Auditors (*Corte dei conti*) by virtue of the reference, in art. 103, paragraph 2, of the Constitution, to «materie di contabilità pubblica». The Italian Code of Audit Justice (*Codice della giustizia contabile*), in art. 1, explicitly lists the proceedings concerning «responsabilità amministrativa per danno all'erario» (administrative liability for damage to public finances), together with judicial proceedings on public accounts (giudizi di conto) and other proceedings concerning public accounting, constituting the main modern form of *interpositio legislatoris* of the Court's competence[553]. The exercise of the action, withdrawn from the injured administration, belongs exclusively to the Regional Prosecutor of the *Corte dei conti*, an organ that acts for the protection of the general interest of public finance and assets, guaranteeing the protection of public interests in an objective and neutral capacity[554].

9.2.2. The elements of administrative liability

The configuration of administrative liability is based on constituent elements that, although partially overlapping with the schemes of non-contractual civil liability, present specificities linked to the public dimension of the action.

A subjective requirement of decisive importance is the so-called «rapporto di servizio», the existence of which is necessary to establish jurisdiction of the Court of Auditors. The case law has progressively expanded such notion, specifying how it postulates a functional relationship between the alleged author of the tort and the public administration, which does not necessarily imply an employment relationship in the proper sense, it being sufficient that the person (be it natural or legal, public or private) is inserted, on any legal basis (voluntary, coercive, honorary, *de facto* or employment), in the public organisational apparatus and is invested with the carrying out, in a continuous manner, of an activity governed by the rules proper to administrative action, thus participating in the activity of the Public Administration[555].

The conduct – the objective element of the tort – consists of tortious acts or omissions that are specifically identified as violations of service

---

[553] On the point, see Italian Constitutional Court judgements no. 773/1988 and no. 24/1993.

[554] F. Vetrò, op. cit., p. 61.

[555] In this sense, see, most recently, Cass. civ., SS.UU., order of 2 September 2024, no. 23452, § 13-14.

obligations[556]. As with civil liability, for administrative liability for damage to public finances to be attributed, it is indispensable that a causal link can be established between the officer's behaviour and the injurious event, understood as the relationship between two events that identifies one as the consequence of the other. Such a link, which constitutes part of the objective or material element of the case, is ascertained with a logic preliminary to the subjective element[557]. The *Corte dei Conti*, generally, prefers the criterion of adequate causation, evaluating *ex ante* if the cause was suitable to produce the effect, without taking into consideration the extraordinary or atypical effects of the conduct[558].

The subjective element required for the configuration of administrative liability is intent (*dolo*) or, at least, gross negligence (*colpa grave*)[559], which arises with the demonstration of a «evidente e marcata trasgressione degli obblighi di servizio o di regole di condotta che sia *ex ante* ravvisabile dal soggetto e riconoscibile per dovere di ufficio e si concretizzi nell'inosservanza del minimo di diligenza richiesto nel caso concreto o in una marchiana imperizia, superficialità e noncuranza, e non sussistano oggettive ed eccezionali difficoltà nello svolgimento dello specifico compito d'ufficio»[560]. Regarding intent, art. 21 of Decree-Law no. 76/2020 specified that it must refer to the harmful event in the criminal-law sense rather than the civil-law sense, requiring «la dimostrazione della volontà dell'evento dannoso». It must be specified, moreover, that art. 21, paragraph 2, of d.l. 76/2020 introduced temporarily (for reasons initially linked to the Coronavirus) the so-called "administrative liability shield for public officers" (*scudo erariale*), which limits the liability of the public employee for damage to public finances deriving from active conduct to cases of intent (*dolo*) only, while retaining liability for both wilful misconduct and gross negligence in cases of acts of omission or failure to act. The original validity period of such a shield was set

---

[556] G. Ferrari, E. Madeo, Manuale di contabilità pubblica, Giuffrè, Milano, 2019, p. 230.

[557] A. Iadecola, Il nesso causale, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), op. cit., p. 124.

[558] E. Casetta, E. Fracchia (eds.), op. cit., p. 649.

[559] The raising of the threshold for liability to «colpa grave», introduced with the reform of the 90s (law no. 639/1996), represented a derogation from the general principle of liability for «colpa lieve», unifying such regime with the civil liability of public employees towards third parties (ex art. 23, d.P.R. 3/1957).

[560] Such is the definition offered starting from the Joint Sections of the *Corte dei Conti* in judgements no. 56/A of 10 June 1997 and no. 23/A of 21 May 1998, confirmed by the most recent case law of the Court of Auditors (*ex multis*, Corte dei Conti, Campania, jur. sec., judgement no. 529 of 29 October 2024).

for 31 December 2021, but subsequent extensions postponed it for the implementation of the PNRR until 31 December 2025. Such legislative amendment, despite being deemed legitimate by the Constitutional Court (albeit with the clarification that the shield cannot become a permanent rule)[561], was strongly criticized by scholars, who observed how the parallel innovation of civil liability did not accompany the renewed arrangement of administrative liability for damage to public finances, still invocable by Public Administration before the ordinary courts – in deference to the orientation of the Civil Joint Sections of the Court of Cassation[562] – not only for gross

[561] Corte Cost., judgement of 6 June 2024, no. 132, with which the questions concerning constitutionality of art. 21, paragraph 2, of d.l. no. 76 of 2020 were declared unfounded, stating that «una disciplina provvisoria che limiti l'elemento soggettivo al dolo può essere non irragionevole, anche se indebolisce la funzione deterrente, in quanto radicata nella particolarità di uno specifico contesto» in which «il legislatore ha ritenuto indispensabile che l'amministrazione pubblica operasse senza remore». However, «le ricordate trasformazioni [...] non potrebbero concretizzarsi, sullo specifico piano dell'elemento soggettivo, in un regime ordinario che limitasse la responsabilità amministrativa alla sola ipotesi del dolo» since in such case «non si realizzerebbe una ragionevole ripartizione del rischio, che invece sarebbe addossato in modo assolutamente prevalente alla collettività». Therefore, «il legislatore non potrà limitare [...] l'elemento soggettivo al dolo - limitazione che ha trovato giustificazione esclusivamente in una disciplina provvisoria».

[562] According to Cass. civ., SS.UU., order of 4 October 2019, no. 24859, «è *ius receptum* che l'azione di responsabilità per danno erariale e quella con la quale le amministrazioni interessate possono promuovere le ordinarie azioni civilistiche di responsabilità sono reciprocamente indipendenti: la prima è volta alla tutela dell'interesse pubblico generale, al buon andamento della P.A. e al corretto impiego delle risorse pubbliche, con funzione prevalentemente sanzionatoria; la seconda è finalizzata, invece, al pieno ristoro del danno, con funzione riparatoria ed integralmente compensativa, a protezione dell'interesse particolare della singola amministrazione attrice. L'eventuale interferenza che può determinarsi tra tali giudizi pone esclusivamente un problema di proponibilità dell'azione di responsabilità (nonché di eventuale osservanza del principio del *ne bis in idem*), senza dar luogo a questione di giurisdizione (Cass., Sez. U., 21 ottobre 2005, n. 20343; Cass., Sez. U, 24 marzo 2006, n. 6581; Cass., Sez. U, 4 gennaio 2012, n. 11; Cass., Sez. U., 28 novembre 2013, n. 26582; Cass., Sez. U., 18 dicembre 2014, n. 26659. Poiché l'azione di responsabilità contabile nei confronti del dipendente di un'amministrazione pubblica non è sostitutiva delle ordinarie azioni civilistiche di responsabilità nei rapporti tra l'amministrazione e il soggetto danneggiante, la singola P.A. danneggiata ben può promuovere dinanzi al giudice ordinario l'azione civilistica di responsabilità a titolo risarcitorio, facendo valere il proprio interesse particolare e concreto in relazione agli scopi specifici che essa persegue, non essendo neppure in astratto ipotizzabile che la P.A. non possa agire in sede giurisdizionale a tutela dei propri diritti (artt. 3 e 24 Cost.), tanto più in mancanza di specifiche norme derogatorie (Cass., Sez. U., 10 settembre 2013, n. 20701; Cass., Sez. U., 19 febbraio 2019, n. 4883). L'azione può essere proposta dinanzi al giudice ordinario anche per far valere il risarcimento del danno all'immagine arrecato

negligence but also and above all for ordinary negligence of the officials, with the consequence that the mental element of fault (*colpa*) exits through the door but re-enters through the window, frustrating the legislative will[563]. In any case, the administrative liability shield for public officers was made permanent following the approval of the reform of the functions of the Court of Auditors and of administrative liability for damage to public finances proposed by the Italian Government with bill 1457, definitively approved on 27 December 2025 by the Senate of the Italian Republic[564] and merged into

---

all'ente pubblico, non essendo prevista una riserva di giurisdizione esclusiva in favore del giudice contabile, in quanto il D.L. 1 luglio 2009, n. 78, art. 17, comma 30-ter, convertito, con modificazioni, nella L. 3 agosto 2009, n. 102, nel prevedere la proposizione dell'azione per il risarcimento del danno all'immagine da parte delle procure regionali della Corte dei conti nel giudizio erariale, si limita a circoscrivere oggettivamente l'ambito di operatività dell'azione, senza introdurre una preclusione alla proposizione della stessa dinanzi al giudice ordinario da parte dell'amministrazione danneggiata (cfr. Cass. pen., Sez. VI, 27 settembre 2017, n. 48603, imp. Cardinali). 3. – Deve pertanto negarsi che vi sia, come sostenuto in ricorso, una giurisdizione esclusiva – quella della Corte dei conti – in materia di danno recato alla amministrazione pubblica, mentre va riconosciuta la coesistenza di diverse azioni di natura risarcitoria, che possono essere esercitate anche contestualmente, purché ciò non determini una duplicazione del risarcimento del danno, in quanto allora si realizzerebbe la violazione del principio del *ne bis in idem*: una volta ottenuto l'integrale risarcimento del danno, si porrà il problema della proponibilità o della prosecuzione dell'altra azione che, evidentemente, sarà priva di interesse, avendo l'amministrazione già conseguito integralmente il ristoro dei danni subiti (cfr. Cass. pen., Sez. VI, 16 marzo 2017, n. 35205, imp. Mineo)» (in the same sense, more recently, see Cass. civ., SS.UU, order of 5 August 2020, no. 16722).

[563] On the point, see the observations of Perin, according to whom «il dipendente pubblico di fronte al g.o. risponderà «dell'intero pregiudizio erariale a titolo di colpa normale e/o lieve» (non soltanto per il dolo), con il termine di prescrizione più lungo (10 anni) e con la trasmissibilità del danno ai propri eredi. Inoltre, non esiste la possibilità che il danno possa essere preliminarmente contestato con l'invito a dedurre, ma il pubblico dipendente e/o amministratore si troverà un bel atto di citazione in giudizio per l'intero danno che spesso è anche milionario, senza alcuna possibilità di essere stato ascoltato da un magistrato prima dell'eventuale giudizio. Poi una volta condannato, già in primo grado la sentenza sarà provvisoriamente esecutiva e sarà tenuto a versare all'amministrazione il risarcimento, per sospenderla deve far la richiesta al giudice dell'impugnazione chiedendo, appunto, di sospendere subito la provvisoria esecutività della sentenza se ci sono gravi pericoli e se il proprio diritto è manifestamente fondato, ma non è detto che il giudice dell'appello pervenga all'accoglimento della richiesta.» (M. Perin, Niente più responsabilità amministrativa per colpa grave?, Le modifiche (o soppressione) della responsabilità per colpa grave. Saranno utili? Probabilmente no., in lexitalia.it, 8, 2020, p. 4).

[564] Bill no. 1457, approved by the Senate of the Italian Republic on 27 December 2025, concerning «Modifiche alla legge 14 gennaio 1994, n. 20, e altre disposizioni nonché delega al Governo in materia di funzioni della Corte dei conti e di responsabilità amministrativa e per danno erariale», available at Italian Senate.

Law of 7 January 2026, no. 1[565]. Such reform introduces several substantial modifications. With a first modification, intervening on paragraph 1 of art. 1 of Law No. 20/1994, it was intended to define via legislation the concept of "gross negligence" (the definition of which has been hitherto developed by case law), limiting its definition to four specific cases: 1) manifest violation of applicable rules of law, for the determination of which account is taken, in particular, of the degree of clarity and precision of the violated rules as well as of the inexcusability and gravity of the breach; 2) misrepresentation of the fact; 3) assertion of a fact the existence of which is indisputably contradicted by the record of the proceeding; 4) denial of a fact the existence of which results indisputably from the record of the proceeding. A second modification introduced by the reform, again in relation to the cited paragraph 1 of art. 1, concerns the stabilisation of the so-called "administrative liability shield for public officers", which operates in the form of exclusion of liability for gross negligence for harmful acts that originate from an act subject to prior review of legality by the *Corte dei Conti*. In particular, a mechanism is introduced whereby, upon request of both central and peripheral administrations, the *Corte dei Conti* is required to render opinions in matters of public accounting, for measures connected to the implementation of the National Recovery and Resilience Plan (PNRR) and of the National Plan for investments complementary to the PNRR (PNC) and only for contracts with a value exceeding the EUR 1 million threshold. In this context, the "administrative liability shield for public officers" operates in two cases: 1) gross negligence is excluded for acts adopted in conformity with the opinions rendered; 2) in case of failure to express the opinion within the peremptory term of thirty days, the same is understood as rendered in a sense conforming to what was proposed by the requesting administration for the exclusion of the gravity of the negligence, according to a mechanism of tacit approval (*silenzio-assenso*)[566]. A third interesting modification concerns the provision, before

[565] Law 7 January 2026, no. 1, concerning «Modifiche alla legge 14 gennaio 1994, n. 20, e altre disposizioni nonché delega al Governo in materia di funzioni della Corte dei conti e di responsabilità amministrativa e per danno erariale».

[566] Such a mechanism of tacit approval, however, was harshly criticised by the Joint Sections of *Corte dei Conti*, advisory capacity, in opinion no. 4/2025 issued during the session of 9 June 2025, in which it feared three risks: the first is «prevedere che il mancato rilascio del parere entro il termine si traduca in un'esenzione tacita di responsabilità o in un parere implicito snatura la funzione consultiva, trasformandola da presidio tecnico-giuridico a strumento procedurale svuotato di effettività», with consequent «commistione impropria tra funzione giurisdizionale e amministrativa, in violazione dei principi costituzionali di

assuming roles involving the management of public resources, of the obligation to take out an insurance policy to cover damages arising from gross negligence, and the consequent joinder of the insurance company as a necessary party in the proceedings before the Court of Auditors.

A further distinctive feature of administrative liability is its personal character, which excludes strict liability or vicarious liability (and, consequently, the transmissibility of the debt deriving from the ascertainment of liability)[567].

Another objective element is the production of unjust damage to public finances, which, in the absence of a normative definition, is qualified by case law of the Court of Auditors as a financial loss, which must be certain, concrete, and actual[568].

The damage to public finances can manifest itself in direct form, when it is caused directly to the economic-patrimonial interests of the administration, or indirect, when the damaged administration is ordered to compensate third parties for harm caused by its own employees (in such case, one speaks of action for contribution – *azione di rivalsa* – against the public employee)[569].

---

separazione delle funzioni e legalità»; the second risk is that «l'effetto automatico del silenzio-assenso potrebbe indurre a un uso distorto del potere consultivo, incoraggiando le amministrazioni a sollecitare la Corte non per ricevere indicazioni giuridicamente fondate, ma per ottenere una copertura preventiva rispetto a una paventata responsabilità amministrativa. Si genererebbe così una prassi "opportunistica", con un aggravio del carico consultivo e un indebolimento del ruolo istituzionale del giudice contabile»; the third risk, finally, is «la questione di una esclusione della responsabilità per colpa grave, per silenzio-assenso, in assenza di un vaglio effettivo da parte della magistratura contabile» (p. 20).

[567] A. Canale, L'elemento soggettivo della responsabilità amministrativa, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), op. cit., p. 137.

[568] According to the consolidated orientation of case law of the Court of Auditors (*ex multis*: Corte dei Conti, sec. I Centr. App., 37/2021; Corte dei Conti, joint sections, no. 12/1997), the damage to public finances is defined as an economic prejudice that must unfailingly possess the characteristics of certainty (*certezza*, certain harm), concreteness (*concretezza*, objectively about reality and not hypothetical) and actuality (*attualità*, existing at the moment of the judgement).

[569] F. Izzo, op. cit., pp. 584-585. A further distinctive feature of administrative liability must also be noted: the so-called "power to reduce liability" (*potere riduttivo dell'addebito*), exclusive prerogative of the *Corte dei conti*, provided for by art. 83 of R.D. no. 2440/1923 and by art. 52, paragraph 2, of R.D. no. 1214/1934. Such power allows the Court of Auditors to order the public officer to compensate only a part of the ascertained damage or of the lost value, even reaching, in extreme hypotheses, the exclusion of any charge (Corte Conti, sec. I centr. App., judgement of 5 October 2001, no. 291/A). The justification of this power resides

9.3. In search of the meaning of the concepts of "fault" and "causal link" in liability for damages caused by artificial intelligence

9.3.1. The reconfiguration of the concept of 'fault' in the age of automation

The analysis in the preceding paragraphs underscores that the injured party must demonstrate that the potential tortfeasor committed an intentionally harmful or negligent act or omission, establishing a robust causal link between such fault and the resulting harm. However, when an artificial intelligence system intervenes between the human agent's conduct and the ultimate injury, the intrinsic characteristics of certain AI models – namely opacity, autonomous behaviour, and complexity – can render the burden of proof insurmountable for the aggrieved party. In particular, it may prove prohibitively difficult to trace the damage back through the algorithmic chain: specifically, to demonstrate that a particular input, attributable to the liable individual, triggered the specific output of the AI system that subsequently generated the injury in question.

According to a 2020 European Commission survey, liability is cited as the most relevant external obstacle (43%) to the use of artificial intelligence by European companies that intend to adopt AI but have not yet done so[570].

Regarding the public sector, I believe that the liability of the Public Administration and of the public employee, both civil and administrative, poses the most difficult legal questions to resolve, particularly regarding the ascertainment of fault and the causal link between the tortious conduct and the damage.

Legal scholarship has developed numerous theories on the configuration of fault in the context of liability for damage caused by artificial intelligence systems.

---

in the necessity to limit the compensatory consequences on the employees, taking into account that they operate in a context that is in part withdrawn from their control, rendering them sometimes victims of organisational deficiencies. In the exercise of such power, the judge evaluates the «rischio di impresa della pubblica amministrazione» (E. Casetta, F. Fracchia, *op. cit.*, p. 1061), adjusting the amount of damages awarded based on objective (such as organisational critical issues) and subjective circumstances (such as work experience or behaviour post-fact aimed at limiting the damage) (see, *ex multis*, Corte dei Conti, jur. sec. app. Regione Siciliana, judgement of 8 June 2012, no. 180).

[570] European Commission, European enterprise survey on the use of technologies based on artificial intelligence, 28 July 2020, p. 58.

9.3.1.1. Software selection: the *culpa in eligendo* theory

A first theory supports the persistent validity of fault understood as a violation of the canons of diligence, prudence, and expertise. However, fault must be sought not in the algorithmic output itself, but in the preliminary stages of the AI value chain, namely in the phases of design, selection, and implementation of the system, configuring a sort of technological *culpa in eligendo*[571]. According to this approach, fault would be classified as negligence in the selection of training data[572] or in failing to foresee appropriate security measures to prevent deviant or harmful behaviours of the machine[573]. The

[571] G. Pasceri, Intelligenza artificiale, algoritmo e machine learning, Giuffrè, Milano, 2021, p. 68, who, regarding the liability of healthcare personnel in the use of equipment incorporating artificial intelligence, is very clear in believing that «il tentativo di inquadrare l'A.I. come fattore rischioso o catastrofico offre un'ulteriore occasione, a molti autori, di vaneggiare sulla natura dell'intelligenza artificiale e sulle conseguenze derivanti dal suo utilizzo. Da rigettare, dunque, la fantasiosa idealizzazione dell'intelligenza artificiale come oggetto "incontrollabile" nei suoi risultati. Tutte le raccomandazioni europee e nazionali sottolineano la necessità e l'importanza che la gestione dell'apparecchiatura medica ricada nelle competenze del medico, il quale avrà il dovere di valutare la correttezza del responso dell'agente intelligente utilizzato, secondo gli ordinari principi di cautela e diligenza dell'arte medica». See also M. Ebers, P. Krõõt Tupay, Artificial Intelligence and Machine Learning Powered Public Service Delivery in Estonia, cit., p. 171, where they observe that «authorities should not be allowed to use novel, immature and insufficiently tested technologies that could cause great harm in their sphere of action», proposing from a *de lege ferenda* perspective to introduce «abstract guidelines and concrete procedural requirements to assess whether a particular technical system is suitable for use in the administration sector».

[572] V. Neri, Diritto amministrativo e intelligenza artificiale, cit. p. 592, who observes that «se la scelta di software non funzionali al concreto perseguimento dell'interesse pubblico determina l'elaborazione di risultati incongrui o fuorvianti, parimenti l'immissione dei dati invalidi o l'erroneo utilizzo del programma informatico vanificano i risultati vantaggiosi conseguibili mediante l'impiego di sistemi di automazione decisionale». In these terms, always in the field of administrative law, see also N. Muciaccia, Algoritmi e procedimento decisionale, cit., p. 367. In the same sense, see U. Ruffolo, Intelligenza Artificiale, machine learning e responsabilità da algoritmo, in Giurisprudenza Italiana, July 2019, p. 1692. In this sense, in criminal law scholarship, see also B. Fragasso, Intelligenza artificiale e crisi del diritto penale d'evento: profili di responsabilità penale del produttore di sistemi di I.A., in F. Basile, M. Biasi, L. Camaldo, G. Caneschi, B. Fragasso, D. Milani (eds.), Intelligenza artificiale. Diritto, giustizia, economia ed etica, Giappichelli, Torino, 2025, p. 56.

[573] U. Ruffolo, ult. op. cit., p. 1693.

reproach would thus shift from the moment of the damage's causation to that of the design, thereby configuring a sort of "accountability by design"[574].

9.3.1.2. Articles 2047 and 2048 of the Civil Code: the *culpa in vigilando* theory

A second orientation shifts the focus of fault directly onto the human being using the AI system, particularly taking into consideration the phenomenon of so-called automation bias. In this case, the public officer is at fault in uncritically accepting the machine's result and abdicating their function of control and critical verification[575]. Consequently, in such cases, one could speak of a form of *culpa in vigilando* of the AI system's deployer pursuant to Article 2047 of the Civil Code on liability for damage caused by a person incapable of understanding or controlling their actions[576] or Article

---

[574] On accountability by design, see the paper by J.M. Balkin, The Three Laws of Robotics in the Age of Big Data, in Ohio State Law Journal, 78, 2017, pp. 1217-1241, in particular in the part where the Author observes that «instead of focusing on laws directed to robots (or algorithms), I focus on laws directed at the people who program and use robots, AI agents, and algorithms. That is because what we need in the emerging Algorithmic Society are not laws of robotics, but laws of robot-operators. (…) In the Algorithmic Society, the central problem of regulation is not the algorithms, but the human beings who use them, and who allow themselves to be governed by them. Algorithmic governance is the governance of humans by humans using a particular technology of analysis and decision-making» (p. 1221).

[575] E. Bracci, The loopholes of algorithmic public services: an "intelligent" accountability research agenda, cit., p. 748, who emphasizes that «public managers and accountants might be induced to trust AI algorithms to a point where the output is not questioned, either through ignorance or automatic acceptance»; in such cases, the duty to account for public action becomes «only partial and formal, but not substantial». On this point, see also the critical reflections of Galetta, according to whom the risk is that the public officer will struggle greatly to deviate from the findings of the algorithm and, therefore, the decision, although formally adopted by the official, will in reality be, in 99% of cases, the one suggested by the support AI system (D.U. Galetta, Digitalizzazione, Intelligenza Artificiale e Pubbliche Amministrazioni: il nuovo Codice dei contratti pubblici e le sfide che ci attendono, in federalismi.it, 12, 2023, p. xi.).

[576] According to the prevailing case law, Art. 2047 of the Civil Code gives rise to a direct and proper liability of those with a duty of supervision, for failure to observe the duty of care, placing upon them a true and proper presumption of liability that can be overcome only by the proof of not having been able to prevent the fact despite the diligent exercise of supervision (see, *ex multis*, Cass. civ., sec. III, judgement of 26 January 2016, no. 1321; Cass. civ., sec. III, judgement of 19 October 2007, no. 21972; Cass. civ., sec. III, judgement of 16 June 2005, no. 12965; Cass. civ., sec. III, judgement of 12 December 2003, no. 19060; Cass. civ., sec. III, judgement of 1 June 1994, no. 5306). On the possibility of resorting to the application of Art. 2047 of the Civil Code to found liability for damage caused by AI, see A. Santosuosso, M. Tomasi, Diritto, scienza, nuove tecnologie, CEDAM, Padova, 2016, p. 338 ff.

2048 of the Civil Code on the liability of parents, guardians, teachers, and masters of an apprentice[577] (which, to date, represent the only forms of liability

[577] The theory of the negligent foundation of the liability of parents and teachers is accepted by the prevailing case law, which usually indicates in their fault, and precisely in *culpa in educando* and in that *in vigilando* for parents, and only in *culpa in vigilando* for teachers, the reason for their liability for torts committed by minors entrusted to their supervision on different legal grounds: so that it is the commission of the tort itself by the minor that testifies, depending on the circumstances, to the inadequacy of the parental model or the inefficacy of the teachers' surveillance, or to both (see, *ex multis*, Cass. civ., sec. III, order of 29 September 2023, no. 27680; Cass. civ., sec. III, judgement of 13 February 2023, no. 4303; Cass. civ., sec. III, order of 2 May 2022, no. 13752; Cass. civ., sec. III, judgement of 19 February 2014, no. 3964; Cass. civ., sec. III, judgement of 20 April 2007, no. 9509; Cass. civ., sec. III, judgement of 28 March 2001, no. 4481). Legal scholarship has proposed the adaptation of the liability model under Art. 2048, paragraph 2, of the Civil Code – according to which «i precettori e coloro che insegnano un mestiere o un'arte sono responsabili del danno cagionato dal fatto illecito dei loro allievi e apprendisti nel tempo in cui sono sotto la loro vigilanza» – to equate the cognitive type robot, equipped with machine learning that has the possibility of reacting in an unpredictable manner, to minors who learn during their growth path and must be educated by the user who becomes their teacher (A. Santosuosso, C. Boscarato, F. Caroleo, Robot e diritto: una prima ricognizione, in La nuova giurisprudenza civile commentata, 7-8, 2012, p. 511 ff.). For the applicability of Art. 2048 of the Civil Code to liability from AI, see also U. Pagallo, The Law of Robots. Crimes, Contracts, and Torts, Springer, Dordrecht, 2013, p. 128.

for *culpa in vigilando* admitted in Italy[578]); and, by reflection, in the public sector, of the public officer[579].

9.3.1.3. The *colpa d'apparato* theory

A different reconstructive approach attempts to maintain the centrality of fault through the theory of "institutional negligence" (*colpa d'apparato*, on which see *supra*), which searches not for the error of the individual public

---

[578] Indeed, outside the hypotheses laid down in Arts. 2047 and 2048 of the Civil Code, modern hermeneutics has abandoned the fiction of *culpa in vigilando* to embrace criteria of strict or aggravated liability based on risk. For example, regarding the liability of masters and employers under Art. 2049 of the Civil Code, the reference to *culpa in eligendo* or *in vigilando* of the employer in the choice and surveillance of their collaborators is now considered obsolete and devoid of normative support. In particular, the prevailing view among scholars believes that it is strict liability for business risk, which totally disregards the negligence of the principal in surveillance, so much so that exculpatory evidence is not admitted (D.M. Frenda, Responsabilità del datore di lavoro, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, p. 1165 ff.; P. Trimarchi, Trimarchi, La responsabilità civile: atti illeciti, rischio danno, Giuffrè, Milano, 2021, pp. 315-317; E. Lucchini Guastalla, Il contratto e il fatto illecito, Giuffrè, Milano, 2020, p. 427). Also in the case of damage caused by things in custody (Art. 2051 of the Civil Code) and damage caused by animals (Art. 2052 of the Civil Code), recent legal scholarship classifies such cases as instances of strict liability, linked not to negligence in surveillance, but to the profit and control of the general conditions of the risk (U. Izzo, Danno cagionato da animali, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, cit., p. 233; P. Trimarchi, last op. cit., p. 364; E. Lucchini Guastalla, op. cit., p. 433).

[579] Part of German legal scholarship theorizes that, *de lege lata*, two models of duty can arise for the public officer responsible for the use of automated systems: a duty of care understood as an obligation of monitoring (*Überwachungspflicht*) of the operating system, or a result-oriented official duty (*ergebnisorientierte Amtspflicht*) aimed at guaranteeing the lawful functioning of the IT system regardless of the possibility of foreseeing, monitoring, and tracing every single detail thereof (M. Martini, H. Ruschemeier, J. Hain, Staatshaftung für automatisierte Verwaltungsentscheidungen: Künstliche Intelligenz als Herausforderung für das Recht der staatlichen Ersatzleistungen, Typoskript (published in VerwArch, 112, 2021, pp. 1 ff.), p. 34). The French Supreme Administrative Court is also oriented in supporting – through the application by analogy of liability for the maintenance of public works – the theory according to which «(…) une obligation de vigilance pèse sur tout utilisateur d'un SIA, dont l'ampleur dépend de l'occurrence de l'erreur (...) et de la gravité de l'erreur (...). Les diligences attendues de l'administration dans le développement et la maintenance d'un système d'IA (...) ne sont pas très éloignées du régime de l'entretien normal d'un ouvrage public, dans lequel l'administration doit démontrer qu'elle a accompli les diligences requises pour prévenir le dommage subi par la victime» (Conseil d'État, Intelligence artificielle et action publique, cit., pp. 150-151).

employee, but for a systemic dysfunction in the administrative organisation and in the management of technological resources[580].

9.3.1.4. Articles 2049, 2050, 2051 and 2052 of the Civil Code: the strict liability theory

Conversely, other civil law scholars suggest the definitive abandonment of fault-based liability in favour of strict liability or liability based on one's position (so-called "positional liability"), shifting the focus from the investigation of fault to the allocation of risk[581]. In this perspective, some Authors have proposed the application by analogy of Art. 2049 of the Civil Code, delineating the liability of the entrepreneur for damages caused by an intelligent system that has been assigned to the performance of tasks connected to the entrepreneurial activity, normally performed by workers: the constitutive elements of the case would be identifiable in a sort of relationship of authority and in the causal link between the performance of the tasks and the damage caused to the third party[582]. Other scholars have proposed the

---

[580] S. Vernile, L'adozione delle decisioni amministrative tramite formule algoritmiche, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori di diritto amministrativo 2019, cit., p. 120. On this point, the observations of criminal law scholarship regarding the liability of entities for crimes *ex* Legislative Decree 231/2001 also appear interesting, observing that «un'efficace prevenzione del rischio da intelligenza artificiale non potrà non passare da una più approfondita riflessione sulla colpa di organizzazione», emphasizing how «la colpa che potrà essere imputata al produttore è infatti intrinsecamente una colpa da disorganizzazione, da mancata gestione o scorretta gestione del rischio» (B. Fragasso, Intelligenza artificiale e crisi del diritto penale d'evento: profili di responsabilità penale del produttore di sistemi di I.A., cit., p. 58).

[581] G. Finocchiaro, Intelligenza Artificiale e protezione dei dati personali, in Giurisprudenza Italiana, July 2019, p. 1676, who believes that «non è rilevante chi sbagli e la ricerca dell'errore è attività costosa e dispendiosa che può essere superata. Occorre invece prevedere meccanismi di allocazione del costo del danno cagionato su quei soggetti che astrattamente potrebbero essere responsabili, ad esempio mediante la costituzione di un fondo al quale attingere, prescindendo dall'individuazione delle modalità dell'incidente o dell'errore. Analogo meccanismo è stato previsto nel circuito delle carte di credito, per il caso di clonazione o furto. Uno degli obiettivi perseguiti con questo tipo di sistema di allocazione del rischio è immediatamente evidente ed è quello di rassicurare i potenziali utilizzatori sul fatto che, a prescindere dagli esiti di una costosa ricerca sull'errore, otterranno un risarcimento».

[582] M. Costanza, Impresa robotizzata e responsabilità, in U. Ruffolo (ed.), Intelligenza artificiale e responsabilità, Giuffrè, Milano, 2017, p. 112 ff. Similarly, see G. Teubner, Soggetti giuridici digitali? Sullo status privatistico degli agenti software autonomi, Edizioni Scientifiche Italiane, Napoli, 2019, pp. 82-86, who, regarding the German legal system (in particular § 278 BGB), maintains that «Se fosse impegnato un uomo per l'esecuzione del contratto, allora il suo principale risponderebbe (...) delle violazioni dei doveri contrattuali dall'altro provocate;

application by analogy of Art. 2050 of the Civil Code[583] (applicable also to administrative activity [584]), framing the use of AI as the exercise of a dangerous activity, with a consequent reversal of the burden of proof, whereby the manager of the system would be exempted from liability only by proving that they adopted every measure suitable to avoid the damage, configuring a fault no longer linked to the single act, but to the overall organization of the activity[585]. In parallel, recourse to Article 2051 of the Civil Code (also

---

e pertanto il principale non può essere liberato, solo perché i medesimi compiti siano affidati ad un agente software» (p. 84). For an application of this analysis to the public sector, see L. Haitsma, L. Ardenghi, B. Ancuceanu, I. Varošanec, L. Flórez, Algorithmic Design, in A. Colombi Ciacchi, M.L. Flórez Rojas, L. Lane, T. Nowak (eds.) AI and Public Administration: The (legal) limits of algorithmic governance, p. 46, according to whom, adhering to the theory of vicarious liability (based on the Roman law principle of *respondeat superior*), it would be much easier for the public administration to demonstrate that the AI system is defective and that, therefore, the provider is responsible; furthermore, vicarious liability would not only prove useful in situations of liability for fault, but would also bridge the liability gap that is created when a defect exists but it is impossible to trace it back to a legal entity or too many producers are involved to share the liability.

[583] According to Art. 2050 of the Civil Code, «chiunque cagiona danno ad altri nello svolgimento di un'attività pericolosa, per sua natura o per la natura dei mezzi adoperati, è tenuto al risarcimento, se non prova di avere adottato tutte le misure idonee a evitare il danno».

[584] The judgement that is commonly believed to have recognised for the first time the applicability of Art. 2050 of the Civil Code to the public administration is no. 1393 of 27 February 1984 of the Court of Cassation, relating to a case of injury by electrocution suffered by the painter of electrical equipment of a high-voltage line of a railway system. Case law has however specified that not every activity that causes damage can be considered dangerous, distinguishing activities dangerous by their nature or by the means employed from conduct that proves harmful only due to the omission of ordinary cautions. For example, control and safety activities in the case of the use of fireworks (Cass. civ., sec. III, order of 17 January 2022, no. 1180) and the execution of road public works (Cass. civ., sec. III, order of 21 May 2019, no. 13579) are considered dangerous.

[585] U. Ruffolo, Artificial Intelligence e responsabilità. «Persona elettronica» e teoria dell'illecito, in A. Pajno, F. Donati, A. Perrucci (eds.), Intelligenza artificiale e diritto: una rivoluzione?, vol. II, Il Mulino, Bologna, 2022, p. 248 ff., according to whom the high technical-scientific rate of algorithms, especially those equipped with self-learning capabilities, justifies the framing of their production and management as intrinsically risky activity. Similarly, see L. Viola, L'intelligenza artificiale nel procedimento e nel processo amministrativo: lo stato dell'arte, in federalismi.it, 21, 2018, pp. 20-23, who believes the application of Art. 2050 of the Civil Code is possible through statutory interpretation by qualifying the recourse to IT technologies in the processing of acts as an "atypical" dangerous activity; in this way, liability would be placed upon the party capable of avoiding the damages or insuring against them with less expense, guaranteeing effective protection to the addressees of the administrative

applicable to the Public Administration[586]) regarding damage from things in custody[587], has been hypothesised, recognising AI as a *res* capable of independently causing harm, the control of which falls upon the custodian independently of the demonstration of their culpability, except in cases of fortuitous event (*caso fortuito*)[588]. A suggestive variant of this orientation then recalls Art. 2052 of the Civil Code on the subject of damage caused by

---

action. The theory of the applicability of Art. 2050 of the Civil Code has found support also at the institutional level in the «Proposte per una strategia italiana per l'intelligenza artificiale» elaborated by the Group of Experts of the Ministry of Economic Development in 2019, where the experts explicitly declared that «non è necessaria l'introduzione di nuove leggi, potendo trovare, in primo luogo, nel nostro ordinamento, applicazione l'articolo 2050 c.c. inerente all'esercizio di attività pericolose», adding that they do not see at the state of the art «motivi per escludere dal novero delle "attività pericolose" l'uso di robot e, più in generale di sistemi di AI» (p. 50; these proposals are available on the website of Ministero delle Imprese e del Made in Italy).

[586] The Constitutional Court, starting with judgement no. 156 of 10 May 1999, has declared that there is no incompatibility of principle between the Public Administration and Art. 2051 of the Civil Code, establishing that strict liability always applies, except in the case where, due to the considerable extent of the state-owned asset (e.g., a remote mountain road), it is objectively impossible to exercise a continuous power of control. Furthermore, the Joint Sections of the Court of Cassation, with order no. 20943 of 30 June 2022, clarified that liability under Art. 2051 of the Civil Code has a strict and not presumed nature, whereby the public administration answers for the damage based on the sole causal link between the thing and the harmful event; to exculpate itself, proof that it acted diligently is insufficient; it must prove the *caso fortuito* (an unforeseeable and exceptional external factor).

[587] According to Art. 2051 of the Civil Code, «ciascuno è responsabile del danno cagionato dalle cose che ha in custodia, salvo che provi il caso fortuito».

[588] A. Di Martino, Tecnica e potere nell'amministrazione per algoritmi, cit., pp. 289-290, who supports the theory of the applicability of Art. 2051 of the Civil Code to damages deriving from the algorithmic activity of the Public Administration, qualifying the algorithm as an immaterial "thing" subject to the duty of care; according to the author, such a regime of strict liability, founded on the causal link rather than on fault, is essential to avert the risk of immunity of the public power in automated processes, while requiring a necessary technification of administrative offices to guarantee an effective capacity for control and maintenance of the systems. In a more cautious sense, instead, see M. Costanza, L'Intelligenza Artificiale e gli stilemi della responsabilità civile, in Giurisprudenza Italiana, July 2019, pp. 1687-1688, who highlights the potential frictions between the nature of AI and the provisions of the Civil Code, observing that «la cosa, nel disegno dell'art. 2051 c.c., è entità lontana dalla A.I., se essa si identifica con l'agente munito in sé di motilità e operatività, che pur predisposte o programmate non rimandano alle ragioni sottese alla responsabilità del custode»; she notes that the Italian Civil Code is still «legato alla nozione di forza, anche se incrementata da macchine», while AI «"provvederebbe" alla macchina, sicché di ciò che proviene da questa sarebbe fattore determinante».

animals[589] (this is also applicable to the Public Administration[590]), instituting a parallel between artificial intelligence and the natural intelligence of animals, both characterised by margins of unpredictability that do not exonerate from compensation[591].

9.3.2. The crisis of the causal link

The debate over liability for damages caused by AI systems becomes even more heated when it comes to establishing the causal link, highlighting a crisis in the traditional nomological-deductive model of causation analysis[592]. Thus, multiple schools of thought have formed in this case as well.

9.3.2.1. The strict approach

A first, more strict theory starts from the assumption that the transition from deterministic computational paradigms to stochastic-probabilistic models, typical of machine learning and deep learning, would prevent tracing a linear causal link between the input data and the final result

---

[589] According to Art. 2052 of the Civil Code, «il proprietario di un animale o chi se ne serve per il tempo in cui lo ha in uso, è responsabile dei danni cagionati dall'animale, sia che fosse sotto la sua custodia, sia che fosse smarrito o fuggito, salvo che provi il caso fortuito».

[590] In particular, the Court of Cassation, third section, with order no. 197 of 7 January 2025, confirmed its orientation reiterating that the Region can be held liable for damages caused by wild fauna pursuant to Art. 2052 of the Civil Code (in conformity, see Cass. civ., sec. III, judgement of 10 November 2023, no. 31330; Cass. civ., sec. III, judgement of 20 April 2020, no. 7969).

[591] Although maintaining that, from a strict taxonomic perspective, the applicable rule remains Art. 2051 of the Civil Code, scholars paradoxically argued that the regime laid down in Art. 2052 of the Civil Code constitutes a «norma-fotocopia» with respect to Art. 2051 of the Civil Code, useful to demonstrate how the civil code is already equipped to manage liabilities deriving from entities endowed with a form of intelligence (natural or artificial) and self-learning (U. Ruffolo, Intelligenza Artificiale, machine learning e responsabilità da algoritmo, cit., p. 1699). However, it is the same Author who warns that «(…) restano disciplina (e logica) efficiente di allocazione del rischio e degli obblighi di risarcire danni ingiusti, anche quando l'animale, soprattutto d'affezione, comincia a venire considerato non cosa, ma essere vivente e senziente, quale specifica forma di vita intelligente alla quale accordare protezioni» (p. 1702). On this point, see also A. Santosuosso, Diritto, scienza, nuove tecnologie, cit., pp. 336-337, who hypothesizes the applicability of Art. 2052 of the Civil Code to hypotheses of civil liability deriving from the use of robots that escape human control, noting that «dal punto di vista fattuale, la dinamica Roomba appaia più simile a quella dell'animale che a quella di una cosa». Similarly, see C. Boscarato, Who is responsible for a robot's actions? An initial examination of Italian law within a European perspective, in B. Van De Berg, L. Klaming, Technologies on the Stand: Legal and Ethical Questions in Neuroscience and Robotics, Wolf Legal Publishers, Nijmegen, 2011, pp. 393-395.

[592] B. Fragasso, op. cit., p. 52.

(output), instead yielding only a statistical correlation[593]. Consequently, this characteristic would constitute one of the main problems in the application of data-driven programs by administrative authorities, which instead operate according to a logic of causality[594]. The inability to trace the causal chain backwards would undermine the so-called "but for" test, making it difficult for the injured party to demonstrate that the harmful event would not have occurred without the defendant's conduct[595]. Due to the epistemological divergence between legal rationality, founded on causality, and algorithmic logic, based on mere statistical correlations, a transition towards forms of de-individualised causality is therefore hypothesised, in which the causal link is not sought in the individual human error, but in the systemic failure of a complex decision-making architecture that failed to mitigate the intrinsic risks of the model[596].

9.3.2.2. The *causa causae est causa causati* theory

A second interpretive line, particularly relevant for the liability of the Public Administration, recovers the ancient legal maxim *causa causae est causa causati* (the cause of the cause is the cause of the effect) to argue that the will expressed by the computer system must be legally imputed to the authority that chose to automate the decision-making process[597]. From this perspective, the administration, as custodian and beneficiary of algorithmic efficiency, should be held liable for damages regardless of whether every single

---

[593] B. Marchetti, Intelligenza artificiale, poteri pubblici e rule of law, in Rivista italiana di diritto pubblico comunitario, 1, 2024, p. 54.

[594] D. Palazzo, Intelligenza artificiale e scelte amministrative. La discrezionalità alla prova degli algoritmi, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori del laboratorio di diritto amministrativo 2022-2023, Roma 3 Press, Roma, 2024, p. 117.

[595] M. Kovač, Generative Artificial Intelligence. A Law and Economics Approach to Optimal Regulation and Governance, Palgrave Macmillan, Cham, 2024, p. 128 ff.

[596] L. Flórez, L. Haitsma, Y.A. Ibrahim. L. Ardenghi, G. Berardi, A. Onaie, Organisational implementation/embedding, in A. Colombi Ciacchi, M.L. Flórez Rojas, L. Lane, T. Nowak (eds.) AI and Public Administration, cit., p. 77.

[597] A. Puzzanghera, The Impact of Artificial Intelligence on Administrative Law, in M. Belov (ed.). The IT Revolution and its Impact on State, Constitutionalism and Public Law, Hart Publishing, Oxford, 2021, p. 223, who states emphatically that «the will of the computer is the will of the authority».

logical step of the machine can be traced, since the act produced by the algorithm would fall within the public entity's sphere of competence[598].

9.3.3. The impact of European Union law: the Product Liability Directive (EU) 2024/2853 and the proposal for an AI Liability Directive

In response to the critical issues regarding the ascertainment of fault and of the causal link, the European lawmaker in the field of artificial intelligence decided to adopt a binary strategy, distinguishing preventive regulation (embodied in the AI Act) from subsequent compensatory protection (provided by the Product Liability Directive), aiming to reconcile technological innovation with the protection of fundamental rights and safety.

Directive (EU) 2024/2853 of the European Parliament and of the Council, approved on 23 October 2024, also known as the Product Liability Directive (PLD), represents a fundamental step in the process of modernisation of the strict liability regime of the European Union, extending the 1985 legal framework to the challenges posed by the digital economy and artificial intelligence[599]. The heart of the approach adopted by the new PLD lies in fact in the explicit inclusion of software – and therefore also of AI

---

[598] The theory of the Public Administration as "custodian" of the AI system was proposed by the French *Conseil d'État* in its report, where it argued that «la victime d'un dommage causé par un SIA dont l'administration est la gardienne ne devrait pas être contrainte de rechercher la responsabilité d'un autre acteur ayant participé à la conception ou au développement du système» (Conseil d'État, Intelligence artificielle et action publique, cit., p. 11)

[599] Directive (EU) 2024/2853 of the European Parliament and of the Council of 23 October 2024 on liability for defective products and repealing Council Directive 85/374/EEC. For a commentary, see M. Karanikić Mirić, From Burden to Balance: Causation in the New EU Product Liability Directive, in Journal of European Consumer and Market Law, 5, 2025, pp. 217-225; B. Gsell, A.K. Mayrhofer, The New Product Liability Directive 2024: Missed Updates or Upgrades for the Interplay with National Liability Rules and for Service Liability, in Journal of European Consumer and Market Law, 5, 2025, pp. 205-216; T. De Mari Casareto dal Verme, La nuova direttiva sulla responsabilità da prodotto difettoso: riflessioni sulla distribuzione del rischio nella filiera digitale, in Accademia, 9, 2025, pp. 933-957; T. Rodríguez de las Heras Ballell, The revision of the product liability directive: a key piece in the artificial intelligence liability puzzle, in ERA Forum, 24, 2023, pp. 247-259; J. De Bruyne, O. Dheu, C. Ducuing, The European Commission's approach to extra-contractual liability and AI – An evaluation of the AI liability directive and the revised product liability directive, in Computer Law & Security Review, 51, 2023, pp. 1-20; E. Bellisario, Il pacchetto europeo sulla responsabilità per danni da prodotti e da intelligenza artificiale. Prime riflessioni sulle proposte della commissione, Danno e Responsabilità, 2, 2023, pp. 153-166.

systems[600] – in the concept of "product" (Art. 4, par. 1, number 1), clarifying that «software is a product for the purposes of applying no-fault liability, irrespective of the mode of its supply or usage»[601]. Such a normative choice implies, therefore, that providers of AI systems are equated with traditional manufacturers, subjecting them to a liability regime that completely disregards the need to ascertain the subjective element. Regarding the concept of "fault", Directive 2024/2853 adopts a model of purely strict liability, based on the idea that «liability without fault on the part of economic operators remains the sole means of adequately addressing the problem of fair apportionment of risk inherent in modern technological production».[602] The directive recognises that «persons claiming compensation for damage are, however, often at a significant disadvantage compared to manufacturers in terms of access to, and understanding of, information on how a product was produced and how it operates»[603]. Consequently, attention shifts from the deployer's conduct to the system's defectiveness, understood as the product's inability to provide the safety that the public is entitled to expect or that is required under national or Union law[604], and also considers the AI system's ability to continue learning after deployment[605]. Therefore, damage caused by behaviour autonomously learned by the machine does not exonerate the manufacturer, since they are required to design the software to prevent dangerous behaviours arising from machine learning[606]. Regarding the concept of «causal link», the PLD addresses the obstacle posed by algorithmic opacity (the black-box problem), which traditionally places an excessive burden on the injured party. Although the general rule requires the injured party to prove the product's defect, the damage, and the causal link between them, the PLD introduces legal presumptions aimed at mitigating information asymmetry between the consumer and the manufacturer. In particular, Art. 10 of the Directive establishes various mechanisms through which both the presumption of the defective character of a product and the presumption of the causal link between the product's defect and the damage operate. First, pursuant to paragraph 2 of Article 10, the defective character of a product is presumed if one of the following conditions is met: a) the defendant product provider fails to disclose relevant evidence pursuant to Article 9, par. 1, of the

[600] As expressly specified by Recital 13 of the directive.

[601] Ibidem.

[602] Ibid., Recital 2.

[603] Ibid., Recital 42.

[604] Ibid., art. 7, par. 1.

[605] Ibid., art. 7, par. 2, letter (c).

[606] Ibid., Recital 32.

same directive; b) the injured party demonstrates that the product does not comply with mandatory product safety requirements established by national or European Union law intended to protect against the risk of the damage suffered; c) the injured party demonstrates that an evident malfunction of the product caused the damage during reasonably foreseeable use or in ordinary circumstances. Second, according to paragraph 3 of Art. 10, the existence of the causal link between the defective character of the product and the damage is presumed in the case where it has been proven that the product is defective and that the nature of the damage caused is compatible with the defect in question. Even more relevant for AI systems is the provision laid down in the subsequent paragraph 4, which requires national courts to presume the defective character of the product or the causal link between the defective character and the damage, or both, if, despite the disclosure of relevant evidence under Art. 9 and taking into account all relevant circumstances of the case, both of the following conditions are met: a) the injured party faces excessive difficulties, in particular due to technical or scientific complexity, in proving the defective character of the product or the causal link between the defective character and the damage or both; b) the injured party demonstrates that it is probable that the product is defective or that a causal link exists between the defective character of the product and the damage, or both. This evidentiary facilitation applies above all to technologies like machine learning, where the analysis of data and the results of logical inferences are inaccessible to a non-expert[607]. The Directive further specifies that the manufacturer cannot avail themselves of the development risk defence – namely, the impossibility of discovering the defect given the state of scientific knowledge at the time of circulation – if the defect arose from software updates or machine learning algorithms under their control[608]. This approach ensures the manufacturer remains liable for the entire useful life of the AI system, thereby incentivising continuous post-sale vigilance. Finally, it is appropriate to note that these rules will apply to products placed on the market after 9 December 2026, leaving time for Member States to transpose and for operators to adjust to the new safety and transparency standards imposed by the Union lawmaker[609].

Alongside the strict liability regime for defective products, it should be noted that the EU Commission proposed the so-called AI Liability Directive (AILD) in 2022, aimed at harmonising national non-contractual civil liability

[607] Ibid., Recital 48.

[608] Ibid., Recital 50.

[609] Ibid., Articles 2 and 22.

rules based on fault for artificial intelligence[610]. The declared objective of such a proposal – later withdrawn in February 2025 – was to establish common rules on the disclosure of evidence and on the burden of proof in non-contractual civil liability actions for damages caused by an AI system, attempting to overcome the evidentiary barriers inherent in the opaque nature of algorithmic systems[611]. Regarding the concept of fault, the AILD proposed adopting a targeted harmonization approach, not redefining the general liability categories of Member States, but linking the subjective element to the violation of specific standards of conduct, identifying fault primarily in the failure to observe a «duty of care», defined as «a required standard of conduct, set by national or Union law, in order to avoid damage to legal interests recognised at national or Union law level, including life, physical integrity, property and the protection of fundamental rights»[612]. The proposal leveraged the architecture of the AI Act to give concrete content to that duty, providing that fault could be established, for example, for «non-compliance with a duty of care pursuant to the AI Act»[613]. The lawmaker recognised that the interposition of AI between human action and damage made it «excessively difficult, if not impossible, for the injured person to meet this burden of proof», since it was arduous to demonstrate how a specific input under the defendant's responsibility had determined the harmful output[614]. Regarding the causal link, the AILD proposed introducing a «rebuttable presumption» to mitigate the

---

[610] Proposal for a Directive of the European Parliament and of the Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive), COM/2022/496 final. For a commentary, see S. Wachter, Limitations and Loopholes in the EU AI Act and AI Liability Directives: What This Means for the European Union, the United States, and Beyond, in Yale Journal of Law & Technology, 26(3), 2024, pp. 671-718; S. Li, B. Schütte, The Proposed EU Artificial Intelligence Liability Directive: Does/Will Its Content Reflect Its Ambition?, in Technology and Regulation, 2024, pp. 143-151; P. Hacker, The European AI liability directives – Critique of a half-hearted approach and lessons for the future, in Computer Law & Security Review, 51, 2023, pp. 1-17; M. Ziosi, Z. Mökander, C. Novelli, F. Casolari, M. Taddeo, L. Floridi, The EU Liability Directive (AILD): Bridging Information Gaps, in European Journal of Law and Technology, 14(3), 2023; G. Spindler, Different approaches for liability of Artificial Intelligence – Pros and Cons, in S. Lohsse, R. Schulze, D. Staudenmayer (eds.), Liability for AI, Nomos, Baden-Baden, 2023, pp. 41-96; B.A. Koch, J.B. Borghetti, P. Machnikowski, P. Pichonnaz, T. Rodríguez de las Heras Ballell, C. Twigg-Flesner, C. Wendehorst, Response of the European Law Institute to the Public Consultation on Civil Liability. Adapting liability rules to the digital age and artificial intelligence, in European Law Institute, 2022, pp. 1-32.

[611] Ibid., Article 1.

[612] Ibid., art. 2, no. (9).

[613] Ibid., p. 13.

[614] Ibid., Recital 3.

black-box effect that often disrupts the causation chain discernible through traditional means of proof. In particular, Article 4 established that national courts would have to presume «the causal link between the fault of the defendant and the output produced by the AI system or the failure of the AI system to produce an output». However, the operation of such presumption was not automatic but conditioned upon the satisfaction of three cumulative requirements: a) the demonstration of the defendant's fault for violation of a duty of care directly aimed at protecting against the damage that occurred; b) the reasonable probability that such fault had influenced the output of the system; c) the proof, borne by the injured party, that the output in question had effectively given rise to the damage[615]. Of particular interest in the public-sector context was the AILD's proposed treatment of claims against deployers of high-risk AI systems. For those claims, the requirement relating to the defendant's fault would be fulfilled if the injured party proved either of the following: a) the user did not respect the obligation to use the AI system or to monitor its functioning in conformity with the instructions for use accompanying the system or, where appropriate, the obligation to suspend or interrupt its use; b) the user exposed the AI system to input data under their control that are not relevant in light of the intended purpose of the system[616]. A distinctive element of the AILD's approach was the distinction between high- and low-risk systems. For the former, the directive facilitated access to evidence, allowing the judge to order the provider or user «to disclose relevant evidence at its disposal (…) that is suspected of having caused damage»[617]. If the defendant failed to comply with the order to disclose, the court could presume fault[618]. However, the presumption would have been excluded if the defendant demonstrated that the plaintiff could reasonably access evidence and expertise sufficient to prove the existence of the causal link[619]. In the case of systems not classified as high-risk, instead, the presumption of causality would have been applied only if the national court had deemed it excessively

[615] Ibid., art. 4, par. 1, letters a), b) and c).

[616] Ibid., art. 4, par. 3.

[617] Ibid., art. 3, par. 1. National courts, furthermore, could have ordered the disclosure of evidence only if the plaintiff had previously undertaken all proportionate attempts to obtain such evidence from the defendant (article 3, paragraph 2). In any case, such disclosure would have had to be limited to what was necessary and proportionate to support the claim for compensation, taking into account trade secrets and confidential information (article 3, paragraph 4).

[618] Ibid., art. 3, par. 5.

[619] Ibid., art. 4, par. 4.

difficult for the injured party to demonstrate the existence of the causal link[620]. Despite the innovative nature of these mechanisms, the AILD adopted a minimum harmonisation approach, leaving national rules that offer more favourable protections to injured parties unaffected[621]. The withdrawal of the project during the AI Summit in Paris in 2025 highlighted the difficulty of balancing legal certainty for victims with the risk of stifling the European technology industry under excessively complex liability burdens. In conclusion, while the revision of the Product Liability Directive (PLD) has consolidated strict liability for defective software, the regulation of fault-based liability remains fragmented across national jurisdictions.

Within this framework, the AI Act, unlike the aforementioned directives, does not directly harmonise substantive liability regimes for AI-generated harm, but serves as a statutory reference for product safety, establishing technical and organisational requirements that define the standard of diligence expected of operators. Nevertheless, the violation of the AI Act – which, as we have seen, imposes rigorous obligations, especially for high-risk AI systems – can operate as a pivotal prerequisite in judicial procedures, serving to substantiate claims of fault and product defectiveness[622].

---

[620] Ibid., art. 4, par. 5.

[621] Ibid., Recital 14.

[622] T. Rodríguez de las Heras Ballell, Generative AI Liability Cases in the EU, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, cit., p. 112.

Chapter III
Judicial protection against artificial administrative action

Summary: 1. The allocation of jurisdiction between the ordinary courts and the administrative courts in actions against administrative acts – 1.1. The allocation of jurisdiction with respect to artificial administrative decisions – 1.2. The impact of Art. 17 of Law no. 132/2025 on the allocation of jurisdiction – 1.3. The allocation of jurisdiction over the acts of the national AI Authorities: Agenzia per l'Italia Digitale (AgID) and Agenzia per la Cybersicurezza Nazionale (ACN) – 2. The defects of artificial administrative acts: new horizons or old categories? – 2.1. The failure to give reasons for artificial administrative acts – 2.2. The artificial administrative act adopted in violation of the principle of human oversight – 2.3. The discriminatory artificial administrative act – 3. Fact-finding activity, burden of proof, and judicial review of artificial administrative acts – 3.1. Some guidance from case law on the burden of proof: from full proof of the algorithm's legality to the distinction between «decisione amministrativa algoritmica» and «algoritmo di mero supporto» – 3.2. The burden of proof in tenders concerning AI systems – 3.2.1. Judicial review of technical discretion: from "extrinsic" control to "intrinsic" review of the tender commission's evaluations – 3.2.2. An operational proposal: constraining technical discretion through the incorporation of AI Act standards into the tender *lex specialis* – 4. The means of proof – 4.1. Documentary evidence and the judge's fact-finding powers: order for production and request for clarifications (Articles 63, 64, and 65 c.p.a.) – 4.2. The role of scientific expertise in administrative court proceedings: verification (Art. 66 c.p.a.) and court-appointed expert opinion (Art. 67 c.p.a.) – 4.3. The key role of court-appointed expert opinion with respect to artificial administrative acts

This chapter aims to analyse the dynamics of judicial protection that private parties can invoke against the exercise of administrative power mediated by artificial intelligence systems. The investigation will start with an examination of the rules governing the allocation of jurisdiction to verify the stability of traditional criteria for distinguishing between the ordinary courts and the administrative courts amid the dematerialisation of administrative action. Subsequently, attention will focus on the theory of invalidity of administrative acts, to frame the specific anomalies of algorithmic

administrative decisions – such as the lack of human oversight, the failure to state reasons, or discrimination – within the classic categories of nullity and voidability, also assessing the applicability of procedural validation mechanisms. The core of the discussion will then concern the fact-finding phase, highlighting the critical issues related to the burden of proof in a context characterised by profound informational and technological asymmetries, as well as the extent of judicial review over the algorithm's technical discretion. Finally, the means of evidence available in administrative court proceedings will be examined, outlining the crucial role of the court-appointed expert as an indispensable tool for introducing specialised knowledge into the trial and ensuring the effectiveness of judicial protection.

1. The allocation of jurisdiction between the ordinary courts and the administrative courts in actions against administrative acts

The structure of the Italian administrative justice system is based on a dualistic model, characterised by the coexistence of two distinct jurisdictional orders, the ordinary court and the administrative court, whose jurisdiction is allocated based on the nature of the subjective legal position asserted in the proceedings[623]. This architecture was constitutionalised by Articles 24, 103,

[623] E. Manzo, Il riparto di giurisdizione, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, cit., pp. 75-106; R. Villata, Scritti in tema di questioni di giurisdizione, CEDAM, Padova, 2025; C.E. Gallo, La giurisdizione amministrativa, Giappichelli, Torino, 2024; C. Cacciavillani, La risoluzione delle questioni di giurisdizione, in F.G. Scoca (ed.), Giustizia amministrativa, Giappichelli, Torino, 2023, pp. 510-530; F.G. Scoca, Scossoni e problemi in tema di giurisdizione del giudice amministrativo, in Il Processo, 2021, p. 1 ff.; M. Mazzamuto, Liti tra pubbliche amministrazioni e vicende della giustizia amministrativa nel secolo decimonono, in Diritto processuale amministrativo, 2, 2019, pp. 344-417; M. Mazzamuto, L'allegato E e l'infausto mito della giurisdizione unica tra ideologia ed effettività della tutela nei confronti della pubblica amministrazione, in Diritto processuale amministrativo, 2, 2017, pp. 740-748; A. Carbone, C. Bellesini, Riparto di giurisdizione e controversie di diritto pubblico, in V. Cerulli Irelli (ed.), La giustizia amministrativa in Italia e in Germania. Contributi per un confronto, Giuffrè, Milano, 2017, pp. 31-75; F. Merusi, Dal 1865 ... e ritorno ... al 1864. Una devoluzione al giudice ordinario della giurisdizione nei confronti della pubblica amministrazione a rischio di estinzione, in Diritto processuale amministrativo, 3, 2016, pp. 671-695; H. Simonetti, A proposito di comportamenti della P.A. e del loro giudice, in Urbanistica e appalti, 10, 2016, pp. 1104-1108; E. Follieri, Due passi avanti e uno indietro nell'affermazione della giurisdizione soggettiva (nota a Cons. Stato, Ad. Plen. 27 April 2015, no. 5), in Giurisprudenza italiana, 10, 2015, pp. 2192-2203; R. Villata, Giustizia amministrativa e giurisdizione unica, in Rivista di diritto processuale, 2, 2014, p. 285 ff.; L. Ferrara, Attualità del giudice amministrativo e unificazione

and 113 of the Constitution, which establish judicial protection for subjective rights (*diritti soggettivi*) and legitimate interests (*interessi legittimi*) against the public administration. The cornerstone criterion for the allocation of jurisdiction lies in the distinction between subjective rights and legitimate interests, based on the cause of action (*causa petendi*), namely on the intrinsic nature of the legal position asserted, regardless of the relief sought (*petitum*), i.e., the type of ruling requested[624]. Case law, starting from the historic judgement of the Joint Sections of the Court of Cassation no. 1657 of 1949, has developed the dichotomy between lack of power (*carenza di potere*) and misuse of power (*cattivo uso del potere*) as a fundamental distinguishing criterion, stating that one is in a scenario of subjective rights, with the consequent jurisdiction of the ordinary court, when the administration acts in the absence of a power-conferring rule or outside the mandatory limits provided, configuring an abstract lack of power (*carenza di potere in astratto*) which renders the act unfit to affect the legal position of the private citizen. Conversely, a legitimate interest comes into play, falling within the jurisdiction of the administrative court, when the administration, although the holder of the power, exercises it in a flawed manner (lack of competence, violation of law, misuse of power), determining the so-called misuse of power itself, capable of downgrading or diminishing the subjective right[625].

Legal scholars have further refined this distinction through the theory of norms governing legal relationships (*norme di relazione*) and norms governing administrative action (*norme di azione*). The former, regulating intersubjective relationships and attributing reciprocal rights and obligations,

---

delle giurisdizioni: annotazioni brevi, in Diritto pubblico, 2, 2014, pp. 561-582; A. Lamorgese, La giurisdizione contesa. Cittadini e pubblica amministrazione, Giappichelli, Torino, 2014; A. Travi, Giurisdizione ed amministrazione, in F. Manganaro, A. Romano Tassone, F. Saitta (eds.), Sindacato giurisdizionale e «sostituzione» della Pubblica Amministrazione, Giuffrè, Milano, 2013, pp. 3-10; M. Mazzamuto, Il riparto di giurisdizione. Apologia del diritto amministrativo e del suo giudice, Editoriale Scientifica, Napoli, 2008; I. Zingales, Pubblica amministrazione e limiti della giurisdizione tra principi costituzionali e strumenti processuali, Giuffrè, Milano, 2007; L. Verrienti, Giurisdizione ordinaria e pubblica amministrazione, in Digesto delle discipline pubblicistiche, VII, UTET, Torino, 1991, p. 453 ff.; F.G. Scoca, Riflessioni sui criteri di riparto delle giurisdizioni (ordinaria e amministrativa), Diritto processuale amministrativo, 1989, p. 549 ff.; V. Cerulli Irelli, Il problema del riparto delle giurisdizioni. Premesse allo studio del sistema vigente, Italica, Pescara, 1979; A. Romano, Giurisdizione amministrativa e limiti della giurisdizione ordinaria, Giuffrè, Milano, 1975; M.S. Giannini, A. Piras, Giurisdizione amministrativa e giurisdizione ordinaria nei confronti della pubblica amministrazione, in Enciclopedia del diritto, XIX, Giuffrè, Milano, 1970, p. 229 ff.

[624] E. Casetta, F. Fracchia (eds.), op. cit., p. 703 ff.

[625] Cass. civ., SS.UU., judgement of 4 July 1949, no. 1657.

ground ordinary jurisdiction; the latter, regulating the exercise of administrative power in function of the public interest, generate legitimate interests protectable before the administrative court[626]. However, the rigidity of this allocation has been mitigated by the introduction and progressive expansion of so-called «esclusiva» jurisdiction, constitutionally provided for by Art. 103 of the Constitution for «particolari materie», in which the administrative court also has jurisdiction over subjective rights, achieving a concentration of protections[627]. The extension of exclusive jurisdiction has undergone significant delimitation by the Constitutional Court, in particular with judgement no. 204 of 2004, clarifying that the lawmaker cannot assign matters to the administrative court based on the generic involvement of a public interest, but it must concern areas in which the public administration acts in the capacity of authority, exercising public authority. It follows that, even in matters of exclusive jurisdiction (listed in Art. 133 c.p.a.), controversies relating to mere conduct not traceable, even indirectly, to the exercise of a public power, which fall within the ordinary jurisdiction, remain excluded from the administrative court[628].

A particularly important issue that has recently evolved concerns claims for damages. Indeed, the overcoming of the non-compensability of

---

[626] This refers to the well-known theory of Enrico Guicciardi, according to which rules governing administrative action regulate the power of the administration and its exercise, while rules governing legal relationships regulate intersubjective relationships between the public administration and private citizens, defining reciprocal rights and obligations. On this theory, see E. Guicciardi, Studi di giustizia amministrativa, UTET, Torino, 1967, p. 55 ff.

[627] For example, administrative agreements, the nullity of the administrative procedure, the right of access to documents, public contracts, urban planning, construction, expropriation for public utility, many acts of independent Authorities, etc.

[628] Corte Cost., judgement of 5 July 2004, no. 204, which observed how not only (and not so much) the reference to a matter (public services) with not fully defined boundaries (if not in relation to the case of concession provided for until Art. 5 of Law no. 1034 of 1971), as, and above all, that to «tutte le controversie» falling in that sector makes it evident that the «materia» thus identified completely disregards the nature of the legal positions involved: so that, impermissibly, exclusive jurisdiction is rooted on the purely objective basis of the normal involvement in such controversies of that generic public interest that is *naturaliter* present in the public services sector. But, in this way, the necessary relationship of *species* to *genus* is missing, which is required by Art. 103 Cost., when it contemplates, as «particolari», compared to those in which the public administration acts as an authority, the matters assignable to the exclusive jurisdiction of the administrative court. In short, the matter of public services can be the subject of exclusive jurisdiction of the administrative court if, in it, the public administration acts by exercising its public authority or, given the faculty recognised by law, to adopt negotiating instruments in place of the exercise of public authority, if it avails itself of such faculty.

legitimate interests, as established by judgement no. 500 of 1999 of the Joint Sections, opened the way to the concentration of compensatory protection before the administrative court when the damage arises from the unlawful exercise of a public function[629]. The code of administrative procedure, at Art. 7, paragraphs 4 and 5, has confirmed that the administrative court hears actions for damages for injury to both legitimate interests and, in matters of exclusive jurisdiction, subjective rights[630]. Finally, the Italian system of administrative justice contemplates cases of full jurisdiction (*giurisdizione di merito*), strictly provided for by Art. 134 c.p.a. (e.g., pecuniary fines imposed by independent administrative Authorities), in which the administrative court

---

[629] Cass. civ., SS.UU., judgement of 22 July 1999, no. 500, which enunciated the principle of law according to which when a claim for damages is brought against the public administration under Article 2043 of the Civil Code, the trial judge must establish the following elements: a) the existence of a harmful event; b) the impact of the damage on an interest relevant to the legal order, whether it be an interest protected in the forms of subjective right (absolute or relative) or in the forms of legitimate interest or other legally relevant interest, and therefore not traceable to a mere interest of fact; c) the attributability of the harmful event to a positive or omissive conduct of the public administration; d) the attribution of intent or negligence to the public administration, based not on the mere objective fact of the simple adoption and/or execution of an unlawful act, but on the violation of the rules of impartiality, fairness and good administration, by which the exercise of the administrative function must be inspired.

[630] However, a lively case law debate remains, particularly regarding pre-contractual liability and the breach of legitimate expectations (*lesione dell'affidamento*). While the Council of State (see, most recently, sec. IV, judgement of 25 November 2024, no. 9467) tends to attract such cases into its own jurisdiction when connected to a public procurement procedure or to the exercise of a power (even if unlawful), the Court of Cassation claims ordinary jurisdiction, qualifying the breach of legitimate expectations as a violation of duties of conduct (good faith and fairness) and not of rules of validity of the act, configuring a subjective right to financial integrity (Cass. civ., SS. UU., order of 19 January 2023, no. 1567; Cass. civ., SS.UU., judgement of 15 January 2021, no. 615; Cass. civ., SS.UU., order of 28 April 2020, no. 8236). However, it should be noted that recently the Joint Sections of the Court of Cassation, with judgement no. 26080 of 25 September 2025, stated that the claim for compensation for damage from the injury of non-culpable reliance (in this case, for the annulment of a building permit) is assigned to the exclusive jurisdiction of the administrative judge, if it concerns matters indicated by Art. 133 c.p.a. The Court, while confirming the nature of *diritto soggettivo* of the position held by the private citizen, has overcome the previous orientation (which rooted ordinary jurisdiction by qualifying the tort as mere conduct), stating that the conduct of the P.A. generating reliance is «mediatamente ricollegabile» to the exercise of power, as administrative power must be understood as shaped by the duties of fairness and good faith enshrined by the new paragraph 2-bis of Art. 1 of Law no. 241/1990, the violation of which therefore takes on relevance within the relationship of a public nature.

can review not only the legality but also the appropriateness of administrative choices, being able to substitute itself for the administration[631].

1.1. The allocation of jurisdiction with respect to artificial administrative decisions

In general terms, the Italian administrative justice system maintains its dualistic structure even in the face of administrative decisions adopted through the use of artificial intelligence systems, based precisely on the nature of the subjective legal position asserted in the proceedings, namely the dichotomy between diritto soggettivo and interesse legittimo, as well as specific matters of exclusive jurisdiction. An emblematic case, previously analysed, concerns the litigation generated by the use of the so-called mobility algorithm for teaching staff, regarding which the Council of State has reaffirmed the boundaries of jurisdiction in the matter of civil service governed by private law, establishing that, pursuant to Art. 63 of Legislative Decree no. 165/2001, jurisdiction lies with the ordinary court for disputes inherent to every phase of the labour relationship, including those managed through automated procedures such as mobility, while those relating to competitive procedures instrumental to the establishment of the labour relationship are assigned only to the administrative court[632]. From this perspective, if the challenge concerns the management of an established labour relationship, even if mediated by an algorithm, jurisdiction lies with the ordinary court. This was also confirmed by the outcomes of certain disputes, in which the Italian

---

[631] E. Casetta, F. Fracchia (eds.), op. cit., pp. 782-786. For a theoretical in-depth study on the allocation of jurisdiction in disputes for the compensation of damages caused by the Public Administration, see M. Trimarchi, Il riparto della giurisdizione nelle controversie per il risarcimento dei danni arrecati nell'esercizio della funzione amministrativa, in Diritto processuale amministrativo, 4, 2024, pp. 821-878; V. Di Capua, Danno da lesione dell'affidamento incolpevole e riparto di giurisdizione: l'Adunanza plenaria aggiunge un altro capitolo alla saga, Diritto processuale amministrativo, 2022, pp. 679-705; F. Francario, Interesse legittimo e giurisdizione amministrativa: la trappola della tutela risarcitoria, in Questione Giustizia, 1, 2021, pp. 133-142; M. Filippi, Il principio dell'affidamento nei confronti della pubblica amministrazione: riflessi sul riparto tra le giurisdizioni alla luce degli orientamenti della giurisprudenza, in Giustizia Insieme, 11 February 2021; G. Tropea, A. Giannelli, Comportamento procedimentale, lesione dell'affidamento e giurisdizione del g.o., in Giustizia insieme, 15 May 2020; G.P. Cirillo, La giurisdizione sull'azione risarcitoria autonoma a tutela dell'affidamento sul provvedimento favorevole annullato e l'interesse alla stabilità dell'atto amministrativo, in Il Foro amministrativo, 7/8, 2016, pp. 1991-2011; F. Patroni Griffi, L'eterno dibattito sulle giurisdizioni tra diritti incomprimibili e lesione dell'affidamento, in federalismi.it, 24, 2011, pp. 1-10.

[632] Cons. Stato, sec. VI, judgement of 9 February 2021, no. 1206; Cons. Stato, sec. VI, judgement of 8 September 2021, no. 6236.

administrative court declared the appeal inadmissible for lack of jurisdiction, precisely in relation to discrimination arising from the algorithmic rule in the procedures for recruitment and filling vacancies from ranked lists that pertained to the management of the labour relationship. On the contrary, when the algorithm intervenes in a public competitive phase or in the exercise of a discretionary power involving the exercise of public authority that affects legitimate interests, jurisdiction lies with the administrative court. In other terms, it is not the type of tool used by the Administration, analog or digital, that can determine the legal character of the activity performed by the administration for the purposes of allocating jurisdiction, but it is the administrative activity actually performed, whether or not it involves the exercise of public authority, that determines the grounding of jurisdiction in the administrative court or in the ordinary court, given the merely ancillary nature of any computer tools used by the Public Administration for the exercise of its own functions, the possible presence of which, therefore, cannot determine any change in the type of power actually exercised by the same[633]. Having clarified this, there should be no obstacles in recognising that the administrative court is competent not only for the annulment of the unlawful artificial administrative act, but also for the action for damages for the injury of legitimate interests, which presupposes the qualification of the liability of the public administration according to the non-contractual model under Art. 2043 c.c. With particular regard to this last action, the compensation for damage can derive both from an unlawful act subsequently annulled, and from conduct of the public administration (such as delays or malfunctions of AI systems) that have frustrated the legitimate expectation of the private citizen

[633] T.A.R. Lazio, Roma, sec. III-bis, judgement of 16 May 2023, no. 8384, which also clarifies how «solo laddove il programma informatico sia asservito a un procedimento amministrativo in senso stretto può essere affermato che la bontà della regola informatica che lo regola debba sempre essere conosciuta dal giudice amministrativo, rappresentando un segmento dell'attività di stampo pubblicistico posta in essere dalla p.a., ma così non ove, come nel caso di specie, a venire in rilievo è un'attività espletata dall'Amministrazione con poteri propri del datore di lavoro, con discendente giurisdizione ordinaria in materia sull'intera procedura (eccezion fatta per profili di illegittimità derivanti, in via diretta, dal decreto o dall'ordinanza ministeriale a monte)» (in the same sense, see T.A.R. Lazio, Roma, sec. III-bis, judgement of 12 June 2023, no. 10016). For a comment on this judgement, see D. Diaco, Brevi riflessioni sulla natura giuridica del software (a partire da TAR Lazio, sez. III-bis, n. 8384/2023), in Giustizia Insieme, 26 July 2023.

or violated protection obligations, provided they are connected to the exercise of the administrative power[634].

1.2. The impact of Art. 17 of Law no. 132/2025 on the allocation of jurisdiction

Not even the amendment made by Art. 17 of Law no. 132/2025 to Art. 9 of the Italian code of civil procedure, which introduced a reservation of exclusive competence in favor of the ordinary courts for cases concerning the functioning of an artificial intelligence system, seems capable of undermining this theoretical approach, given the literal wording of the rule and its systematic placement. As a preliminary matter, it is essential to recall the theoretical distinction between the procedural concept of «competenza» and that of «giurisdizione». The legislative novelty intervenes on Art. 9 c.p.c., entitled «Competenza del tribunale», including disputes on the functioning of AI systems among the matters assigned to the exclusive competence of the ordinary tribunal. This regulatory intervention, by being placed within the civil procedure code and regulating the distribution of business within the ordinary jurisdictional branch (*de facto* removing such cases from the potential jurisdiction of the Giudice di Pace or other criteria of competence based on value), regulates an issue of internal competence of the ordinary court and not a rule for the allocation of jurisdiction between different branches. The concentration of such disputes at the Tribunal is probably explained by greater specialisation and structure than in honorary judges (*magistratura onoraria*). It follows that the amendment does not alter the framework of the allocation of jurisdiction as far as the challenge of administrative acts adopted through AI systems is concerned, for which jurisdiction continues to be determined based on the nature of the subjective legal position asserted in the proceedings (*diritto soggettivo* or *interesse legittimo*) and the nature of the activity performed by the Public Administration. Therefore, the new exclusive competence of the ordinary tribunal under Art. 9 c.p.c. will find application exclusively in cases where the controversy, although involving the use of AI

[634] It should also be noted that, in the event that the use of AI systems by the Public Administration results in damage to public finances (for example, for unlawful expenses deriving from an improper use of AI or from flawed automated procedures), the related litigation belongs to the special jurisdiction of the Court of Auditors (Corte dei Conti) under Art. 103 of the Constitution, which moreover maintains an autonomous evaluation compared to the ordinary or administrative court, being able to ascertain liability for damage to public finances even in the presence of judgements from other jurisdictional branches. On this autonomy, see *ex multis* Cass. civ., SS.UU., order of 26 June 2024, no. 17634; Corte dei Conti, Lazio, sec. giur., judgement of 12 August 2021, no. 657.

systems, falls *ab origine* within the jurisdiction of the ordinary courts. This occurs, for example, in disputes relating to privatized public employment relationships (except for competitive procedures), where the ordinary courts retain jurisdiction even in the face of automated personnel management systems, or in cases of civil torts and non-contractual liability of the P.A. not connected to the exercise of public authority, as well as in disputes between private citizens or between P.A. and private citizens in which the administration acts *iure privatorum*. In these specific circumstances, ultimately, the rule requires that the tribunal in single-judge or panel composition (depending on the rules governing the court's composition) be the one to decide, placing those cases outside the remit of the Giudice di Pace, but without attracting to itself disputes over the legality of algorithmic administrative acts, which remain the prerogative of the administrative judge by virtue of Articles 103 and 113 of the Constitution.

1.3. The allocation of jurisdiction over the acts of the national AI Authorities: Agenzia per l'Italia Digitale (AgID) and Agenzia per la Cybersicurezza Nazionale (ACN)

A final significant development concerns the restructuring of the institutional architecture implemented by Art. 20 of Law no. 132/2025, which identifies Agenzia per l'Italia Digitale (AgID) and Agenzia per la Cybersicurezza Nazionale (ACN) as the national competent authorities for artificial intelligence, and which cannot help but raise the issue relating to judicial protection against the sanctioning acts adopted by such entities. The rule attributes to ACN, in particular, the responsibility for supervision, including inspection and sanctioning powers, over artificial intelligence systems, while maintaining the market surveillance competences in the hands of sector authorities such as the Bank of Italy, CONSOB, and IVASS for their respective areas of relevance. In this new scenario, jurisdiction over administrative pecuniary fines imposed by ACN (as the designated authority under Art. 20, paragraph 2, letter b), of Law no. 132/2025) for violations of the legislation on AI (including the AI Act) should be traced back, in principle, to the jurisdiction of the administrative judge, traditionally competent for the review of the acts of independent public authorities entrusted with market supervision[635]. Ultimately, the appointment of AgID and ACN as national

[635] The judicial review that the administrative judge is called upon to exercise over such sanctions is characterised by a particular intensity, taking the form of "full jurisdiction" (*giurisdizione di merito*) pursuant to Article 134(1)(c) of the Administrative Procedure Code.

authorities for artificial intelligence poses the question of the adaptation of Art. 133 c.p.a. In this regard, from a *de jure condendo* perspective, it is hoped that the Italian lawmaker will provide for the insertion of a specific provision within the exhaustive list laid down in Art. 133, paragraph 1, c.p.a., possibly through the introduction of a letter l-bis or by amending the existing letter l), through a textual formulation with the following tenor: «sono devolute alla giurisdizione del giudice amministrativo (…) le controversie aventi ad oggetto i provvedimenti, compresi quelli sanzionatori ed ispettivi, adottati dall'Agenzia per l'Italia digitale e dall'Agenzia per la cybersicurezza nazionale nell'esercizio delle funzioni di Autorità nazionali per l'intelligenza artificiale, ai sensi dell'articolo 20 della legge 23 settembre 2025, n. 132 e del Regolamento (UE) 2024/1689»[636].

Indeed, legal theory and case law have clarified that, in sanctioning matters, the guarantees of a fair trial provided for in Article 6 of the ECHR require that the judge not limit himself to an external review of legality, but may assess the correctness of the facts, the reliability of the technical assessments underpinning the measure, and the proportionality of the penalty related to the gravity of the infringement, even possessing the power to recalculate the amount of the fine. This approach, known as "full jurisdiction", represents a form of *ex post* compensation for any shortcomings in the administrative procedure and ensures that the penalty, which is punitive in nature, is subject to full judicial review. On this subject, see, *ex multis*, F. Goisis, Il concetto di full jurisdiction e il sindacato giurisdizionale sulle sanzioni amministrative nella giurisprudenza della Corte EDU e della Corte Europea di giustizia. Recenti conferme e sviluppi, in Giustizia Insieme, 14 July 2023; S. Torricelli, Autorità indipendenti e (governo della) discrezionalità, in Amministrativamente, 3, 2023, pp. 1388-1404; F. Sclafani, Il sindacato giurisdizionale sui provvedimenti sanzionatori delle autorità indipendenti: l'attendibilità delle scelte tecniche tra legittimità e merito, in Rivista della Regolazione dei Mercati, 1, 2021, pp. 148-169; F. Mazzacuva, Poteri sanzionatori delle Authorities e principi del giusto processo: punti fermi e prospettive nella giurisprudenza di Strasburgo, in Sistema Penale, 29 April 2021; F. Dimichina, Brevi considerazioni sul tema del sindacato del giudice amministrativo sugli atti della Banca d'Italia, in P.A. Persona E Amministrazione, 8(1), pp. 471-493; S. Torricelli, Per un modello generale di sindacato sulle valutazioni tecniche: il curioso caso degli atti delle autorità indipendenti, in Diritto Amministrativo, 2020, pp. 97-126; M. Lipari, Il sindacato pieno del giudice amministrativo secondo i principi della CEDU e del diritto UE. Il recepimento della direttiva n. 2014/10/EU sul private enforcement (Legislative Decree no. 3/2017): le valutazioni tecniche opinabili riservate all'AGCM, in federalismi.it, 8, 2018, pp. 2-31; Consiglio di Stato, Ufficio Studi, Autorità indipendenti e sindacato giurisdizionale, in www.giustizia-amministrativa.it, 2017.

[636] In my opinion, this wording could cover the entire spectrum of the two Agencies' regulatory activities in the field of AI. In particular, the explicit reference to sanctions and inspections is essential in light of Article 20 of Law 132/2025, which, by designating ACN and AgID as competent authorities, specifically assigns supervisory powers to ACN, including inspection and sanctioning powers. Furthermore, the regulatory link to national law and

2. The defects of artificial administrative acts: new horizons or old categories?

The analysis of the defects of administrative acts in Italian administrative law requires an examination of the theory of invalidity in public law, which differs significantly from traditional civil-law categories and constitutes an autonomous, systematic framework governed by principles of the stability and certainty of administrative action. In administrative law, the non-conformity of the act with the regulatory framework does not lead unequivocally to a consequence of automatic ineffectiveness (*inefficacia*), but is structured into a complex system of defects ranging from non-invalidating irregularity (*irregolarità*) to nullity (*nullità*), and including the general category of voidability (*annullabilità*). At the centre of the theory of invalidity lies the distinction between causal invalidity and invalidity affecting the legal effects of the act: the former relates to the qualification of the unlawfulness, namely to the discrepancy between the specific case and the abstract model; the second concerns the legal regime of the consequences, i.e., the reaction of the legal system to such non-conformity[637]. In this context, the principle of equating the invalid act with the valid one applies, according to which the unlawful (but not null) administrative act is fit to produce its typical effects, albeit provisionally, until its eventual removal through judicial annulment or through so-called administrative self-redress (*autotutela amministrativa*), responding to the need to guarantee the binding force (*imperatività*) and enforceability (*esecutorietà*) of public action, preventing every regulatory violation from paralysing administrative action[638]. The defects of the administrative act are manifold. They can concern the prerequisites, the phases of the procedure, its regulating principles, the form of the acts, etc.: these, by interfering with the correct exercise of administrative power, have repercussions on the final act[639].

The general category of administrative invalidity is voidability (*annullabilità*), codified by Art. 21-octies, paragraph 1, of Law no. 241/1990, which crystallises the classic threefold categorisation of defects: lack of

---

Regulation (EU) 2024/1689 serves to delimit the scope of exclusive jurisdiction to functions exercised in the field of artificial intelligence, avoiding overlaps with other competences of the same agencies that may follow different or already codified procedural regimes.

[637] A. Bartolini, Invalidità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 740.

[638] E. Casetta, F. Fracchia (eds.), op. cit., pp. 500-501.

[639] D. Corletto, Vizi «formali» e poteri del giudice amministrativo, in Diritto processuale amministrativo, 2006, p. 33 ff.

competence (*incompetenza*), violation of law (*violazione di legge*) and misuse of power (*eccesso di potere*).

Lack of competence vitiates the act adopted by a public entity or by one of its organs, in the exercise of a power attributed by law to another public entity or to another organ belonging to the same organisational branch[640]. While this case is called "relative" lack of competence (*incompetenza relativa*), entailing the possibility of annulment of the act, "absolute" lack of competence (*incompetenza assoluta*) occurs in the case of an absolute lack of attribution, which gives rise to nullity[641].

Misuse of power, on the other hand, is a very complex defect, the result of a very long and very lively case law elaboration. It evokes the idea of a deviation from the correct use of administrative power and of its sviamento resulting from a use that does not conform to the public interest. As leading scholars have advocated, misuse of power consists of a «vizio tipico dei poteri vincolati nel fine: l'accertamento del vizio implica un confronto tra il fine concretamente perseguito e il fine che la legge ha imposto all'autorità di perseguire attribuendole quel potere»[642]. Case law has identified, over time, numerous indicators of misuse of power, which cannot be listed without resorting to mere description. Among the most important cases is manifest injustice, i.e., the absolute incongruity of the act (e.g., clear disproportion between the fine and the underlying facts)[643]; unequal treatment, when the act

---

[640] S. Perongini, Teoria e dogmatica del provvedimento amministrativo, cit., pp. 397-400. On the grounds of lack of competence, see A.M. Sandulli, Per la delimitazione dei vizi di incompetenza degli atti amministrativi, in Rassegna di diritto pubblico, 1948, p. 25 ff.; E. Casetta, F. Fracchia (eds.), op. cit., p. 508 ff.; R. Villata, M. Ramajoli, Il provvedimento amministrativo, cit., p. 486 ff.

[641] E. Casetta, F. Fracchia (eds.), op. cit., p. 759. For an in-depth study on the lack of competence, see L. Bertonazzi, Il trattamento processuale dell'incompetenza e dei vizi ad essa assimilati, in P.A. Persona e Amministrazione, 1, 2018, pp. 17-31; C. Guacci, La competenza nel processo amministrativo, Giappichelli, Torino, 2018; A. Pioggia, La competenza amministrativa, Giappichelli, Torino, 2001; G. Sorrentino, Vizio di incompetenza e processo amministrativo di risultato, in Diritto processuale amministrativo, 1, 2000, pp. 62-120; A.M. Sandulli, In tema di investitura illegittima dell'autorità e di incompetenza, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, Jovene, Napoli, 1990, p. 141; A.M. Sandulli, Per la delimitazione del vizio di incompetenza degli atti amministrativi, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, cit., p. 55 ff.; A.M. Sandulli, Interferenze tra incompetenza ed eccesso di potere, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, cit., p. 35 ff.; P. Gasparri, Incompetenza (diritto amministrativo), Enciclopedia del diritto, XXI, Giuffrè, Milano, 1971, p. 68 ff.

[642] G. Corso, Manuale di diritto amministrativo, Giappichelli, Torino, 2017, p. 349.

[643] R. Villata, M. Ramajoli, op. cit., p. 483 ff.; S. Perongini, op. cit., p. 417.

decides on identical cases in a different manner[644]; misrepresentation of facts and prerequisites, which occurs in the case of a representation of the fact different from the real one, either because it considers non-existent facts to be existing, or because it considers existing facts to be non-existent[645]; manifest unreasonableness in the procedural path or within the act, when reasons are given that are contradictory to each other[646]; failure to conduct a proper investigation, when the administration has carried out an incomplete fact-finding activity for the purposes of ascertaining facts[647]; insufficient, generic, incomplete, approximate, incongruous, illogical, perplexing, contradictory, doubtful, merely apparent reasoning, etc.[648]; the violation of the principle of proportionality, evaluated on the basis of the objective achieved, its suitability to achieve the same result taking into account further practicable paths that result in a lesser infringement of individual rights of the private citizen, with the consequence that the act adopted in practice must not be excessive with respect to the aim to be achieved[649]. As is evident, misuse of power manifests through multiple indicators that prevent the development of a unitary category. Part of the legal scholarship has astutely observed that such a defect appears as a «formula» through which all defects are indicated, even those deeply dissimilar, «che non si esauriscono nella mera trasgressione di una specifica norma giuridica»[650].

---

[644] Among scholars a distinction is made between internal and external unequal treatment. The first occurs when identical situations are regulated differently by the same act. The second, on the contrary, becomes relevant when the measure rules on only a specific case, equal to another defined differently by another act within the framework of an autonomous and further procedure. Thus, S. Cognetti, Principio di proporzionalità. Profili di teoria generale e di analisi sistematica, Giappichelli, Torino, 2011, p. 125.

[645] S. Perongini, op. cit., pp. 408-410. On the point, it has been specified that the misrepresentation of facts occurs when «si assume a presupposto dell'*agere* una situazione che non sussiste in realtà» (E. Casetta, F. Fracchia (eds.), op. cit., p. 512).

[646] F. Astone, Le patologie procedimentali e provvedimentali, in Aa.Vv. (eds.), Istituzioni di diritto amministrativo, Giappichelli, Torino, 2017, p. 368.

[647] This category is characterised by the fact that some elements to be ascertained have remained unresolved or have been presented inconsistently. Consider cases where the P.A. completes the fact-finding activity in a short timeframe, grading examination papers so quickly as to be inadequate, and ultimately attributing the same score to all candidates (R. Villata, M. Ramajoli, op. cit., p. 465).

[648] R. Villata, M. Ramajoli, op. cit., p. 468.

[649] F. Astone, op. cit., pp. 368-369.

[650] G. Falcon, Lezioni di diritto amministrativo, I, L'attività, CEDAM, Padova, 2005, p. 156. For an in-depth study on the misuse of power, see F. Saitta, Il vizio dell'eccesso di potere: una prospettiva storica, in Nuove autonomie, 3, 2021, pp. 583-631; S. Torricelli (ed.), Eccesso

To conclude on voidability, violation of law constitutes the residual category, that is, everything that constitutes neither lack of competence nor misuse of power and includes every conflict with a law that the administration is bound to observe[651]. Not all violated rules give rise to voidability, but only those with the force and effect of law, namely, state or regional laws, as well as decree-laws and legislative decrees[652].

Opposed to voidability is the category of nullity (*nullità*), codified by Art. 21-septies of Law 241/1990 in four exhaustive cases: the lack of the essential elements of the administrative act (*nullità strutturale*), the absolute lack of attribution (*difetto assoluto di attribuzione*), the violation or circumvention of *res judicata,* and the other cases expressly provided for by law (*nullità testuali*). These are very serious defects, as they operate *de jure*, are not subject to validation, and can be raised by anyone with an interest[653].

---

di potere e altre tecniche di sindacato sulla discrezionalità. Sistemi giuridici a confronto, Giappichelli, Torino, 2018; G. Sigismondi, Eccesso di potere e clausole generali. Modelli di sindacato sul potere pubblico e sui poteri privati a confronto, Jovene, Napoli, 2012; C. Cudia, Funzione amministrativa e soggettività della tutela. Dall'eccesso di potere alle regole del rapporto, Giuffrè, Milano, 2008; F. Follieri, Il sindacato del giudice amministrativo sulla discrezionalità pura o amministrativa. Le figure sintomatiche sono norme giuridiche, non sintomi, Diritto processuale amministrativo, 1, 2008, pp. 68 ff.; F. Ledda, Variazioni sul tema dell'eccesso di potere, in Diritto pubblico, 2000, p. 433 ff.; A. Sandulli, Eccesso di potere e controllo di proporzionalità. Profili comparati, in Rivista trimestrale di diritto pubblico, 2, 1995, p. 329 ff.; G. Sala, L'eccesso di potere amministrativo dopo la legge n. 241/1990: un'ipotesi di ridefinizione, in Diritto amministrativo, 1993, p. 173 ff.; E. Cardi, S. Cognetti, Eccesso di potere (atto amministrativo), in Digesto delle discipline pubblicistiche, V, Utet, Torino, 1990, p. 341 ff.; F. Modugno, M. Manetti, Eccesso di potere amministrativo, Enciclopedia giuridica, XII, Treccani, Roma, 1989, p. 1 ff.; O. Abbamonte, L'eccesso di potere. Origine giurisdizionale del concetto nell'ordinamento italiano (1877-1892), in Diritto processuale amministrativo, 1, 1986, p. 68 ff.

[651] A. Bartolini, op. cit., p. 762.

[652] S. Perongini, op. cit., pp. 400-402. Conversely, the transgression of a regulation does not give rise to a violation of law, but will at most constitute an indicator of misuse of power. In the matter, see R. Villata, M. Ramajoli, op. cit., p. 505 ff. For an in-depth study on the violation of law, see D. Sorace, Il principio di legalità e i vizi formali dell'atto amministrativo, in Diritto pubblico, 2, 2007, p. 385 ff.; W. Gasparri, Violazione delle regole formali tra invalidità degli atti e responsabilità risarcitoria. Una comparazione, in Diritto pubblico, 3, 2007, p. 721 ff.; D.U. Galetta, Violazione di norme sul procedimento amministrativo e annullabilità del provvedimento, Giuffrè, Milano, 2003; R. Cavallo Perin, Violazione di legge (atto amministrativo), Digesto delle discipline pubblicistiche, XV, UTET, Torino, 1999, 657 ff.

[653] On the topic of the nullity of administrative acts, see G. Cavalieri, La nullità nel diritto amministrativo, Giappichelli, Torino, 2022; M. Lampis, Nullità, invalidità e inesistenza

The lack of essential elements establishes a structural nullity (*nullità strutturale*). However, the identification of such elements is less rigid compared to civil law, given the absence in administrative law of a rule analogous to Article 1418, second paragraph, of the Italian Civil Code, which provides for the nullity of a contract where one of the requirements provided for by Article 1325 of the same code is missing, which expressly provides for the essential elements of the contract[654]. Furthermore, the categorisation contained in Art. 21-septies establishes a *numerus clausus* system, opposed to the so-called "implied nullity" (*nullità virtuale*) in force in civil law under Art. 1418 c.c., in that, in public law, the violation of mandatory rules is physiologically resolved as voidability for violation of the law, unless otherwise expressly provided[655].

---

dal diritto civile al diritto amministrativo, Editoriale Scientifica, Napoli, 2022; V.M. Sessa, Le nullità sopravvenute del provvedimento amministrativo, Editoriale Scientifica, Napoli, 2018; M.C. Cavallaro, Gli elementi essenziali del provvedimento amministrativo. Il problema della nullità, Giappichelli, Torino, 2012; F. Vetrò, L'azione di nullità dinanzi al giudice amministrativo, Editoriale Scientifica, Napoli, 2012; F. Luciani, Contributo allo studio del provvedimento amministrativo nullo. Rilevanza ed efficacia, Giappichelli, Torino, 2010; D. Ponte, La nullità del provvedimento amministrativo. Profili sostanziali e processuali, Giuffrè, Milano, 2007; M. D'Orsogna, Il problema della nullità in diritto amministrativo, Giuffrè, Milano, 2004; A. Bartolini, La nullità del provvedimento nel rapporto amministrativo, Giappichelli, Torino, 2002; M. Tiberii, La nullità e l'illecito. Contributo di diritto amministrativo, Edizioni Scientifiche Italiane, Napoli, 2002.

[654] According to Art. 1325 c.c., «I requisiti del contratto sono: 1) l'accordo delle parti; 2) la causa; 3) l'oggetto; 4) la forma, quando risulta che è prescritta dalla legge sotto pena di nullità».

[655] According to the Council of State, «la categoria della nullità nel diritto amministrativo rappresenta una forma di invalidità eccezionale e tipica, che, in omaggio ai principi di certezza dei rapporti giuridici e di stabilità degli assetti plasmati dagli atti amministrativi a tutela di interessi superindividuali, non opera in maniera "virtuale", cioè in assenza di una norma che la preveda testualmente (cfr. in tal senso l'art. 21-septies legge 7 agosto 1990, n. 241). Già in questo si coglie la prima profonda differenza rispetto alla disciplina civilistica del negozio giuridico, dove, invece, la nullità rappresenta la forma di invalidità "residuale", destinata ad operare, alla luce della generale previsione di cui all'art. 1418, primo comma c.c., in via "virtuale", ogni qualvolta il contratto sia contrario a norma imperativa, salvo che la legge disponga diversamente [in termini, Cons. St., sez. VI, 3 marzo 2016, n. 882; in relazione all'esclusione nel diritto amministrativo della nullità virtuale di cui all'art. 1418 c.c., cfr. anche Cons. St., Sez. V, 15 marzo 2010, n. 1498, ove si evidenzia che: «*La norma, introdotta dalla legge 11 febbraio 2005, n. 15, tra le varie opzioni possibili – ossia tra quella di inserire nel sistema della patologia dell'atto tutte le ipotesi di nullità (testuale strutturale e virtuale) previste dall'articolo 1418 del codice civile e quella di ritenere sufficiente la categoria dell'annullabilità per quanto riguarda i rapporti amministrativi – ha scelto la soluzione di compromesso, ossia quella di escludere la nullità per contrasto con norme imperative di legge, giudicando tale categoria particolarmente pericolosa rispetto alle esigenze di certezza e di*

Art. 21-septies, however, does not list the essential elements of the administrative act, entrusting courts and legal scholars with the task of identifying them, an operation that is complicated by the difficulty of adapting Art. 1325 c.c. to the unilateral and functionalized nature of the administrative act. In reconstructing the essential elements of the administrative act, the trajectories of legal scholarship and case law frequently diverge. Among scholars, despite the proliferation of competing theories[656], a baseline consensus exists regarding certain core elements, specifically: the issuing authority, the underlying object, and the form. The issuing authority is the author of the act, usually a public administration, but also a private entity to which administrative powers have been attributed[657], in the context of the more general objective approach to the administrative function (which prioritizes the intrinsic nature of the activity performed over the formal status of the acting entity)[658]. As for the object, it can be understood both as the content of the act and as the good, material or immaterial, upon which the act falls (e.g., the real property targeted by an expropriation order). It is argued, in an application by analogy of Art. 1346 c.c., that the object must be lawful, possible, determined or determinable[659]. Regarding form, the principle of freedom of form is also recognised in administrative matters[660], unless the power-conferring law prescribes a specific one (usually, the written one)[661]; in this regard, as far as the signature is concerned, it is stated that it is a cause of nullity only in the presence of an express provision of law or where it is not

---

stabilità dell'azione amministrativa. In altri termini, le cause di nullità debbono intendersi a numero chiuso, così come peraltro già ritenuto dalla giurisprudenza del Consiglio di Stato (Cons. Stato, VI, 13 giugno 2007, n. 3173; V 26 novembre 2008, n. 5845). Pertanto, le ipotesi astrattamente riconducibili alla nullità c. d. virtuale vanno ricondotte al vizio di violazione di legge, atteso che le norme riguardanti l'azione amministrativa, dato il loro carattere pubblicistico, sono sempre norme imperative e quindi non disponibili da parte dell'amministrazione» (Cons. Stato, sec. VII, judgement of 11 May 2022, no. 3698; in the same terms, see C.G.A.R.S., juris. sec., judgement of 28 June 2021, no. 625; Cons. Stato, Adunanza Plenaria, judgement of 16 October 2020, no. 22).

[656] On the discussion of the various theories developed on the essential elements of the administrative act, please refer to S. Perongini, La struttura del provvedimento amministrativo: a) profili statici, in Aa.Vv., Istituzioni di diritto amministrativo, cit., pp. 297-311.

[657] M. Clarich, Manuale di diritto amministrativo, Il Mulino, Bologna, 2017, p. 174.

[658] F. Testi, Le varie interpretazioni del potere amministrativo, Aracne, Roma, 2016, p. 72 ff.

[659] E. Casetta, F. Fracchia (eds.), op. cit., p. 491.

[660] T. Citraro, Nullità dell'atto amministrativo, in Digesto delle Discipline Pubblicistiche, 2008, § 3.

[661] E. Casetta, F. Fracchia (eds.), op. ult. cit.

possible to deduce with certainty the issuing authority[662]. The more recent Italian administrative case law, however, has adopted a more restrictive orientation, considering that nullity for lack of essential elements can be found in cases of «totale irriferibilità del provvedimento ad un organo emanante, in modo tale da rendere impossibile l'imputazione degli effetti del medesimo» or in cases of «difetto di identificazione (e di identificabilità) del destinatario nella cui sfera giuridica occorrerebbe che si producessero gli effetti del provvedimento amministrativo, posto che ciò incide sulla tipicità dell'atto e rende non percettibile l'imperatività del medesimo»[663]. On the other hand, will and object are not treated as essential elements whose absence entails the nullity of the act, except in the case of a "total" lack of such elements, an eventuality moreover difficult to hypothesize in relation to administrative acts. And this because, according to the Council of State, on the one hand «la volontà (…) è la "volontà procedimentale", di modo che singoli, specifici "vulnera" di conformazione della medesima ovvero del momento di valutazione, scelta, e quindi fissazione del contenuto dell'atto, non possono che rilevare se non *sub specie* di uno dei tipici vizi di legittimità»; on the other hand, «l'oggetto del provvedimento amministrativo attiene all'interesse pubblico, alla cura (tutela, perseguimento) del quale è volto l'esercizio in concreto del potere amministrativo, per il tramite – almeno nel caso di provvedimento discrezionale – di un processo di storicizzazione dell'interesse pubblico primario e di sua conseguente comparazione con gli interessi secondari coinvolti nel procedimento. Anche in questo caso, appare evidente come forme di patologia del provvedimento non possono che proporsi se non per il tramite di uno dei tradizionali vizi di legittimità del provvedimento amministrativo, e segnatamente per il tramite del vizio di eccesso di potere»[664].

The second case of nullity contemplated by Art. 21-septies is the absolute lack of attribution (*difetto assoluto di attribuzione*), which codifies the category of the abstract lack of power (*carenza di potere in astratto*), which occurs when the administration purports to exercise a power that in

---

[662] T. Citraro, op. ult. cit.

[663] *Ex multis*, see Cons. Stato, sec. IV, judgement of 3 January 2018, no. 28; Cons. Stato, sec. IV, judgement of 28 December 2017, no. 6120.

[664] Cons. Stato, sec. IV, judgement of 2 April 2012, no. 1958. This ruling has overcome the previous conception of the Council of State which considered the object as an essential element of the administrative act, crystallized in Cons. Stato, sec. V, judgement of 19 September 2008, no. 4522.

reality no rule attributes[665], distinct from the lack of power in the specific case (*carenza di potere in concreto*), namely of power that is abstractly existing but exercised in the absence of the legal prerequisites[666]. Therefore, the case of *carenza di potere in astratto* cannot be found in cases in which the attribution of power to the body that actually adopted the act is missing, this case being resolved in a lack of competence (given the abstract attribution of power to the administration to which the organ pertains), or in cases in which a prerequisite is missing, although required by law, for the concrete exercise of the abstractly attributed power, such cases once again involving either lack of competence or violation of law[667].

The third case of nullity of the administrative act concerns the violation or circumvention of *res judicata*, which is placed to safeguard the effectiveness of judicial protection, as it occurs when the administration, re-exercising the power after a judicial annulment, adopts an act that conflicts with the ascertainment contained in the judgement (violation) or that, while formally respecting its prescriptions, circumvents its substantial content to achieve the same unlawful outcome (circumvention)[668].

Finally, Art. 21-septies contemplates express statutory nullities (*nullità testuali*), i.e., the cases in which the law expressly gives rise to nullity. Typical examples are hirings in public employment without a competition[669], acts adopted by bodies acting in a holdover capacity beyond the term of 45 days[670], the clauses of tender notices that provide for grounds for exclusion additional to those exhaustively provided for by the public contracts code[671], or the acts

---

[665] Cons. Stato, sec. V, judgement of 10 January 2017, no. 45; Cons. Stato, sec. IV, judgement of 17 November 2015, no. 5228; Cons. Stato, sec. IV, judgement of 18 November 2014, no. 5671; Cons. Stato, sec. VI, judgement of 31 October 2013, no. 5266.

[666] C.G.A.R.S., juris. sec., judgement of 21 July 2015, no. 571. The case law of the Supreme Court of Cassation has arrived at the same conclusions, on which see Cass. civ., SS.UU., judgement of 3 October 2016, no. 19682; Cass. civ., SS.UU., judgement of 23 September 2014, no. 19974.

[667] Cons. Stato, sec. IV, judgement of 3 January 2018, no. 28. In the same sense, more recently, see T.A.R. Lombardia, Brescia, sec. I, judgement of 15 April 2024, no. 309.

[668] V. Chiappiniello, La nullità del provvedimento, in A. Giordano (ed.), op. cit., pp. 246-247.

[669] Art. 33, paragraph 2, and Art. 34-bis, paragraph 5, Legislative Decree no. 165 of 30 March 2001.

[670] Art. 3, paragraph 3, Decree Law no. 293 of 16 May 1994, converted into Law no. 444 of 15 July 1994.

[671] Art. 10, paragraph 2, Legislative Decree no. 36 of 31 March 2023.

of conferring appointments adopted in violation of Legislative Decree no. 39/2013[672].

A peculiar form of defect of the administrative act is ineffectiveness (*inefficacia*), provided for by Art. 2, paragraph 8-bis, of Law no. 241/1990, which includes, for example, acts adopted late where tacit approval has occurred. Legal scholarship and case law debate the nature of this ineffectiveness: while some scholarship traces it back to a form of nullity arising from the exhaustion of power[673], prevailing case law regards it as an autonomous consequence that deprives the act of effects without necessarily implying its structural nullity[674].

To conclude on the invalidity of the administrative act, it must be acknowledged that legal scholarship and case law have developed other defects, devoid of a regulatory basis: irregularity (*irregolarità*) and non-existence (*inesistenza*).

In the first place, irregularity is generally considered configurable in relation to cases in which the non-conformity between the adopted act and the abstract legal scheme is marginal, namely hypotheses in which the deviation from the regulatory framework is so minimal that it is insufficient to constitute a violation of law and, as a result, to render the act unlawful[675].

---

[672] Art. 17, Legislative Decree no. 39 of 8 April 2013.

[673] M. Macchia, Efficacia ed esecuzione del provvedimento, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 722.

[674] In particular, the following declared the ineffectiveness, rather than the nullity, of belated acts: T.A.R. Campania, Salerno, sec. II, judgement of 2 May 2023, no. 1018; 27 March 2023, no. 710; 20 March 2023, no. 644; 6 September 2022, no. 2327; T.A.R. Sardegna, sec. II, judgement of 9 March 2023, no. 170. Also of note is T.A.R. Puglia, Bari, sec. III, judgement of 10 March 2023, no. 474, which, in declaring the ineffectiveness of the belated act, also declared the inadmissibility of the applications for nullity and voidability of the same. For T.A.R. Puglia, Bari, sec. II, judgement of 1 August 2022, no. 1128, the consequence is «l'immediata inefficacia e non la nullità» of the act; while T.A.R. Sicilia, Catania, sec. I, judgement of 9 December 2022, no. 3220, spoke of ineffectiveness «in ragione della consumazione del potere di amministrazione attiva, salva l'autotutela (c.d. tempistica in una logica di preclusione)» (see, in similar terms, also T.A.R. Piemonte, sec. II, judgement of 29 June 2022, no. 605). On the other hand, T.A.R. Lombardia, Brescia, sec. II, judgement of 16 December 2022, no. 1335, and T.A.R. Liguria, sec. I, judgement of 5 July 2021, no. 631, seem to favour the nullity of belated acts.

[675] According to Perongini, irregularities are «lievi, minimali, irrilevanti e ininfluenti e, pertanto, sottratte a ogni meccanismo sanzionatorio» (S. Perongini, Teoria e dogmatica, cit., pp. 417-418). For an in-depth study on the irregularity of the administrative act, see D. Marrama, Brevi riflessioni sul tema dell'irregolarità e dell'invalidità dei provvedimenti amministrativo, Diritto processuale amministrativo, 2, 2005, p. 359 ff.; G. Morbidelli,

Examples of mere irregularity are, for example, the failure to indicate in the act the authority to which it is possible to appeal and the time limit for appealing[676].

In the second place, the so-called non-existence (*inesistenza*) is used by scholars to describe situations in which the act cannot even be classified as a legal act (e.g., an act *jocandi causa* or the usurpation of functions), unlike nullity, which, in any case, presupposes a legally relevant – albeit invalid – situation[677]. In other words, the non-existent act is a «non atto» or, simply, an «atto che non c'è»[678].

Having outlined the theoretical framework of the traditional forms of invalidity that can afflict the administrative act, we must now assess the stability of this system in the face of the unprecedented challenges posed by automated decision-making. The entry of artificial intelligence systems into

---

Invalidità e irregolarità, in Aa.Vv., Atti del Convegno su Innovazione del diritto amministrativo e riforma dell'amministrazione, Giuffrè, Milano, 2002, p. 79 ff.; P.M. Vipiana Perpetua, Gli atti amministrativi: vizi di legittimità e di merito, cause di nullità ed irregolarità, CEDAM, Padova, 2003; F. Fracchia, Vizi formali, semplificazione procedimentale, silenzio-assenso e irregolarità, in Il diritto dell'economia, 3-4, 2002, p. 429 ff.; A. Romano Tassone, Contributo sul tema dell'irregolarità degli atti amministrativi, Giappichelli, Torino, 1993.

[676] Regarding which we spoke in Section 7.1 of Chapter 2, related to the communication of the start of the administrative procedure.

[677] V. Chiappiniello, I vizi del provvedimento, in A. Giordano (ed.), op. cit., pp. 233-235. For an in-depth study on the topic of the non-existence of administrative acts, see M. Lampis, Nullità, invalidità, inesistenza, cit.; V. Cerulli Irelli, F. Luciani, Invalidità e inesistenza degli atti amministrativi e delle leggi, in Aa.Vv. (eds.), Studi in memoria di Antonio Romano Tassone, vol. I, Editoriale Scientifica, Napoli, 2018, p. 577 ff.; V. Cerulli Irelli, Invalidità ed inesistenza degli atti amministrativi e delle leggi (prime osservazioni), in Diritto pubblico, 1, 2015, p. 203 ff.; R. Caranta, L'inesistenza dell'atto amministrativo, Giuffrè, Milano, 1990; A.M. Sandulli, I limiti di esistenza dell'atto amministrativo, in Rassegna di diritto pubblico, I, 1949, p. 125 ff.

[678] S. Perongini, Teoria e dogmatica, cit., pp. 385-387. The configurability of the defect of non-existence is much debated. In particular, its autonomy with respect to nullity is discussed. In favor of autonomy are, *ex multis*, F. Ferrara, La teoria del negozio illecito nel diritto civile italiano, Edizioni Scientifiche Italiane, Napoli, 1914, p. 17 ff.; E. Betti, Teoria generale del negozio giuridico, UTET, Torino 1952, p. 473 ff.; R. Sacco, Nullità e annullabilità (dir. civ.), in Novissimo Digesto Italiano., IX, 1965, p. 456; R. Scognamiglio, Contratto in generale, in G. Grosso, F. Santoro Passarelli (directed by), Trattato di diritto civile, Vallardi, Milano, 1977, p. 231 ff. In the sense of the subsumption of non-existence under nullity, S. Pugliatti, Abuso di rappresentanza e conflitto di interessi, in Rivista di diritto commerciale, I, 1936, p. 22 ff.; F. Messineo, Dottrina generale del contratto, Giuffrè, Milano 1946, p. 433; D. Barbero, Sistema istituzionale del diritto privato italiano, I, UTET, Torino 1958, p. 484 ff.

the public function, in fact, is not limited to modifying the operational methods of manifestation of the administrative action, but risks altering its very core fabric, especially where the computational contribution of the machine ends up prevailing over or entirely replacing the evaluative moment reserved for the natural person. The unavoidable problem thus arises of legally qualifying the defects that vitiate the algorithmic administrative decision, devoid of the necessary safeguard protections provided by law, imposing on courts and scholars the interpretive effort of exploring in depth the relationship between these new technological phenomena and existing legal categories, in order to identify the most suitable remedy to guarantee the legality of administrative action.

2.1. The failure to give reasons for artificial administrative acts

We begin by addressing the question concerning the legal status of the artificial administrative act, which, although attributable to the administration, is deficient in the explanation of the reasoning process followed to reach the decision, thus constituting a failure to give reasons (*vizio di motivazione*). In this scope, the inquiry can focus exclusively on the area of voidability, analysing how the failure to state reasons generated by algorithmic opacity can act as either a violation of the law or a misuse of power. The fundamental theoretical question concerns the correct qualification of the defect deriving from the failed or insufficient enunciation of the factual prerequisites and the legal reasons. Among scholars, prominent voices have maintained that, following the generalisation of the duty to give reasons introduced by Art. 3 of Law no. 241/1990, the lack of such an element constitutes a violation of law: reasoning being a formal requirement imposed by a positive rule, its absence would constitute a direct infraction of the legislative precept[679]. However, another part of the more refined scholarship, attentive to the nature of the power exercised, has introduced appropriate distinctions that appear crucial for framing the phenomenon of AI. According to this approach, the qualification of the defect changes depending on whether the activity is non-discretionary or discretionary and depending on the gravity of the deficiency: the absence of reasoning would continue to constitute a

[679] B.G. Mattarella, Il provvedimento, in S. Cassese (directed by), Trattato di diritto amministrativo. Diritto amministrativo generale, I, Giuffrè, Milano, 2003, p. 877; F. Bassi, Brevi note sull'eccesso di potere per difetto di motivazione, in Aa.Vv., Studi per Mario Nigro, Giuffrè, Milano, 1991, p. 68; G. Corso, Motivazione dell'atto amministrativo, *ad vocem*, in Enciclopedia del Diritto, vol. XXVII, Giuffrè, Milano, 2001, p. 774.

violation of law for non-discretionary acts (for which the duty to give reasons also exists), while for discretionary acts a defect ascribable to a violation of law would occur in cases of total absence of reasoning, and of misuse of power in case of deficiency of reasoning[680]. In the context of artificial administrative decision-making, this theoretical distinction provides fertile and necessary ground for application. Should one be faced with a non-discretionary administrative act supported by AI (as in the example of the AI system's rejection of a building permit for violating distances calculated by the AI system), the absence of reasoning constitutes a violation of the law. In this case, in fact, the obligation to explain the reasons for the refusal is a rigid precept: if the system returns a negative outcome and the officer adopts it without explaining the violated regulatory parameter and the factual data detected (for example, limiting themselves to ratifying an unreasoned refusal), Article 3 of Law no. 241/1990 is directly violated, as well as Art. 86 of the AI Act which requires the deployer to provide the person concerned with clear and meaningful explanations on the role of the AI system in the decision-making procedure and on the main elements of the decision adopted. The same reasoning applies to discretionary acts affected by a complete lack of reasoning. More insidious and frequent in the use of advanced AI systems is the case of deficient, insufficient, or contradictory reasoning, in which, in the scope of discretionary procedures (such as environmental impact assessment or exclusion for an abnormally low tender), the administration provides reasoning that is incapable of "translating" the functioning of the algorithm into understandable legal language, resulting in misuse of power[681]. In this

---

[680] G. Bergonzini, Difetto di motivazione del provvedimento amministrativo ed eccesso di potere, in Diritto amministrativo, 2, 2000, p. 292; R. Villata, M. Ramajoli, Il provvedimento amministrativo, Giappichelli, Torino, 2006, p. 271.

[681] On this point, the observations of the Council of State are particularly pertinent, according to which, in case of a robotized administrative decision concerning decisions assigning teaching staff to schools, there exists «violazione dei principi di imparzialità, pubblicità e trasparenza» in the case in which «non è dato comprendere per quale ragione le legittime aspettative di soggetti collocati in una determinata posizione in graduatoria siano andate deluse. Infatti, l'impossibilità di comprendere le modalità con le quali, attraverso il citato algoritmo, siano stati assegnati i posti disponibili, costituisce di per sé un vizio tale da inficiare la procedura. Non solo, gli esiti della stessa piano effettivamente connotati dall'illogicità ed irrazionalità denunciate dalle appellanti, essendosi verificate situazioni paradossali per cui docenti con svariati anni di servizio si sono visti assegnare degli ambiti territoriali mai richiesti e situati a centinaia di chilometri di distanza dalla propria città di residenza, mentre altri docenti, con minori titoli e minor anzianità di servizio, hanno ottenuto proprio le sedi dagli stessi richieste» (Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270).

scenario, the formal statement of reasons is present, but it is not suitable for its substantial functions of guarantee and transparency. Adhering to the theory that requires the artificial administrative act to meet the same standard of reasoning as the human act[682], it follows that the administration would have the burden of translating the computational logic into understandable legal language (using global and local xAI techniques and counterfactual explanations). If it fails in this task, the act should be considered voidable for violation of law (Art. 3 Law no. 241/1990 and 86 AI Act) where reasoning is entirely missing, as well as for misuse of power where, in the scope of discretionary activity, reasoning is present but obscure, generic, or otherwise unable to account for the logical-evaluative process underlying the decision.

2.2. The artificial administrative act adopted in violation of the principle of human oversight

Let us now address the problem concerning the fate of the administrative act that is completely or substantially devoid of human decision-making, or of an act for which the official's review was missing or resulted in a mere formality, under supervision that was only apparent and superficial. As noted by some legal scholars, there are four abstract possibilities. The first is that, strictly speaking, if human intervention serves the purpose of keeping the attribution of the act to the entity and the organ intact, together with the obligation to pay damages, it should be a non-existent act, as it is not attributable to the P.A. or to the acting official. The second possibility is that it could be a null act due to the absence of an essential element: a will traceable to the administration (the machine is neither a direct nor an indirect organ). The third case is that an administrative act adopted in a fully automated manner could be voidable for violating the law, being supported by a flawed intent due to the absence of a valid human contribution. Finally, the same act could be ineffective if the human contribution is treated as a condition of efficacy under Art. 21-quater of Law no. 241/1990[683]. The various judicial decisions that have intervened so far, however, have qualified the administrative act as unlawful and annulled it, without providing specific explanations. It is necessary, therefore, to analyse each case to attempt to provide the solution that, in my opinion, appears

---

[682] With the corrections that I deemed necessary to make in paragraph 4.1. of this chapter.

[683] These four possible hypotheses are suggested by N. Durante, La discrezionalità amministrativa ed i vizi del procedimento amministrativo, nell'epoca dell'intelligenza artificiale, cit., p. 8.

preferable. First, the theory that the artificial administrative act is legally non-existent, devoid of real human review, appears difficult to maintain compared with the mechanisms for attributing administrative activity. Although non-existence constitutes a theoretical category applicable only in extreme cases, invokable when the act is not even abstractly traceable to the public authority, in the case of the automated act, there is always a moment of formal assumption of the decision by the competent public administration that has made use of the AI system, having employed it in its own procedural cycle. As previously highlighted, administrative law adopts an objective approach to the public function, focusing on the intrinsic nature of the activity performed rather than the formal nature of the acting entity. Consequently, provided that the act is legally imputable to the organisational sphere of the public administration and retains at least a semblance of administrative authority, it is deemed to exist within the legal order. As such, it remains presumptively valid and capable of producing legal effects, notwithstanding any inherent defects that may affect its legality. The lack of a human cognitive process, so to speak, "biological", behind the final decision does not sever the organic link between the entity and the act, rendering the category of non-existence unsuitable for describing the phenomenon. Similarly, the theory of so-called ineffectiveness must be excluded, since, in the system of Law no. 241/1990 (Art. 21-quater and Art. 2, paragraph 8-bis), it concerns the efficacy-integration phase or specific sanctions for belated acts, presupposing an act that, although perfect, is not yet fit to produce effects or has been deprived of them. Constructing the human contribution as a mere *condicio iuris* of efficacy pursuant to Art. 21-quater of Law no. 241/1990 appears to be a theoretical stretch, as it would mean admitting that the automated act is, in itself, valid and perfect, but only "dormant," awaiting human validation. On the contrary, the human contribution constitutes the very core of the exercise of decision-making power and of the comparative evaluation of interests; its lack affects the genesis and perfection of the decision-making process (the "how" the will of the administration was formed), not its mere executivity. Furthermore, the ineffectiveness of Art. 2, paragraph 8-bis, Law 241/1990 is an exceptional consequence confined to the cases specified by law, not extendable to defects relating to the decision-making process. Having excluded the extreme hypotheses, we can turn to the categories of nullity and voidability. As for nullity, no particular problems arise in excluding the case—provided for by Art. 21-septies—of so-called “statutory nullity” (*nullità testuale*), since at least currently no provisions of law exist that expressly impose the consequence of nullity in case of an administrative act adopted using exclusively automated methods. Equally to be excluded is nullity for absolute lack of attribution

(*difetto assoluto di attribuzione*), since this case occurs—as already clarified—only when the administration exercises a power that no rule attributes to it. In the case of an artificial administrative act, the administration is exercising a power that abstractly belongs to it, but it is exercising it badly, i.e., violating the rules or principles that regulate the exercise of that power. One is therefore faced with a classic case of lack of power in the specific case (carenza di potere in concreto), or misuse of power, caused by unlawfully entrusting the decision to an AI system without prior, mandatory human control. More complex, but equally to be excluded, is the theory of so-called structural nullity for lack of essential elements, notably the "author" or the "will". As for the "author", as already observed for non-existence, the act is formally attributable to the administrative organ that issues it: the machine acts as an auxiliary tool, not as an organ replacement usurper, and the attributability to the public entity remains intact thanks to the principle of organic representation (*principio di immedesimazione organica*). The most recent administrative case law adopts a restrictive approach, identifying nullity only when the measure is wholly unattributable to the issuing authority, thereby precluding any legal imputation of its effects to the administration. Consequently, as long as the act bears the – even digital – signature of the competent organ, the issuing authority remains formally present. This framework strictly adheres to the principle of legality and the imputation of public choices to the authority vested with the power, as reaffirmed by Law no. 132/2025, which relegates AI to an instrumental and supportive function. Far from requiring a psychological intent, modern doctrine focuses on the objectified procedural will (*volontà procedimentale*) embodied in the act itself. Therefore, defects in the decision-making process – such as the failure of the human official to critically evaluate the machine's output – do not equate to a total absence of the volitional element; rather, they establish a defect in the exercise of administrative power (*vizio della funzione*). The intent exists insofar as the act was formally adopted by the administration, but it remains a corrupted intent, having been formed unlawfully and in violation of the standards governing investigation and reasoning. Ultimately, the absence of human input does not trigger structural nullity but constitutes a ground for voidability, thereby preserving the stability of legal relationships through the presumption of administrative validity until any definitive judicial intervention.

It follows, ultimately, that the correct theoretical category for framing the algorithmic act devoid of human oversight should be voidability under Art. 21-octies of Law 241/1990. This solution, first and foremost, respects the principle of equating the invalid act with the valid one, ensuring that the act, even if flawed, produces its effects until judicial removal or exercise of

administrative self-redress powers, preserving the stability of administrative action. Furthermore, this solution appears to be the most consistent with the theory we previously embraced, which limits the duty of human intervention to detecting manifest errors and verifying reasonableness, without imposing an impracticable full review of the computational calculation. The qualification of the defect within the sphere of voidability requires identifying which of the three categories provided for by Art. 21-octies becomes relevant. Having discarded the case of lack of competence, given that the attribution of power to the organ remains in force even when exercised through algorithms, the choice remains only between misuse of power and violation of the law. On the point, according to part of the legal scholarship, the idea appears preferable according to which the violation of the requirement for human intervention constitutes, to all intents and purposes, a violation of law, while the reference to both lack of competence (which is nothing other than a *species* of violation of law) and misuse of power (which is typical of discretionary administrative activity alone, acting as a «vizio della funzione»[684]) appears clearly off target[685]. This theory, however, appears overly rigid, as it does not capture the cross-cutting nature of the use of artificial intelligence systems,

---

[684] According to Feliciano Benvenuti's famous reconstruction, misuse of power is defined as a «vizio della funzione» (F. Benvenuti, Eccesso di potere per vizio della funzione, in Rassegna di diritto pubblico, 1950, p. 1 ff.), in the sense that it occurs when the administration, while formally complying with the rules of action, exercises its power in an incorrect, illogical or inconsistent manner with the public purpose, deviating from the principles of reasonableness and proportionality that govern discretionary choices. Therefore, according to the prevailing view, it is a specific and exclusive defect of discretionary activity (E. Casetta, F. Fracchia (eds.), op. cit., p. 511; A.M. Sandulli, Il procedimento amministrativo, Giuffrè, Milano, 1964, p. 330), as it cannot arise in the case of non-discretionary activity (M. Trimarchi, Il provvedimento amministrativo: nozione e caratteri, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, cit., p. 653).

[685] The argument that violations of the requirement for human intervention can be classified as violations of the law is supported by Gallone (G. Gallone, Riserva di umanità e funzioni amministrative, cit., pp. 194-195), who also observes that «la sussunzione sotto la "violazione di legge" non può, peraltro, essere esclusa sulla base del rango superprimario del principio della riserva di umanità atteso che, per opinione oramai unanime, tale categoria generale di illegittimità ricomprende ogni inosservanza di norme giuridiche, quale che ne sia la forza formale, ivi comprese quelle costituzionali purché dotate, come nel caso che occupa, dell'attributo della immediata precettività. Del resto, ove si riconducesse la violazione della riserva di umanità all'inosservanza dell'art. 22 G.D.P.R., la soluzione in parola risulterebbe coerente con quella ormai da tempo elaborata in dottrina e giurisprudenza con riguardo al provvedimento amministrativo adottato in contrasto con il diritto dell'Unione Europea che vuole quest'ultimo come meramente annullabile e non nullo (né, *a fortiori*, disapplicabile)».

which are now employed as support in both discretionary and non-discretionary administrative activities. The requirement for human intervention is therefore a principle that must pervasively oversee the entire administrative action, regardless of the margin of choice left to the administration. Therefore, I deem it necessary to support a first theory, which we could define as "eclectic", according to which the nature of the defect affecting legality for violation of the requirement for human intervention changes in relation to the type of power exercised. Specifically, in non-discretionary proceedings (e.g., building permit denied due to an error of the AI system), the absence of human control would give rise to a violation of law, as the act would place itself in direct conflict with the rigid regulatory parameters that the AI system has disregarded, in addition to violating the provisions that expressly impose the guarantee of a human contribution in the process of adoption of administrative decisions, such as Art. 22 of the GDPR, Art. 30 of Legislative Decree 36/2023, Art. 26 of the AI Act and Art. 14 of Law 132/2025. Conversely, in discretionary procedures (such as the assessment of abnormally low tenders in a public procurement procedure), the lack of human input leading to an unlawful exclusion would give rise to the defect of misuse of power, understood as a defect in the exercise of the power, manifesting itself—depending on the case—in the form of misrepresentation of facts, failure to state reasons, unequal treatment, etc. To this first theory, I deem it appropriate to add, and indeed overlap as a decisive key of interpretation, a second theory of a "substantialist" nature, according to which the violation of the requirement for human intervention should not be understood as a defect fit in itself to invalidate the act just because “the human is missing”. In the eyes of private individuals, the administrative act, in fact, affects their legal position through its operative provisions and its reasoning. If such an act is flawed, the applicant does not care whether the error was generated by a negligent official or by an artificial intelligence hallucination. What matters is the result: an unjust act. Therefore, the artificial administrative act will not be flawed simply because it was adopted in violation of the procedural rule on the requirement for human intervention, but because—from a substantial point of view—it is affected by concrete deficiencies. The absence of human intervention should be relevant as a cause of substantive defects: if the algorithm makes a mistake and the human does not correct it, the administrative act will be flawed for misrepresentation of facts (if it is based on unreal data), for failure to state reasons (if the reasoning process is illogical, unreasonable, contradictory or otherwise incomprehensible, perhaps because an xAI technique was not used), or again for unequal treatment (where the AI system, replicating discriminatory biases embedded

in its training data, unjustifiably penalizes certain categories of individuals within selection procedures or allocation of public benefits). This substantialist approach, moreover, would harmonise perfectly with the provision of Art. 21-octies, paragraph 2, of Law no. 241/1990, according to which «non è annullabile il provvedimento adottato in violazione di norme sul procedimento o sulla forma degli atti qualora, per la natura vincolata del provvedimento, sia palese che il suo contenuto dispositivo non avrebbe potuto essere diverso da quello in concreto adottato». This rule, in fact, should find application also in the case of violation of the rules on the requirement for human intervention, which, on closer inspection, are categorised as "procedural" rules, as they require that in the administrative decision-making procedure there be a human contribution capable of controlling, validating or refuting the automated decision: by virtue of such an approach, we could state that should a non-discretionary administrative act, although adopted in a totally automated way, arrive at the same correct result as the human official would have reached by applying the law, the annulment for the physical absence of the human alone would result in an empty formalism, devoid of substantial utility for the applicant. However, the operation of the phenomenon of the "downgrading" of the defect should encounter an absolute limit where the lack of human oversight is reflected in the intelligibility of the decision, degenerating into a failure to state reasons, since, as clarified by the Constitutional Court[686] and by the prevailing case law of the Council of State[687], the reasoning for the act constitutes an irreplaceable substantial legality safeguard, established to guarantee the right of defense and the transparency of administrative action and, therefore, excluded from the rule preventing annulment under Art. 21-octies, paragraph 2, of Law 241/1990; consequently, to the extent that the violation of the requirement for human intervention prevents the reconstruction of the logical-legal path followed by the machine, rendering the act a black box devoid of understandable justification, the defect assumes a substantial and not merely procedural character, precluding any possibility of preserving the act and requiring its annulment for violation of Art. 3 of Law

[686] Corte Cost., order of 17 March 2017, no. 58; Corte Cost., order of 26 May 2015, no. 92.

[687] Cons. Stato, sec. III, judgement of 31 March 2025, no. 2654. In the same sense, *ex multis*, see Cons. Stato, sec. III, judgement of 27 June 2024, no. 5688; Cons. Stato, sec. IV, judgement of 2 February 2024, no. 1117; Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11258; Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11220; Cons. Stato, sec. IV, judgement of 7 June 2023, no. 5592; Cons. Stato, sec. VI, judgement of 27 April 2021, no. 3385; Cons. Stato, sec. I, opinion of 20 November 2020, no. 1891; Cons. Stato, sec. III, judgement of 7 April 2014, no. 1629.

no. 241/1990[688]. Ultimately, the lack of human review is not the goal of protection, but the instrument through which the classic indicators of misuse of power or violation of the law manifest. The act must be annulled not for an abstract principle of humanism, but because, human presence being missing, the act came into existence with an erroneous, illogical or deficient content, concretely injuring the substantial interest of the applicant.

2.3. The discriminatory artificial administrative act

Finally, we address the fate of the artificial administrative act that results from a violation of the principle of algorithmic non-discrimination. In this case, too, the only conceivable consequence is voidability under art. 21-octies of law no. 241/1990. However, the pervasiveness of the new European and national rules requires that this unlawfulness be qualified through a bipartite analysis that emphasises both violations of law and misuse of power, depending on the nature of the violated rule and the manner in which the prejudice has materialised. Firstly, the discriminatory act appears to be voidable for violating the law. Unlike in the past, when non-discrimination was a general principle derived by interpretation from Article 3 of the Constitution, today we are witnessing a true positivization of the prohibition of algorithmic discrimination through precise and cogent rules. Therefore, the administrative act based on a distorted algorithm directly violates the statutory provisions. Specifically, one could, for example, give rise to a violation of Art. 30, paragraphs 3 and 4, of the Public Contracts Code (Legislative Decree no. 36/2023), if a contracting authority excluded an economic operator on the basis of automated criteria that penalise nationality or ethnic origin. Likewise, the act should be considered flawed for violation of Art. 3 of Law no. 132/2025 if, in the context of access to certain goods or services, AI selects beneficiaries according to prohibited discriminatory logics. Alongside the violation of law, the ground of misuse of power takes on a central, and perhaps predominant, role from a substantive point of view. Algorithmic discrimination, in fact, rarely manifests as an explicit will to harm, but rather emerges as a defect in the exercise of the power, deriving from distortions in training and input data, or in the functioning of the system itself. The indicator par excellence appears to be that of unequal treatment, whereby if the algorithm, trained on historical data containing bias, attributes lower scores to female candidates in a public recruitment process or denies access to welfare benefits to certain ethnic groups under substantially equal

[688] For further information on the applicability of Article 21-octies, paragraph 2, Law 241/1990 to the lack of reasoning, please refer to Section 4.1.2.1. of Chapter II.

conditions with other groups, the act is flawed because it treats equal situations differently. Such disparity, moreover, is not accidental but is the result of an investigation vitiated by tainted historical data, which perpetuates past discriminations[689]. Furthermore, misuse of power could manifest as inadequate fact-finding (*difetto di istruttoria*) and misrepresentation of the facts (*travisamento dei fatti*). As highlighted by art. 26 of the AI Act and the need for a «control over the input data», the administration, in its capacity as deployer, has the burden to verify that the input data entered into the system is «relevant and sufficiently representative» in view of the intended purpose of the AI system. If the public officer omits to check the quality of the input data or does not use adequate techniques (such as «prompt engineering»), the fact-finding process could be deficient. Consider an act of denial of the renewal of the residence permit issued based on a risk assessment algorithm that overestimates the social dangerousness of the applicant based not on their individual conduct, but on distorted aggregate statistics relating to their ethnicity or nationality of origin. The final act would thus be based on a representation of reality falsified by bias, constituting a manifest misrepresentation of facts which flaws the discretionary decision. Finally, an act that, while formally correct in its calculation, leads to a discriminatory result due to spurious correlations (e.g. postal code used as a proxy for ethnicity to deny an essential public service, as warned by Recital 58 of the AI Act), could be afflicted by the flaw of manifest injustice and illogicality, being intrinsically illogical and unreasonable. In such a case, the administration, by abdicating its role as guardian of impartiality pursuant to art. 97 of the Constitution, uncritically receives an inequitable result. In conclusion, the discriminatory artificial act must be annulled not only for the violation of the rules on AI governance, but above all because, through the misuse of power, the substance of the injustice is struck: the act is unlawful because, due to a technical defect not governed by man, it betrays the very

[689] On the point, as observed previously, Recital 57 of the AI Act warns that throughout the entire hiring process, as well as for the purposes of evaluating and promoting persons or the continuation of work-related contractual relationships, AI systems can perpetuate historical patterns of discrimination, for example against women, certain age groups, persons with disabilities or persons having certain racial or ethnic origins or a certain sexual orientation. For this reason, the subsequent Recital 67 recalls how high-quality data and access to high-quality data play a fundamental role in providing a structure and ensuring the performance of many AI systems, with particular attention to mitigating any distortions in the datasets that could have a negative impact on fundamental rights or lead to discrimination prohibited by Union law.

purpose of public power, which is to serve the community in an equal and impartial manner.

3. Fact-finding activity, burden of proof, and judicial review of artificial administrative acts

Fact-finding activity constitutes the core of administrative court proceedings, entrusted with the acquisition of the elements of fact and means of proof necessary to verify the merits of the claim asserted by the appellant and, consequently, to allow the judge to form their own conviction. This phase is the moment when the principle of the effectiveness of judicial protection is put into concrete, empirical practice, transforming the parties' allegations into procedural truth. In the transition from the old arrangement, centred on the objective verification of the legality of the act, to the current model of judicial protection of individual legal positions, the fact-finding phase has undergone a profound metamorphosis: it is no longer aimed exclusively at the review of the challenged act, but extends to the ascertainment of the substantial relationship underlying the interaction between citizen and Public Administration[690]. From a structural perspective, the evidentiary phase under the code of the administrative procedure is governed by the principle of the adversarial process and the guarantee of equality of arms. Nevertheless, this framework must inevitably confront the structural asymmetries of a litigation where one party (the Administration) holds a monopoly over the generation and retention of documentary evidence. The administrative judge is vested with ample fact-finding powers that allow them to order the production of documents, request clarifications, order verifications, or court-appointed technical consultations, thus overcoming the prohibition on exploratory inquiries that would otherwise paralyse the ascertainment of the truth. However, the breadth of such powers does not turn administrative court proceedings into a purely inquisitorial process; the judge, in fact, is bound by the facts pleaded by the parties and cannot autonomously seek factual

[690] G. Carlotti, Domanda, principio dispositivo e istruzione, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 69. See also the observations of Scoca, according to whom the idea is now established that «l'oggetto del processo non sia (più) l'atto impugnato, bensì la cd. pretesa sostanziale del ricorrente, la quale implica necessariamente che l'esame del giudice cada sull'intero rapporto giuridico corrente tra l'amministrazione e il privato». Furthermore, «la pretesa sostanziale comporta l'esame dell'intero rapporto corrente tra l'Amministrazione e i privati interessati (quale che sia la loro posizione rispetto al risultato dell'esercizio del potere)» (F.G. Scoca, Il processo amministrativo ieri, oggi, domani (brevi considerazioni), in Diritto processuale amministrativo, 4, 2020, pp. 1099-1100)

elements not alleged, having to limit themselves to filling purely evidentiary gaps and not pleading deficiencies. The investigation, therefore, treads a fine line between the judge's duty to ascertain the facts relevant to the decision and the prohibition against supplanting the parties in defining the *thema decidendum*. This dynamic implies that, while the allegation of the historical fact remains the exclusive preserve of the private parties, the verification of its existence can avail itself of the active intervention of the adjudicating body. It is in this context that the peculiarity of the administrative evidentiary system emerges: a system that, while respecting the dialectical structure of the process, takes note of the position of informational supremacy of the public party and prepares corrective measures aimed at ensuring that the final decision is not vitiated by the private party's difficulty in accessing sources of proof[691]. Such a procedural arrangement, aimed at compensating for substantial disparities by rebalancing procedural mechanisms, inevitably raises questions about how the risk of failure to provide proof should be distributed and what the precise boundaries are between party initiative and *ex officio* intervention.

The structure of the burden of proof in Italian administrative court proceedings is the fulcrum of a dialectical tension between the rights-based nature of jurisdiction, which aims to protect citizens' legal positions, and the enduring relevance of the public interest[692]. Historically, the courts' fact-

---

[691] For a detailed analysis of the fact-finding process in administrative litigation, see L.R. Perfetti, G. Pesce (eds.), cit.; C.S. Lucarelli, L'accesso al fatto nel processo amministrativo, Giuffrè, Milano, 2024; L. Giani, La fase istruttoria, in F.G. Scoca (ed.), Giustizia amministrativa, cit., p. 418 ff.; G. D'Angelo, La cognizione del fatto nel processo amministrativo fra Costituzione, codice e ideologia del giudice, in C. Cudia (ed.), L'oggetto del giudizio amministrativo visto dal basso. Gli istituti processuali in evoluzione, Giappichelli, Torino, 2020, p. 265 ff.; G. Tropea, Lo svolgimento del processo in primo grado: fase istruttoria. I principi dell'attività istruttoria, in G.P. Cirillo, S. Perongini (eds.), Diritto processuale amministrativo, Giappichelli, Torino, 2020, p. 239 ff.; P. Lombardi, Riflessioni in tema di istruttoria nel processo amministrativo: poteri del giudice e giurisdizione soggettiva "temperata", in Diritto processuale amministrativo, 1, 2016, p. 85 ff.; R. Briani, L'istruzione probatoria nel processo amministrativo. Una lettura alla luce dell'art. 111 della Costituzione, Giuffrè, Milano, 2013; M. Sica, L'istruzione probatoria nel processo amministrativo tra principio dispositivo e poteri ufficiosi, in AIPDA, Annuario 2012. Principio della domanda e poteri d'ufficio del giudice amministrativo, Editoriale Scientifica, Napoli, 2013, p. 111 ff.

[692] For an in-depth study of the burden of proof in the administrative process, see A. Panzarola, Onere della prova, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, cit., p. 159 ff.; G. Serra, L'onere della prova nel processo amministrativo, in L.R. Perfetti, G. Pesce (eds.), op. cit., p. 211 ff.; I. Raiola, L'onere della prova nel processo amministrativo ed il polimorfismo delle tutele azionabili dinanzi al giudice amministrativo, in

finding role in the jurisdictional ambit was structured around the so-called *principio dispositivo* (adversarial presentation of evidence principle), expressed by the Latin legal maxim *iudex secundum allegata et probata partium decidere debet*, which attributes to the parties the monopoly on introducing facts and offering sources of proof[693]. However, the peculiarity of the relationship between citizen and authority, characterized by a congenital information asymmetry, imposed the elaboration of a "mixed" fact-finding process model, traditionally defined as «principio dispositivo con metodo acquisitivo», which is based on the distinction between the initial burden of pleading the primary facts, which remains reserved to the parties in compliance with the principle of party presentation (*principio della domanda*), and the acquisition of means of proof, where the judge can intervene *ex officio* to rebalance the «istituzionale disuguaglianza tra le parti al di fuori del processo: la pubblica amministrazione che possiede il provvedimento e gli atti del procedimento, il privato che potrebbe incontrare difficoltà e subire ritardi per venirne a conoscenza»[694].

The entry into force of the Italian code of the administrative procedure (Legislative Decree 2 July 2010, no. 104) marked a moment of fundamental systematisation, crystallising in art. 64, paragraph 1, the rule whereby the burden of proof lies with the parties for elements that are at their "disposal" (*disponibilità*)[695]. This legislative provision introduced a significant distinction in the rigour of art. 2697 of the Italian Civil Code (*onus probandi incumbit ei qui dicit*), since it anchors the distribution of the evidentiary risk not to an abstract scheme based on the value of the facts establishing, barring, or

---

www.giustizia-amministrativa.it, 2023; M.G. Della Scala, Onere della prova e poteri acquisitivi nel processo amministrativo. Il divieto di nova in appello e il requisito della "indispensabilità", in Il processo, 3, 2021, p. 521 ff.; F. Saitta, Onere della prova e poteri istruttori del giudice amministrativo dopo la codificazione, in Diritto e processo amministrativo, 1, 2013, p. 93 ff.

[693] I. Alberti, L'istruttoria nel procedimento amministrativo, Giappichelli, Torino, 2024, p. 3. M. Giavazzi, Anatomia del processo amministrativo, Editoriale Scientifica, Napoli, 2021, p. 34.

[694] Cons. Stato, Ad. Plen., judgement of 20 November 2014, no. 32. Among scholars, see G. Pesce, Poteri istruttori del giudice amministrativo e piattaforme intelligenti. Questioni vecchie e nuove sul principio "dispositivo con metodo acquisitivo", in L.R. Perfetti, G. Pesce (eds.), op. cit., pp. 105-106. For an in-depth study on the "principio dispositivo con metodo acquisitivo", see *ex multis* F. Saitta, La distribuzione dell'onere della prova nel processo amministrativo, tra principi e regole, in Il Processo, 1, 2025, pp. 105-132.

[695] Art. 64, paragraph 1, of the code of the administrative procedure states that «spetta alle parti l'onere di fornire gli elementi di prova che siano nella loro disponibilità riguardanti i fatti posti a fondamento delle domande e delle eccezioni».

modifying the right asserted, but to a flexible criterion of material accessibility to the proof, a criterion also defined as «vicinanza della prova», which ensures that the burden of proof is attributed to the party closest to the source of evidence and for whom producing the evidence is materially easier[696]. In such a context, the traditional burden of *prima facie* evidence (*onere del principio di prova*) is understood by case law as the appellant's duty to proffer a reliable and plausible account of the facts, sufficient to legitimise the administrative judge's *ex officio* fact-finding powers[697]. The *ex officio* evidentiary powers

---

[696] On the principle of best access to evidence, see *ex multis* G.M. Sacchetto, L'onere della "vicinanza" della prova, in Diritto Processuale Civile e ADR, 8-9, 2023, pp. 1852-1857; R. Rordorf, Onere della prova e vicinanza della prova, in Jus Civile, 1, 2023, pp. 11-18; R. Mazzariol, Fatti costitutivi e vicinanza della prova, in Actualidad Juridica Iberoamericana, 18, 2023, pp. 578-613.

[697] According to the Council of State, «se è vero, infatti, che nel processo amministrativo (di tipo impugnatorio) il sistema probatorio è retto dal principio dispositivo con metodo acquisitivo degli elementi di prova da parte del giudice, è altrettanto vero che, in mancanza di una prova compiuta a fondamento delle proprie pretese, il ricorrente debba soddisfare quanto meno un principio di prova» (Cons. Stato, sec. VI, judgement of 7 January 2025, no. 49; Cons. Stato, sec. VI, judgement of 21 May 2024, no. 4500; Cons. Stato, sec. VI, judgement of 21 June 2022, no. 5090). In particular, «l'onere della prova gravante sul ricorrente, imposto dall'art. 40 comma 1, lett. c), c.p.a., in rapporto all'art. 64, comma 1, c.p.a., può fondarsi su elementi indiziari, purché essi siano dotati, però, della attendibilità sufficiente a costituire un principio di prova plausibile ed idoneo a legittimare l'attività acquisitiva del giudice. Una denuncia delle irregolarità in cui siano incorse le singole sezioni elettorali deve sempre essere sorretta da ulteriori allegazioni probatorie rispetto alle affermazioni del ricorrente, fermo restando che anche un ricorso recante motivi specifici può ugualmente risultare esplorativo, ogniqualvolta emerga che con esso si punti solo a conseguire il risultato di un complessivo riesame del voto in sede contenziosa» (Cons. Stato, sec. V, judgement of 11 December 2015, no. 5653; in the same terms, T.A.R. Lazio, Roma, sec. II-bis, judgement of 18 March 2022, no. 3158; T.A.R. Campania, Napoli, sec. II, judgement of 23 November 2016, no. 5431; C.G.A.R.S., juris. sec., judgement of 20 November 2015, no. 664). Furthermore, although in administrative court proceedings concerning electoral matters the principle of specificity of grounds and the principle of the burden of proof find tempering due to the objective difficulties weighing on the appellant regarding knowledge of the facts and regarding the possibility of finding proof of the same, nevertheless it is in any case necessary that the appeal indicates with sufficient specificity the reasons supporting the request for annulment, indicating at least the defects deemed existent, the number of ballots they concern and the sections to which these refer. Furthermore, it is the burden of the appellant to provide, not full proof, but at least *prima facie* evidence regarding the facts adduced in support of their theses, given that observance of the burden of specificity of the ground does not absorb the burden of proof, and even an extremely detailed report of the irregularities that occurred in the single electoral sections must always be supported by further evidentiary submissions with respect to the party's assertions (T.A.R. Piedmont, Torino, sec. II, judgement of 27 September 2024, no. 956).

principle (*principio dispositivo con metodo acquisitivo*), therefore, does not constitute a derogation from the adversarial presentation of evidence principle (*principio dispositivo puro*), but stands as a modality of implementation of the effectiveness of judicial protection, allowing the administrative judge – pursuant to paragraph 3 of art. 64 c.p.a. – to «disporre, anche d'ufficio, l'acquisizione di informazioni e documenti utili ai fini del decidere che siano nella disponibilità della pubblica amministrazione», regardless of their prior production. Indeed, placing the entire burden of providing proof on the applicant, who does not have access to information and documents exclusively in the possession of the public administration or, in any case, of objectively difficult retrievability, would amount to imposing a *probatio diabolica* and, *de facto*, undermining their right of defence[698]. Consequently, the burden of proof in administrative court proceedings does not follow a monolithic regime, but is modulated in relation to the type of action exercised by the private party[699]: in annulment actions, where the subject matter of the dispute is the exercise of public authority, the *ex officio* evidentiary powers principle operates with greater breadth to balance the authority of the act; conversely, in claims for damages for injury to legitimate interests or in disputes over subjective rights in exclusive jurisdiction, a trend towards the *principio dispositivo puro* is recorded, since it is believed that the injured party has full access to the elements suitable to prove the damage suffered[700]. In the case of claims for

---

[698] In this regard, see G. Veltri, Gli ordini istruttori del giudice amministrativo e le conseguenze del loro inadempimento, in www.giustizia-amministrativa.it, 2013, in which the Author observes that the concept of "disposal" laid down in article 64 of the code of the administrative procedure coincides substantially with the criterion of «vicinanza della prova», according to which «ha l'onere di provare chi è più vicino alla prova o, per dirla con le parole del codice, chi ha la disponibilità della prova». On the subject, see also F. Saitta, Vicinanza della prova e codice del processo amministrativo: l'esperienza del primo lustro, in Judicium, 15 June 2015, pp. 5-6.

[699] I. Raiola, L'onere della prova nel processo amministrativo cit., p. 3, who observes that «è la tipologia del rapporto dedotto in giudizio - e, quindi, i contenuti della relazione intersoggettiva all'esame del giudice - a disegnare e conformare la regola di riparto dell'onere della prova, circostanza che, alla luce del polimorfismo del processo amministrativo, che a sua volta costituisce il riflesso del polimorfismo del provvedimento amministrativo e delle posizioni soggettive che, in ragione dell'adozione o della mancata adozione di esso, vengono in essere».

[700] According to consistent administrative case law, «ai fini della liquidazione dei danni assertivamente provocati dall'illegittimo esercizio del potere amministrativo l'interessato è tenuto a fornire in modo rigoroso la prova dell'esistenza del danno, trovando piena applicazione in materia il principio dell'onere della prova e non invece l'onere del principio di prova di cui al metodo acquisitivo che ordinariamente nelle controversie su interessi legittimi tempera il criterio dispositivo ex art. 2697 c.c.» (C.G.A.R.S., juris. sec., judgement of 28

damages for injury to legitimate interests, however, the prevailing case law, relying on the so-called rebuttable presumptions of fact (*presunzioni semplici*) under Articles 2727 and 2729 of the Civil Code, has recognised the possibility for the party damaged by an unlawful act to invoke the unlawfulness of the conduct as an indication of fault, shifting onto the Administration the burden of demonstrating the existence of an excusable error (*errore scusabile*). The P.A. may invoke such an error in circumstances such as uncertainty in the regulatory framework, conflicting case-law, the complexity of the factual elements, and the potential participation of the private party[701]. Precisely by virtue of such characteristics, the liability of the public administration has been defined among scholars as a «responsabilità soggettiva presunta bensì di natura aquiliana», that is, «una forma di responsabilità aggravata dalla presunzione di colpa», in order to highlight its speciality with respect to the general civil law model[702].

A further element of modeling the evidentiary burden is the principle of implied admission (*principio di non contestazione*), transposed by Article 64, paragraph 2, of the c.p.a., according to which «salvi i casi previsti dalla legge, il giudice deve porre a fondamento della decisione le prove proposte

---

January 2015, no. 73). In other words, «spetta al danneggiato offrire la prova del danno subito, poiché nell'azione di responsabilità per danni il principio dispositivo opera con pienezza e non è temperato dal metodo acquisitivo proprio dell'azione di annullamento (ex art. 64, co. 1 e 3, c.p.a.); quest'ultimo, infatti, in tanto si giustifica in quanto sussista la necessità di equilibrare l'asimmetria informativa tra amministrazione e privato, la quale contraddistingue l'esercizio del pubblico potere ed il correlato rimedio dell'azione di impugnazione, mentre non si riscontra in quella consequenziale di risarcimento dei danni, in relazione alla quale il criterio della c.d. vicinanza della prova determina il riespandersi del predetto principio dispositivo sancito in generale dall'art. 2697, primo comma, c.c.» (Cons. Stato, sec. IV, judgement of 6 May 2025, no. 3844; Cons. Stato, sec. VI, judgement of 19 November 2024, no. 9265; Cons. Stato, sec. VII, judgement of 15 November 2023, no. 9796; Cons. Stato, sec. IV, judgement of 7 August 2023, no. 7596; Cons. Stato, sec. V, judgement of 27 September 2022, no. 8330; Cons. Stato, sec. V, judgement of 3 June 2021, no. 4272; Cons. Stato, sec. V, judgement of 23 August 2019, no. 5803; Cons. Stato, sec V, judgement of 11 May 2017, no. 2184; Cons. Stato, sec. V, judgement of 10 February 2015, no. 675).

[701] F. D'Ambrosio, L'elemento soggettivo dell'illecito della P.A., in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Responsabilità, cit., p. 211. For example, the Plenary Assembly has clarified that «la non veritiera prospettazione da parte del privato delle circostanze in fatto e in diritto poste a fondamento dell'atto illegittimo a lui favorevole non consente di configurare in capo a lui una posizione di affidamento legittimo, con la conseguenza per cui l'onere motivazionale gravante sull'amministrazione potrà dirsi soddisfatto attraverso il documentato richiamo alla non veritiera prospettazione di parte» (Cons. Stato, Ad. Plen., 17 October 2017, no. 8, § 13).

[702] Ibid., p. 206.

dalle parti nonché i fatti non specificamente contestati dalle parti costituite». Although part of the case law tends to qualify such omission as statutory evidence (*prova legale*) or a *ficta confessio*, the preferable theoretical orientation frames it as a *relevatio ab onere probandi*, subject in any case to the sound discretion of the court in the overall evaluation of the evidentiary material[703].

Digitalisation and the use of emerging technologies, starting with artificial intelligence systems, pose new challenges to the burden of proof regime in administrative court proceedings, particularly for claims for damages brought by citizens whose legitimate interests or subjective rights have been injured by an unlawful artificial administrative act. Indeed, as we have already argued, while in the case of annulment actions the private appellant is not interested in understanding if and how the AI system contributed to causing the «illegittimità» of the act, it being sufficient for them to take note of such unlawfulness in its objective dimension of material deviation from the regulatory requirements, the same cannot be said for claims for damages, which are instead directed at ascertaining the «illiceità» of the fact[704], according to the classic scheme of non-contractual liability (unlawful act;

---

[703] G. Serra, L'onere della prova nel processo amministrativo, L.R. Perfetti, G. Pesce, op. cit., p. 224; E. Casetta, F. Fracchia (eds.), op. cit., p. 890. Moreover, it is important to highlight that the principle of implied admission does not operate in the case of default of appearance by the administration, as it requires a deliberate conduct by an appearing party who chooses not to take a position on the specific facts alleged by the counterparty (Cons. Stato, sec. II, judgement of 20 July 2022, no. 6372; Cons. Stato, sec. VI, judgement of 28 July 2020, no. 4805). On the principle of implied admission in administrative court proceedings, see F. Gaffuri, Il principio di non contestazione nel processo amministrativo, Giuffrè, Milano, 2018; R. de Vincenzi, Sul principio di non contestazione nel processo amministrativo, in Rivista di diritto processuale, 6, 2017, p. 1492 ff.; E. Romano, La "non contestazione" nel processo amministrativo, Giappichelli, Torino, 2016; F. Follieri, Il principio di non contestazione nel processo amministrativo, in Diritto processuale amministrativo, 3, 2012, p. 1012 ff.; G. Tropea, Considerazioni sul principio di non contestazione nel processo amministrativo, anche alla luce delle sue prime applicazioni giurisprudenziali, in Diritto processuale amministrativo, 3, 2012, p. 1142 ff.

[704] The distinction between «illegittimità» of the act and «illiceità» of the fact is expressed clearly by the Plenary Assembly of the Council of State, which clarified how «L'azione di annullamento si distingue, infatti, dalla domanda di risarcimento per gli elementi della domanda, in quanto nella prima la *causa petendi* è l'illegittimità, mentre nella seconda è l'illiceità del fatto; il *petitum* nella prima azione è l'annullamento degli atti o provvedimenti impugnati, mentre nella seconda è la condanna al risarcimento in forma generica o specifica» (Cons. Stato, Ad. Plen., judgement of 13 April 2015, no. 4; in the same sense, more recently, Cons. Stato, sec. IV, judgement of 5 April 2023, no. 3532; Cons. Stato, sec. VII, judgement of 31 May 2022, no. 4438; C.G.A.R.S., juris. sec., 23 July 2020, no. 662; Cons. Stato, sec. IV, judgement of 12 March 2018, no. 1535).

damage; causal link; subjective element) or, in particular, of strict liability for the exercise of dangerous activities pursuant to art. 2050 of the Civil Code (unlawful act; damage; causal link). The problem of the burden of proof arises precisely because, as seen *supra*, the prevailing administrative case law, for claims for damages for injury to legitimate interests or in disputes over subjective rights in exclusive jurisdiction, is oriented towards the application of the adversarial presentation of evidence principle (*principio dispositivo puro*), thus excluding the evidentiary mitigation given by the *ex officio* evidentiary powers principle, contrary to what happens, instead, in annulment actions. This procedural dichotomy, however, enters a deep crisis when applied to damages deriving from the use of an AI system. Indeed, if the act is the output of such a system, the error causing the damage and the conduct generating liability coincide materially with the execution of the input given to the machine. Preventing the use of the *principio dispositivo con metodo acquisitivo* to ascertain the causal link in the claim for damages would mean preventing access to the only source of evidence that can explain if and why the damage occurred. A paradox would thus be created: the technical documentation of the AI system would be knowable to annul the act, but would become an impenetrable black box when damages are claimed, effectively protecting the Administration from the financial consequences of its own technological errors. This situation, evidently, would contrast with the principle of effectiveness of judicial protection recognised by art. 1 of the code of the administrative procedure, which requires that procedural remedies do not render «praticamente impossibile o eccessivamente difficile»[705] the exercise of rights conferred by the legal system[706]. It would contrast, in particular, with

---

[705] To use the words of the judgement San Giorgio of the EU Court of Justice, 9 November 1983, case 199/82.

[706] According to art. 1 of the Italian code of the administrative procedure, «la giurisdizione amministrativa assicura una tutela piena ed effettiva secondo i principi della Costituzione e del diritto europeo». Such rule does not constitute a mere programmatic or descriptive statement, but a binding legal precept that elevates effectiveness to a fundamental principle of interpretation and duty of the process itself, obliging courts and legal scholars to prefer, among the possible options, the one that guarantees maximum satisfaction of the substantive claim asserted. Indeed, article 1 c.p.a., read in conjunction with articles 24, 103 and 113 of the Constitution, enshrines the rights-based nature of administrative jurisdiction, which must aim to guarantee the holder of a subjective legal position (legitimate interest or subjective right) «tutto quello e proprio quello ch'egli ha diritto di conseguire», to use the well-known Chiovendian formula (G. Chiovenda, Principii di diritto processuale civile, Jovene, Napoli, 1912 (1923), p. 81). In its procedural and substantive dimensions, said principle requires that the judge be endowed with cognitive and decisional powers suitable to define

what legal scholarship has defined as the obligation to guarantee the «assoluta equivalenza della tutela giurisdizionale tra decisione algoritmica e decisione umana (c.d. effetto utile)[707]. On the one hand, the shifting of liability from AI into the orbit of Article 2050 of the Civil Code would entail a first restructuring of the burden of proof. The rule, in fact, introduces a presumption of liability against the manager of the dangerous activity (the Public Administration), who can be released only by providing proof that they have adopted all suitable measures to avoid the damage (in the rigorous terms specified *supra*). However, and this is the nodal point, art. 2050 of the Civil Code reverses the burden of proof only on the adequacy of the precautionary measures adopted, but leaves intact the burden on the injured party to prove the causal link, namely that the damage suffered is the immediate and direct consequence of the performance of that dangerous activity, or that it was the AI system (and not another cause) that produced the harmful outcome through its malfunction or incorrect application. It is precisely here that, from my point of view, lies the critical issue that renders the mere reference to Article 2050 of the Civil Code insufficient without a procedural adjustment.

---

the final arrangement of the relationship between citizen and Public Administration, ensuring the achievement of the substantial interest yearned for by the appellant and not limiting themselves to a merely quashing order that leaves the interest unsatisfied (A. Tricarico, I principi processuali, in F. Caringella, R. Chieppa B.G. Mattarella, Diritto amministrativo. I. Principi, cit., p. 722). For an in-depth study on the principle of effectiveness of judicial protection in the administrative process, see *ex multis* E. Lubrano, Effettività della tutela giurisdizionale e limiti del potere di riedizione, Editoriale Scientifica, Napoli, 2025; R. Villata, Processo amministrativo, pluralità delle azioni, effettività della tutela, in Diritto processuale amministrativo, 2, 2021, p. 369 ff.; G. Greco, Interesse legittimo ed effettività della tutela (a proposito della sentenza 1321/19 del Consiglio di Stato), in www.giustizia-amministrativa.it, 2020; G. Greco, Processo amministrativo e principio di effettività della tutela (brevi note), in Aa.Vv., Scritti in onore di Eugenio Picozza, vol. 1, Editoriale Scientifica, Napoli, 2019, p. 793 ff.; M. Sinisi, Il giusto processo amministrativo tra esigenze di celerità e garanzie di effettività della tutela, Giappichelli, Torino, 2017; S. Foà, Giustizia amministrativa, atipicità delle azioni ed effettività della tutela. Il nuovo diritto giurisprudenziale, Jovene, Napoli, 2012; R. Caponigro, Il principio di effettività della tutela nel codice del processo amministrativo, in www.giustizia-amministrativa.it, 2010; L. Maruotti, La giurisdizione amministrativa: effettività e pienezza della tutela, in www.giustizia-amministrativa.it, 2010; A. Travi, L'effettività della giustizia amministrativa, in L. Benvenuti, M. Clarich, (eds.), Il diritto amministrativo alle soglie del nuovo secolo. L'opera scientifica di Fabio Merusi, Edizioni ETS, Pisa, 2010, p. 51 ff.; G. Romeo, L'effettività della giustizia amministrativa: principio o mito?, in Diritto processuale amministrativo, 3, 2004, p. 653 ff.; S. Tarullo, Il giusto processo amministrativo. Studio sull'effettività della tutela giurisdizionale nella prospettiva europea, Milano, Giuffrè, 2004.

[707] Thus, N. Durante, Intelligenza artificiale e "lavoro" del giudice amministrativo, cit., p. 3.

In a complex system, where the final output may result from the interaction between human inputs and algorithmic processing, isolating the specific causal link is a difficult technical task. If the Administration, for example, were to object that the error is due to incorrect data provided by the user, the private party would be unable to refute such a statement without accessing the system's internal workings. Applying the *principio dispositivo puro* to the proof of the causal link according to the scheme of Article 2050 of the Civil Code would mean asking the private party to describe the internal functioning of a machine to which they have no access: it would mean, in other words, undermining the substantial protection offered by strict liability through an insurmountable procedural barrier. Indeed, it is the Administration (or its technology provider in procurement) that exclusively holds the technical documentation of the AI system: source code (governing the decision logic), training data (fundamental for detecting discriminatory bias), log files (tracking input, processing and output step by step in the specific case), configuration parameters (the set variables that orient the algorithm's mode of action), etc. The applicant is, by definition, far from these elements of proof. To overcome the described impasse, it is therefore necessary to give effect to the above-described principle concerning the availability of evidence (*principio di disponibilità della prova*) (art. 64, paragraph 1, c.p.a.) also in "algorithmic" claims for damages, requiring that the burden of proof shifts to the party closest to the source of evidence (as stated, the Public Administration) and making necessary the exercise of the judge's fact-finding powers under articles 63, 64 and 65 c.p.a. with the same breadth and incisiveness that characterize the judgement of annulment, for the purpose of acquiring *ex officio* the technical elements useful for the decision. Obviously, this should not be a fishing expedition in search of hypothetical damages, but a targeted judicial fact-finding to verify the merits of a claim for damages based on serious and corroborating circumstantial evidence, which the private party must necessarily represent to honor the so-called burden of *prima facie* evidence (*onere del principio di prova*), i.e., the appellant's duty to proffer a reliable and plausible account of the facts, such as to legitimize the *ex officio* fact-finding powers of the administrative judge. In this specific context, the procedural mechanism, in my opinion, should be articulated as follows: 1) the appellant should prove the existence of the damage (e.g., failure to be hired following a public recruitment process) and the historical fact of the use of an AI system in the administrative proceeding (a circumstance, as we have theorized previously, that should be made known to the private party through the notice of initiation of the proceeding pursuant to art. 7 of Law 241/1990 or, at the latest, through the advance notice of rejection formulated by the

machine pursuant to art. 10-bis of the same law); 2) the appellant should then provide circumstantial evidence (e.g., statistical anomalies in the outcomes, manifest inconsistencies, comparison with analogous cases) that make an error of the AI system plausible; 3) in the face of such a framework of circumstantial evidence, and given the impossibility of direct access, the judge should order the Administration to produce the technical documentation relevant and necessary to verify the causal link; 4) if the Administration refuses production or does not provide clear and legible information and documents, the judge should be able to draw evidentiary inferences pursuant to arts. 64, paragraph 4, c.p.a. and 116, paragraph 2, c.p.c., up to considering the causal link proven[708]. Naturally, the concrete implementation of the *ex officio* evidentiary powers principle in cases for damages from AI would inevitably pass through the use of a court-appointed expert opinion (*consulenza tecnica d'ufficio* – CTU), governed by art. 67 c.p.a. But this will be discussed in more depth in the next paragraph, which is dedicated specifically to the means of proof.

3.1. Some guidance from case law on the burden of proof: from full proof of the algorithm's legality to the distinction between «decisione amministrativa algoritmica» and «algoritmo di mero supporto»

Italian case law, for its part, although it has not yet ruled on the matter in an accurate and detailed manner on how the burden of proof should be apportioned in the specific case of contesting unlawful administrative decisions via AI systems, seems to have prompted some interesting observations, although, as will be seen, they conflict with each other. In particular, the cardinal principle uniting the lines of reasoning of the ordinary courts and the administrative judge, well represented by the historic judgement of the Council of State no. 8472/2019 and reaffirmed by a recent judgement of the Tribunal of Bari, is that the use of IT tools or artificial intelligence can never constitute a shield for the Administration nor an area of immunity from liability; on the contrary, the burden of proof lies primarily with the Public Administration. The Tribunal of Bari, in its recent pronouncement, clarified unequivocally that, in a case of a mobility procedure for teaching staff in which a ministerial algorithm had been employed to manage the assignment of teachers to various territorial locations, «l'illegittimità della procedura di

[708] This would be consistent, moreover, with the approach of the Proposal for a Directive on non-contractual civil liability from artificial intelligence, which envisages mechanisms for disclosure of evidence relating to high-risk AI systems precisely to enable the plaintiff to adequately substantiate the claim for damages and alleviate the burden of proof.

trasferimento deriva non dalla scelta di ricorrere all'algoritmo per le operazioni di trasferimento, ma dal fatto che l'Amministrazione non si è preoccupata di prevedere e di dimostrare che sul piano tecnico il ricorso alla procedura informatizzata garantisse la legalità della procedura stessa». The Bari judge specified that «non può presumersi che dalla circostanza di aver "affidato" la combinazione dei dati della procedura di mobilità a un sistema di intelligenza artificiale derivi, per ciò solo, la legittimità della procedura, occorrendo dimostrare che tale sistema abbia effettivamente funzionato in base a parametri che siano in definitiva rispettosi dei principi generali»[709]. This approach finds full correspondence in the 2019 pronouncement of the Council of State, which had already established how the Administration often limits itself to «postulare una coincidenza fra la legalità e le operazioni algoritmiche che deve invece essere sempre provata ed illustrata sul piano tecnico». For the Council of State, in fact, «l'impossibilità di comprendere le modalità con le quali, attraverso il citato algoritmo, siano stati assegnati i posti disponibili, costituisce di per sé un vizio tale da inficiare la procedura», placing on the public entity the obligation to make the functioning of the software intelligible[710]. Also, the Tribunal of Roma, with a pronouncement on the matter of the failure to assign an annual fixed-term teaching appointment to a teacher due to an error in a ministerial algorithm, applied the evidentiary scheme just described, holding the administration liable by noting that «né il resistente ha fornito la prova di avere rispettato la richiamata normativa» and, even more specifically, that the Ministry did not provide «alcun chiarimento idoneo a consentire di ritenere la regolarità della procedura utilizzata». Since the appellant alleged the malfunction (the fact of having been bypassed by the algorithm) and the Administration did not prove the contrary nor specifically contest the reconstruction, the judge deemed the worker's claim well-founded, highlighting that the computer program acted «contrariamente a quanto avrebbe dovuto avvenire in base alle citate norme»[711]. However, the recent judgement on public procurement by the Council of State no. 4857/2025 – as illustrated previously[712] – introduces an important element of specification and balancing, distinguishing between

---

[709] Tribunal of Bari, labor sec., judgement of 4 March 2025, no. 852, with note by C. Chiarella, F. Corbinelli, Algoritmo non trasparente e mobilità illegittima: condannata l'Amministrazione scolastica, in Altalex, 20 August 2025.

[710] Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472.

[711] Trib. Roma, labor sec., judgement of 10 February 2023, no. 1463, with note by G. Rivellini, L'errore dell'algoritmo obbliga la pubblica amministrazione a risarcire il danno, in IRPA, 14 June 2023.

[712] See Section 4.2.2. of Chapter II.

«decisione amministrativa algoritmica» and «algoritmi di mero supporto». In this latter scenario, the Council of State clarified that «non ricorre la fattispecie del procedimento amministrativo basato su decisioni algoritmiche, ma una decisione affidata al fattore umano rispetto alla quale la procedura automatizzata si è limitata ad accertare uno specifico fatto». In such cases, the Administration's burden of proof is considered satisfied in a different way: «se invece l'amministrazione deposita i file log, ossia report tecnici ricostruenti le interazioni tra utente e sistema informatico nel periodo di essere, da cui risulta l'assenza di anomalie o malfunzionamenti della piattaforma prescelta per la gara, è da ritenersi dimostrato il corretto funzionamento della piattaforma». The administrative judge specified that «sul piano probatorio infine il principio di vicinanza della prova impone un onere di allegazione all'Amministrazione, che essa ha soddisfatto» by producing the technical reports. Consequently, the burden of proof shifts to the private appellant, who is not allowed generic access to the source code since «la semplice volontà di verificare e sondare (...) non legittima un accesso "meramente esplorativo" alle informazioni riservate», a «rigorosa dimostrazione» of the malfunction being necessary. In conclusion, what we have represented regarding the current case law landscape seems to reveal a system whereby when the algorithm replaces the evaluative or decision-making activity, the burden of proof is entirely on the Public Administration, which must prove and illustrate on a technical level the coincidence between legality and automated operations; when, instead, the algorithm performs a function of mere support, the Administration satisfies its burden by producing the objective results of the system (the log files), it being up to the private party to specifically prove the technical malfunction[713]. It is here, however, that the critical observations previously made[714] interact disruptively with the conclusions of the judgement. If, as observed, the distinction appears excessively formalistic and risks becoming a sophism, the Council of State's application of the principle of best access to evidence (*principio di vicinanza della prova*) in judgement 4857/2025 results in a substantial *probatio diabolica* to the detriment of the appellant. Indeed, if one accepts the theory that, even in the case of complex technical verifications (such as the hash check), the algorithm becomes *de facto* the decision-maker insofar as the human decision-maker has no independent means to verify the correctness of such a result, then limiting the Public Administration's burden of proof to the mere production of logs appears

[713] Cons. Stato, sec. IV, judgement of 4 June 2025, no. 4857.

[714] I refer to the observations, made in Section 4.2.2. of Chapter II, for which I believe that the cited distinction is not convincing.

insufficient. As already highlighted, the commission in these cases acts as a mere executor of the machine's will, accepting the result uncritically, with the consequence that classifying such activity as «mero supporto» to deny access to the source code and shift the burden of proof onto the private party – who has neither the technical capacity nor the tools to refute the system – means emptying the guarantees of transparency of their content. In conclusion, it seems that current case law has established a double-track system: a maximum burden for the P.A. in algorithmic decisions and a minimum burden in those of mere support. However, such construction falters if one considers that the category of «mero supporto» could be used by the P.A. to evade heavy transparency burdens, even when the algorithm performs a decisive function in the decision-making process. If the algorithm conditions the final outcome and human intervention is only formal, the burden of proof should remain – consistently with the orientation of the Council of State of 2019 and of the Tribunals of Roma and Bari – with the Administration, called upon to demonstrate the correctness of the software's functioning, without being able to hide behind the qualification of the tool as auxiliary or behind the protection of intellectual property.

As is evident, the question of the burden of proof to challenge artificial administrative decisions in administrative court proceedings is a highly debated issue, and we will likely witness a regulatory intervention in the coming months, since with Law 132/2025 the Italian Government has been delegated, among other things, to provide, in cases of civil liability, instruments for the protection of the party damaged by AI systems, «anche attraverso una specifica regolamentazione dei criteri di ripartizione dell'onere della prova» (art. 24, paragraph 5, lett. d).

3.2. The burden of proof in tenders concerning AI systems

The time has now come to turn our gaze to a case of liability for damages from an algorithmic act that I consider of particular interest from a procedural point of view, namely that in which, within the context of public procurement procedures, artificial intelligence constitutes the object of the supply or a qualitative element of the technical offer. In such a case, in fact, the dynamics of the burden of proof undergo a significant transformation, since one no longer discusses the lawfulness of using AI as a substitute for administrative will (as in the cases of teacher transfers), but rather the correctness of the technical-discretionary evaluation performed by the tender commission regarding the technical merit of a proposed technological solution.

In the case where artificial intelligence constitutes an enhancement included in the technical tender, the burden of proof on the excluded appellant should not be satisfied by means of arguments of a hypothetical nature or empirical experiments lacking contextualised methodological rigour. In a recent case scrutinised by the T.A.R. Lazio[715], the appellant company contested the attribution of a high score to the offer of the successful tenderer, which had proposed using a generative AI system (specifically ChatGPT by OpenAI) to improve the efficiency of cleaning and sanitisation services. In particular, the appellant's evidentiary strategy was based on the presentation of "interrogazioni" carried out by its own defence counsel to ChatGPT, in order to demonstrate that the answers provided by the AI were incorrect or unreliable and that, therefore, the technical promise of the successful tenderer would be impossible to keep. The court, however, rejected such an approach, qualifying the appellant's complaints as an attempt to «sostituire le proprie unilaterali valutazioni – del tutto opinabili – a quelle tecnico-discrezionali della Commissione»[716]; complaints resulting from a «lettura fuorviante, errata e parziale sia dell'offerta tecnica dell'aggiudicataria, sia dei criteri di valutazione previsti dalla *lex specialis*»[717]. The position taken by the T.A.R. reflects marked judicial scepticism towards attempts by parties to the proceedings to test AI systems informally, considering such attempts unsuitable to constitute definitive proof of the unreliability or non-functionality of a specific technological proposal, especially if not rigorously contextualised. The Tribunal, instead, accepted the interpretation of the AI proposal by the successful tenderer company as a «mirato e specifico» use of artificial intelligence, «diverso dall'utilizzo del modello generale descritto nell'atto di motivi aggiunti» by the appellant[718]. AI, in the vision of the T.A.R., had been proposed by the successful tenderer as an «ulteriore strumento di supporto matematico/statistico e di elaborazione di dati, migliorando l'efficienza e la qualità dei servizi offerti »[719], thus making the proposal neither vague nor

---

[715] T.A.R. Lazio, Roma, sec. II, judgment no. 4546 of March 3, 2025, with notes by R. Damonte, M. Bersi, L'intelligenza artificiale e gli appalti pubblici, in italiAppalti, 30 April 2025, p. 4; L. Di Giacomo, L'intelligenza artificiale negli appalti pubblici: la sentenza TAR Lazio n. 4546/2025, in Diritto.it, 2 May 2025; G. Di Stefano, A.A. Sessa, ChatGPT nelle gare pubbliche: il TAR Lazio legittima l'impiego dell'IA generativa [sentenza n. 4546/2025], in Diritto di Internet, 15 May 2025; M. Briccarello, Chat GPT vince la gara e il giudizio, in italiAppalti, 20 May 2025.

[716] Ibid., § 14.

[717] Ibidem.

[718] Ibidem.

[719] Ibidem.

abstract, but sufficiently defined and plausible. From this, it follows that, on the burden of proof, it would be for the appellant, even in relation to the use of AI techniques, to demonstrate the aspects of «evidente criticità e/o inaffidabilità di tale strumento di ausilio, peraltro ormai di comune e diffuso utilizzo»[720]. Such judicial interpretation raises a fundamental question: how can a party to the proceedings effectively challenge, in court, the declared capabilities or the asserted adequacy of an AI system proposed by a competitor in a public tender? In such cases, in fact, the successful tenderer is the party closest to the proof. Therefore, placing the entire burden of providing negative proof (i.e., demonstrating that the system is not capable of doing what is declared) on the appellant, who has no access to the internal functioning of the system, would amount to imposing a *probatio diabolica* and, *de facto*, undermining their right to challenge and effectively contest the award. Unfortunately, the rejection of the evidence adduced by the company excluded from the tender, in the case judged by the T.A.R. Lazio, leaves a void regarding how such objections can be validly brought to the judge's attention and adequately investigated. In this scenario, the procedural tool of the court-appointed expert opinion (*consulenza tecnica d'ufficio*) – on which, as mentioned, we will dwell in the next paragraph – emerges as the most appropriate, if not necessary, institutional safeguard to fill such a gap, as it is only through it that the judge can review the technical evaluation of the Tender Commission. Ultimately, in my opinion, a rebalancing of the burden of proof is necessary, whereby the appellant should be required to satisfy the threshold of the so-called *principio di prova*, understood as an evidentiary starting point that raises credible doubts about the functionality or conformity of the AI system[721]. Once the appellant has discharged such initial burden, the principle of best access to evidence should determine a reversal, shifting the burden onto the respondent (the successful tenderer and, by extension, the contracting authority that approved the offer) to provide positive, concrete and verifiable proof that the AI system functions as declared. Such procedural rebalancing, from my point of view, is the only way to overcome the structural information asymmetry, and it also creates a powerful *ex post* incentive for bidders to be truthful and transparent in their offers, knowing they can be compelled to substantiate their claims with rigorous proof in court.

---

[720] Ibidem.

[721] For example, the appellant could produce in court a technical expert report (*consulenza tecnica di parte*) that questions the technical plausibility of the bidder's declarations, highlighting manifest contradictions within the technical offer or providing documented proof of malfunctions in analogous systems.

A different, yet conceptually convergent, scenario arises when the AI system constitutes the very object of the public tender, as seen in the Council of State's judgement no. 7891/2021 regarding the supply of pacemakers equipped with algorithms[722]. With respect to the burden of proof, this ruling reaffirms the strict limits of judicial review over the contracting authority's technical discretion. It establishes that the evaluations made by the tender committee – composed of subject-matter experts – are not subject to a substantive review unless the appellant provides proof of a manifest error or logical defects[723]. In the specific case, the appellant did not discharge this burden of proof, as the qualification of the appellant's algorithm (initial recipient of the contract award, later annulled in the first instance by the T.A.R. Lombardy) as a therapeutic tool was deemed coherent and devoid of logical defects, confirming moreover that no specific formal self-declaration by the bidder is necessary to attest to the software's functionalities, since the Commission must infer those functionalities directly from the technical contents of the offer[724].

3.2.1. Judicial review of technical discretion: from "extrinsic" control to "intrinsic" review of the tender commission's evaluations

Precisely the reasoning employed by the judgement just cited offers the opportunity to explore in depth the fundamental theoretical knot linking fact-finding activity to the scope of the administrative judge's review of technical discretion. If, in fact, the taking of evidence is the tool for ascertaining facts, its scope and depth inevitably depend on how far the judge believes they can probe into the technical evaluation performed by the Administration. Traditionally, technical discretion was long assimilated to "pure" administrative discretion[725], rendering evaluations based on specialised

[722] Cons. Stato, sec. III, judgement of 25 November 2021, no. 7891.

[723] Ibid., § 11.

[724] Ibidem.

[725] According to Ranelletti, in fact, «la discrezionalità, sia l'apprezzamento puramente amministrativo, sia tecnico-amministrativo, è sempre amministrativa, e quella distinzione non ha alcuna importanza giuridica» (O. Ranelletti, Principi di diritto amministrativo, Luigi Pierro, Napoli, 1912, p. 365 ff.). Bachelet was of the same opinion, according to whom even when the concrete activities of the public administration must refer to the findings and criteria of the sociological, psychological and organisational sciences, «ciò non darà origine a una "attività tecnica", quasi diversa e contrapposta a quella amministrativa, ma si limiterà a "tecnicizzare" in parte questa: si tratterà cioè pur sempre di attività amministrativa, anche se qualificata dal doveroso riferimento a criteri tecnici» (V. Bachelet, L'attività tecnica della pubblica amministrazione, Giuffrè, Milano, 1967, p. 120)

knowledge (such as medicine, engineering, economics, etc.) substantively unreviewable, except in cases of manifest illogic[726]. However, the evolution of case law, inaugurated by judgement no. 601 of 1999 of the Council of State, disrupts this equation, stating that technical discretion does not imply a balancing of interests (typical of pure administrative discretion), but a judgement on complex facts that must be verifiable by the judge[727]. We thus moved from an "extrinsic" review, limited to verifying the formal coherence of the logical process, to an "intrinsic" review, which allows the judge to directly verify the reliability of technical operations with respect to the correctness of the technical criterion and the application procedure, thus endorsing the possibility of direct fact-finding[728]. Despite the opening towards a more penetrating control, the prevailing case law maintains a fundamental distinction based on the concept of "debatability" (*opinabilità*) of technical evaluations. If the application of the technical rule leads to a certain result (objective technical finding, or *accertamento tecnico*), the judge can substitute their own evaluation for that of the administration; if, instead, the reference science admits a plurality of plausible solutions (technical evaluation, or *valutazione tecnica*), judicial review must stop at verifying reliability and

---

[726] F. Fichera, Funzioni amministrative, cit., p. 34, who observes that in that period «(…) il controllo giurisdizionale dovesse essere limitato all'ambito estrinseco della logicità-ragionevolezza delle decisioni amministrative», with the consequence that «i vizi di legittimità sindacabili dal giudice amministrativo [erano] solo quelli attinenti alle figure dell'eccesso di potere». See, furthermore, the observations of J. Pintauro, I pareri e le valutazioni tecniche, cit., p. 588, according to whom the physiological link of technical discretion with administrative merit «(…) comportava l'esclusione del sindacato sulla correttezza sostanziale della decisione adottata, essendo ammesso un controllo meramente formale ed estrinseco sulla logicità e ragionevolezza della stessa, fondato sulla verifica dei limiti esterni della discrezionalità, accertabili mediante gli indici sintomatici dell'eccesso di potere. In altre parole, il sindacato giurisdizionale si incentrava sull'accertamento formalistico dell'iter logico-giuridico seguito per l'adozione del provvedimento, attraverso la verifica della presenza di errori grossolani, quali la palese contraddittorietà motivazionale ovvero l'irragionevolezza del giudizio».

[727] S. Perongini, Giudizio amministrativo e sindacato del giudice penale, in AIPDA, Discrezionalità e amministrazione, cit., p. 276, who observes how «nel sindacare la discrezionalità tecnica, mentre in passato si riteneva che al giudice amministrativo fosse consentita la sola verifica dell'iter logico seguito dall'amministrazione, opinandosi, quindi, che la discrezionalità tecnica si differenziasse da quella amministrativa solo in relazione al suo oggetto, per cui le scelte di discrezionalità tecnica operata dalla P.A. sarebbero state sindacabili dal giudice solo applicando i criteri di logica formale e, pertanto, individuando vizi quali l'errore di fatto, l'illogicità manifesta, la motivazione contraddittoria, a partire dalla decisione del Consiglio di Stato, Sez. 4, 9 aprile 1999, n. 601, è attualmente ammesso un controllo intrinseco».

[728] J. Pintauro, op. cit., p. 589.

ensuring that the assessment remains within the range of reasonably defensible technical opinions, without being able to superimpose the technical choice of the judge (or their consultant) on that, equally plausible, of the administration, and this for the evident purpose of not violating the principle of separation of powers[729].

---

[729] Cons. Stato, sec. IV, judgement of 9 April 1999, no. 601, which also specified how «la c.d. "discrezionalità tecnica" (…) è altra cosa dal merito amministrativo. Essa ricorre quando l'amministrazione, per provvedere su un determinato oggetto, deve applicare una norma tecnica cui una norma giuridica conferisce rilevanza diretta o indiretta. L'applicazione di una norma tecnica può comportare valutazione di fatti suscettibili di vario apprezzamento, quando la noma tecnica contenga dei concetti indeterminati o comunque richieda apprezzamenti opinabili. Ma una cosa è l'opinabilità, altra cosa è l'opportunità. La questione di fatto, che attiene ad un presupposto di legittimità del provvedimento amministrativo, non si trasforma – soltanto perché opinabile – in una questione di opportunità, anche se è antecedente o successiva ad una scelta di merito». Technical discretion, in fact, is subject to judicial review only when its exercise is patently vitiated by manifest illogicality, unreasonableness, arbitrariness or misrepresentation of facts, or where it is undermined by a lack of adequate fact-finding and reasoning. When making evaluations within its competence, the administration generally applies concepts that are not exact, but open to debate. Consequently, an evaluation can be considered unlawful only if it is manifestly illogical (i.e., entirely implausible) or based on a distortion of facts. Conversely, it cannot be deemed unlawful if it remains reasonable, even when its substantive merits are debatable. In fact, relying on technical evaluation criteria in any field does not always yield unequivocal answers; rather, it inherently involves a certain degree of debatability. In such situations, since the court's role is limited to a review of legality rather than a substantive review, judicial scrutiny must stop where the inherent debatability of the administration's assessment precludes the identification of a legal standard to declare it unlawful (see, *ex multis*, Cass. civ., SS.UU., judgement of 20 January 2014, no. 1013). Since the act in question is subject to a judicial review of legality rather than full jurisdiction, the administrative judge cannot conduct a substantive review of debatable technical evaluations. Doing so would amount to exercising a power of substitution, effectively replacing the administration's assessment with the court's own. Nevertheless, it remains established that even technical evaluations are subject to judicial review for reasonableness, logic, coherence, and reliability. The substantive difference between jurisdiction over legality and full jurisdiction lies in the role of the judge. In a legality review, the judge acts 'in the second instance.' Bound by the scope of the claims raised, the court solely verifies whether the competent body's evaluations are vitiated by a misuse of power—such as manifest unreasonableness or a distortion of facts. In other words, the judge checks whether the administration's assessment, even if debatable, falls outside the bounds of plausibility.

Conversely, when exercising full jurisdiction, the judge acts 'in the first instance.' In these cases, the court substitutes itself for the Administration, conducting the required evaluations directly and anew. This grants the judge the power to replace the Administration's assessment with their own, even if the original evaluation was plausible, albeit debatable. However, this power of substitution is highly exceptional within the

The application of such principles to new technologies, and in particular to artificial intelligence, raises unprecedented questions that can be analyzed through two hypotheses that we have already treated previously under different aspects.

In the first case, concerning the claim for damages caused by administrative acts adopted via artificial intelligence, the technical specificity of the AI system imposes a rethinking of traditional rules of evidence, in order to avoid algorithmic opacity translating into a denial of justice. In this context, as previously argued, the rigid application of the principle of the burden of proof on the injured party would risk imposing a *probatio diabolica* due to the impossibility for the private party to access the internal logic of the machine and to demonstrate the possible malfunction of the software. Consequently, judicial review could not be limited to an extrinsic control on reasonableness, but should expand through the *ex officio* evidentiary powers principle and the use of *ex officio* fact-finding powers to verify the causal link pursuant to art. 2050 of the Civil Code[730], giving effect to the principle of best access to evidence to transfer onto the Administration the burden of demonstrating the correctness of the system's functioning and the absence of errors in the automated process, on the condition, however, that the appellant has previously discharged their initial burden of production by providing at least a *principio di prova* suitable to raise a plausible doubt about the malfunction of the AI system.

In the second case, where artificial intelligence constitutes the object of the supply or a qualitative element of the technical offer in a public tender, the review of the administrative judge encounters the classic technical discretion of tender evaluation committees. The evaluation of technical offers, especially when they concern complex and innovative technologies like AI, is the expression of an appreciation characterized by ample technical discretion,

---

administrative justice system, strictly limited to the specific cases of full jurisdiction explicitly provided for by Article 134 of the c.p.a. In other words, in the context of judicial review over legality, the question the judge must answer is not whether they agree or not with the evaluation carried out by the competent Administration, as this would amount to a review of the merits, but whether that judgement is manifestly unreasonable, which would instead constitute a misuse of power (Cons. Stato, sec. VI, judgement of 11 June 2025, no. 5038; Cons. Stato, sec. VI, judgement of 12 November 2024, no. 9059; Cons. Stato, sec. VI, judgement of 19 April 2023, no. 3956; Cons. Stato, sec. I, Section Assembly, 9 February 2022, no. 306; Cons. Stato, sec. II, judgement of 11 June 2021, no. 4519; Cons. Stato, sec. IV, judgement of 14 October 2020, no. 6212).

[730] Namely that the damage suffered is the immediate and direct consequence of the performance of that dangerous activity, or that it was the AI system (and not another cause) that produced the harmful outcome through its malfunction or incorrect application.

reviewable only for manifest illogicality, irrationality, distortion of facts or blatant unreliability. In this sense, the judge cannot substitute their own scores for those attributed by the commission, since this would entail an inadmissible substitute review of the merits[731]. Characterized by discretion is

[731] According to consistent case law of the Council of State, «a) la valutazione delle offerte tecniche, effettuata dalla commissione attraverso l'espressione di giudizi e l'attribuzione di punteggi, a fronte dei criteri valutativi previsti dal bando di gara, costituisce apprezzamento connotato da chiara discrezionalità tecnica sì da rendere detta valutazione insindacabile salvo che essa sia affetta da manifesta illogicità; b) il controllo del giudice è pieno, ossia tale da garantire piena tutela alle situazioni giuridiche private coinvolte; è vero che egli non può agire al posto dell'amministrazione ma può sicuramente censurare la scelta chiaramente inattendibile, frutto di un procedimento di applicazione della norma tecnica viziato, e annullare il provvedimento basato su di essa; c) lo schema del ragionamento che il giudice è chiamato a svolgere sulle valutazioni tecniche può essere così descritto: c1) il giudice può limitarsi al controllo formale ed estrinseco dell'iter logico seguito nell'attività amministrativa se ciò appare sufficiente per valutare la legittimità del provvedimento impugnato e non emergano spie tali da giustificare una ripetizione, secondo la tecnica del sindacato intrinseco, delle indagini specialistiche; c2) il sindacato può anche consistere, ove ciò sia necessario ai fini della verifica della legittimità della statuizione gravata, nella verifica dell'attendibilità delle operazioni tecniche sotto il profilo della loro correttezza quanto al criterio tecnico e al procedimento applicativo; c3) devono ritenersi superati ostacoli di ordine processuale capaci di limitare in modo significativo, in astratto, la latitudine della verifica giudiziaria sulla correttezza delle operazioni e delle procedure in cui si concreta il giudizio tecnico ma questo non toglie che, anche in relazione ad una non eludibile esigenza di separazione della funzione amministrativa rispetto a quella giurisdizionale, il giudice non possa sovrapporre la sua idea tecnica al giudizio non contaminato da profili di erroneità e di illogicità formulato dall'organo amministrativo al quale la legge attribuisce la penetrazione del sapere specialistico ai fini della tutela dell'interesse pubblico nell'apprezzamento del caso concreto; d) se è assodato che il giudice ha pieno accesso al fatto, occorre aggiungere che l'accesso al fatto non può consentire la sostituzione del giudice alla pubblica amministrazione nelle valutazioni ad essa riservate; e) scontata l'opinabilità della valutazione, il giudice non può sostituirsi all'amministrazione, essendogli consentita la sola verifica di ragionevolezza, coerenza e attendibilità delle scelte compiute dalla stessa; se è stata riscontrata una corretta applicazione della regola tecnica al caso di specie, il giudice deve fermarsi, quando il risultato a cui è giunta l'amministrazione è uno di quelli resi possibili dall'opinabilità della scienza, anche se esso non è quello che l'organo giudicante avrebbe privilegiato; f) un conto, quindi, è l'accertamento del fatto storico (che precede ogni valutazione) e un conto è la contestualizzazione del concetto giuridico indeterminato richiamato dalla norma; quest'ultimo è fuori dall'accertamento del fatto e rientra nel suo apprezzamento, questo sì, sottratto alla completa sostituibilità della valutazione del giudice a quella dell'amministrazione; g) in conclusione sul punto, il sindacato del giudice nel valutare la legittimità di valutazioni frutto di discrezionalità tecnica, è pieno, penetrante, effettivo, ma non sostitutivo; dinanzi a una valutazione tecnica complessa il giudice può pertanto ripercorrere il ragionamento seguito dall'amministrazione al fine di verificare in modo puntuale, anche in riferimento alla regola

also the choice of the mathematical formula for evaluating the offer, rendering it unreviewable, except for the manifest unreasonableness of the choice[732]. However, precisely the technical complexity of the object of the tender – artificial intelligence – might require a more in-depth control compared to mere extrinsic review. If the appellant's complaints cast doubt on the technical reliability of the evaluation performed by the contracting authority, the judge should order a verification or, more correctly, a court-appointed expert opinion (*consulenza tecnica d'ufficio*) in order to ascertain whether the technical judgement falls within the perimeter of technical "reliability" (*attendibilità*). Notwithstanding this, as previously observed, judges maintain a prudent approach: provided the commission's evaluation is not vitiated by manifest error or a misapplication of technical standards, the court will respect the margin of appreciation reserved to the administration. Consequently, the judge will uphold the legality of the scoring, even if the court does not fully subscribe to the specific assessment, provided it remains within the bounds of reasonableness.

3.2.2. An operational proposal: constraining technical discretion through the incorporation of AI Act standards into the tender *lex specialis*

In truth, there would be a solution which, in my opinion, would allow contracting authorities to resolve the conflict between technological complexity and the limits of the administrative judge's review on technical

---

tecnica adottata, la ragionevolezza, la logicità, la coerenza dell'iter logico seguito dall'autorità, senza però potervi sostituire un sistema valutativo differente da lui stesso individuato» (Cons. Stato, sec. V, judgement of 26 November 2025, no. 9316; in this sense, *ex plurimis*, see Cons. Stato, sec. V, judgement of 2 July 2024, no. 5871; Cons. Stato, sec. V, judgement of 24 August 2023, no. 7931; Cons. Stato, sec. V, judgement of 31 October 2022, no. 9411; Cons. Stato, sec. V, judgement of 29 November 2021, no. 7951).

[732] Indeed, it constitutes settled case law in administrative courts that «nelle gare pubbliche, la formula da utilizzare per la valutazione dell'offerta economica può essere scelta dall'amministrazione con ampia discrezionalità e di conseguenza la stazione appaltante dispone di ampi margini nella determinazione non solo dei criteri da porre quale riferimento per l'individuazione dell'offerta economicamente più vantaggiosa, ma anche nella individuazione delle formule matematiche, con la conseguenza che il sindacato giurisdizionale nei confronti di tali scelte, tipica espressione di discrezionalità tecnico amministrativa, può essere consentito unicamente in casi di abnormità, sviamento e manifesta illogicità» (Cons. Stato, sec. III, judgement of 7 May 2019, no. 2933; Cons. Stato, sec. V, judgement of 10 August 2016, no. 3579; Cons. Stato, sec. V, judgement of 27 March 2015, no. 1619; Cons. Stato, sec. V, judgement of 22 January 2015, no. 257; Cons. Stato, sec. V, judgement of 15 July 2013, no. 3802).

discretion in the specific case of AI. Such solution lies in the strategic use of administrative power aimed at defining the *lex specialis* of the tender procedure. Indeed, Italian public procurement law recognises that contracting authorities have ample discretion in establishing special participation requirements for a tender. Such power, now codified in art. 100 of Legislative Decree 36/2023, allows them to introduce requirements of technical and professional capacity that are more stringent and rigorous than the legal minimums, provided they are proportionate, reasonable and pertinent to the specific object of the contract[733]. In the context of emerging technologies with potentially high impact like AI, such faculty could be interpreted as a duty deriving from the general principles governing public procurement. The public contracts code elevates principles such as the principle of the result (art. 1) and the principle of trust (art. 2) to primary criteria for the exercise of discretionary power[734]. Pursuing the best possible result in terms of quality and efficiency, while protecting the public interest, requires a prudent and far-sighted approach. In a sensitive sector like AI, imposing higher standards of reliability and transparency would constitute a direct implementation of such principles, ensuring that the administration acquires solutions that are not only innovative, but also robust and responsible. The proposed strategy, therefore, envisages that contracting authorities explicitly supplement, within the tender documents (which constitute the *lex specialis*), the obligation for any proposed AI system – whether as the object or as an enhancement

[733] On specific selection requirements for participation in a tender, see E. Dalli Cardillo, I requisiti di ordine speciale (Art. 100), in G.F. Cartei, D. Iaria (eds.), Commentario al Codice dei Contratti pubblici. Dopo il correttivo, Editoriale Scientifica, Napoli, pp. 1026-1039; V. Pampanin, Commento all'Art. 100. Requisiti di ordine speciale, in R. Villata, M. Ramajoli (eds.), Commentario al Codice dei contratti, Pacini Editore, Pisa, 2024, pp. 570-579; G. Caputi, Art. 100. Requisiti di ordine speciale, in A. Botto, S. Castrovinci Zenna (eds.), Commentario alla normativa sui contratti pubblici, Giappichelli, Torino, 2024, pp. 913-921.

[734] On the principles of the public contracts code as criteria for the exercise of discretionary power, see M.R. Spasiano, La codificazione dei principi del Codice dei contratti pubblici e, in particolare, del risultato, alla prova del correttivo, in Federalismi.it, 10, 2025, pp. 191-234; L.R. Perfetti, Discrezionalità amministrativa e principio del risultato, in P.A. Persona e Amministrazione, 14(1), 2024, pp. 69-96; E. Quadri, Il principio della fiducia alla luce del nuovo Codice dei contratti pubblici e delle prime applicazioni della giurisprudenza, in Rivista Trimestrale di Scienza dell'Amministrazione, 4, 2024, pp. 1-15; E. Carloni, Verso il paradigma fiduciario? Il principio della fiducia nel nuovo codice dei contratti e le sue implicazioni, in Diritto Pubblico, 1, 2024, pp. 131-162; P. Marzaro, I principi generali del nuovo codice dei contratti pubblici: la funzione nomopoietica del consiglio di stato per un 'nuovo paradigma' di amministrazione, in Il diritto dell'economia, 3, 2024, pp. 441-460; M.R. Spasiano, Principi e discrezionalità nel nuovo codice dei contratti pubblici: primi tentativi di parametrazione del sindacato, in Federalismi.it, 24, 2023, pp. 222-239.

included in the technical tender – to conform to the requirements established for high-risk systems by Chapter III, Section 2 of the AI Act. Such imposition would apply regardless of the fact that the specific AI system falls within the high-risk categories typified in Annex III of the Regulation. Specifically, the *lex specialis* would make the respect of the fundamental technical and ethical guarantees of the AI Act mandatory, transforming them into binding contractual requirements. Such requirements, for example, would include: a) art. 9, which imposes a continuous and iterative risk management system for the entire lifecycle of the AI, in order to identify, analyze and mitigate foreseeable risks to health, safety or fundamental rights; b) art. 10, which requires that training, validation and testing data sets be of high quality (pertinent, representative and as far as possible free of errors and biases) and subject to adequate data governance practices; c) art. 11, which, to ensure accountability and verifiability, obliges the provider to draw up and maintain complete technical documentation demonstrating conformity to all requirements; d) art. 12 which requires that the system possesses the technical capacity to automatically record events ("logs") during its operational life in a traceable manner; e) art. 13, which requires that AI systems be designed to ensure sufficient transparency, allowing users to interpret the output and use it appropriately, and requires the provision of concise, complete and clear instructions for use describing the capabilities, limits, expected accuracy and foreseeable risks of the system; f) art. 14, which, by imposing human oversight obligations, guarantees that the system is designed in such a way as to allow effective surveillance by natural persons, who must be able to understand the system's capabilities, monitor its functioning, remain aware of automation bias and possess the capacity to ignore, override or interrupt the system's output via a stop button or similar procedures; g) art. 15, which requires that the system be designed to achieve an appropriate and declared level of accuracy, resilience to errors and protection against attempts by third parties to alter its use or performance without authorisation by exploiting vulnerabilities. By recalling such regulatory standards, the contracting authority would provide an objective and verifiable framework for the evaluation of AI solutions, going well beyond a generic evaluation of plausibility. This strategic supplementation of legal standards into tender documents would fundamentally change the nature of the assessment and, consequently, the grounds on which it could be challenged. The evaluation conducted by the tender committee would no longer be a purely discretionary technical assessment of a technological solution's substantive merits. Instead, it would become a verification of compliance with the predetermined legal requirements established in the tender specifications. Such transformation would also have

a profound impact on the scope and intensity of the administrative judge's review, since an appeal contesting the technical evaluation of the AI system would no longer be limited to the narrow grounds of misuse of power, but, on the contrary, would be based on the violation of law, specifically the violation of the *lex specialis*, which acts as binding law for that specific tender procedure. The role of the administrative judge would thus be radically altered: they would no longer be required to defer to the technical competence of the commission, but would instead be legitimised to conduct a full and substantive review of legal requirements. Consequently, the central question for the judge would shift from the subjective level ("Was the commission's technical judgement reasonable?") to the objective one ("Did the proposed AI system demonstrably satisfy the legal requirements of transparency, human oversight, accuracy, robustness and cybersecurity as imposed by the tender documents?"). In this way, the technical judgement would be bound by objective legal parameters, rendering the commission's evaluation fully reviewable and, in conclusion, this could provide an *ex ante* solution that enables public administration to manage AI risks, strengthening accountability and aligning procurement practices with the EU's broader political objective of promoting trustworthy AI, without having to wait for judges to elaborate *ex post* new (and potentially inconsistent) standards of review.

4. The means of proof

The Italian code of administrative procedure offers a catalogue of means of proof that, overcoming historical fragmentation among different jurisdictional bodies, tends to align with the instruments of civil procedure while maintaining peculiarities deriving from the nature of the interests involved[735]. Since administrative court proceedings – as previously seen – are based on a dialectic between the principle of party disposition and the *ex officio* powers of the judge, it follows that the means of proof are not merely aimed at reconstructing a formal truth, but tend, through judicial supplementation, to the ascertainment of the material truth necessary for the judgement on the lawfulness of the exercise of power.

[735] R. Dagostino, I mezzi di prova, in L.R. Perfetti, G. Pesce (eds.), op. cit., p. 254.

4.1. Documentary evidence and the judge's fact-finding powers: order for production and request for clarifications (Articles 63, 64, and 65 c.p.a.)

Documentary evidence maintains a pre-eminent role in the economy of the proceedings, reflecting the proceduralized nature of administrative action[736]. Indeed, the administration is required, pursuant to Article 46, paragraph 2, c.p.a., to file the challenged administrative act and all the documents related to the proceeding. Should the administration fail to comply, the judge can order the production of documents pursuant to Article 65, paragraph 3, c.p.a., establishing a genuine obligation of procedural collaboration on the part of the public administration, in order to allow the judge to acquire full knowledge of the procedural matter at the heart of the dispute[737]. In this regard, the administrative judge has broad powers: on the one hand, he may, also *ex officio*, request clarifications or documents from the parties pursuant to Article 63, paragraph 1, c.p.a.; on the other hand, he may, also *ex officio*, pursuant to Article 63, paragraph 2, c.p.a., order third parties to produce documents or anything else he deems necessary, in accordance with the provisions of Articles 210 et seq. of the code of civil procedure.

The request for clarifications or documents is addressed exclusively to the parties who have appeared in court and, in practice, predominantly to the defending Public Administration, which is considered not only a party to the proceedings but also the authority holding the information. In particular, clarifications can be classified as simple or complex: the former consist of reports relating to simple allegations of fact; the latter consist of reports with technical content[738]. In any case, such clarifications always retain the value of statements of facts (*dichiarazioni di scienza*), and cannot be used by the administration to supplement *ex post* the reasoning of the challenged administrative act[739]. Often, the request for clarifications is made jointly with the order to file supporting documents, establishing the concept of "documentati chiarimenti"[740]. Where the administration fails to comply with the judicial request for clarifications or documents, the Council of State has

---

[736] F. Risso, I singoli mezzi di prova, in L.R. Perfetti, G. Pesce (eds.), op. cit., p. 290.

[737] G. Carlotti, op. cit., 89-91.

[738] F. Risso, op. cit., p. 299, who also observes that technical clarifications provided by the administration cannot be considered either an expert opinion or a verification, and therefore the authority from which they are requested is not required to guarantee the adversarial principle between the interested parties (p. 300).

[739] A. Police, I mezzi di prova e l'attività istruttoria, in G.P. Cirillo (directed by), Diritto processuale amministrativo, UTET Giuridica, Milano, 2017, pp. 419-420.

[740] F. Risso, op. cit., p. 301.

specified that, in application of the rule of judgement under Articles 2697 of the Civil Code and 64, paragraph 4, c.p.a. (by analogy with the rule governing civil proceedings in Article 116, paragraph 2, c.p.c.), the administrative judge may assess such procedural conduct as an admission of the facts alleged in support of the appeal, provided that the conclusions are not contradicted by other facts ascertainable from the case file[741].

Different in nature and scope is the order for production, provided for by Article 63, paragraph 2, c.p.a., which grants the judge the power to order the production in court of documents or anything else he deems necessary, making an express reference to the civil procedure rules of Articles 210 et seq. of the c.p.c.; it also has a broader range of addressees, as it can, in fact, be addressed not only to the parties to the case, but also to third parties extraneous to the proceedings. While the request for clarifications or documents operates within the already established procedural relationship, the order for production ex paragraph 2 allows for the introduction into the proceedings of evidentiary elements held by non-participating parties, thus overcoming the unavailability of the evidence to the parties[742], in compliance with the limits and guarantees of Articles 210 and 118 c.p.c. for the compulsory acquisition of specific means of proof. Finally, these two instruments diverge as to the consequences of non-compliance: the refusal of a party to provide clarifications or documents requested ex paragraph 1 – as seen just now – can be assessed by the judge as a basis for an evidentiary inference pursuant to Article 64, paragraph 4, c.p.a., while the breach of the order for production ex paragraph 2 by a third party entails the possibility for the judge to impose a pecuniary fine[743].

4.2. The role of scientific expertise in administrative court proceedings: verification (Art. 66 c.p.a.) and court-appointed expert opinion (Art. 67 c.p.a.)

Turning to the means of proof that allow the entry of science into the administrative process, Article 63, paragraph 4, c.p.a. establishes that the judge, should he deem it necessary to ascertain facts or acquire assessments

---

[741] Cons. Stato, sec. VI, judgement of 29 February 2024, no. 1979; in the same terms, see T.A.R. Campania, Salerno, sec. II, judgement of 28 January 2020, no. 153; T.A.R. Lazio, Roma, sec. III, judgement of 4 March 2019, no. 2864; Cons. Stato, sec. IV, judgement of 22 March 2005, no. 1206; Cons. Stato, sec. IV, judgement of 22 September 2003, no. 5398; Cons. Stato, sec. VI, judgement of 29 January 2002, no. 476.

[742] L.R. Perfetti, Problemi del dispiegarsi del principio dispositivo nel processo amministrativo, in L.R. Perfetti, G. Pesce (eds.), op. cit., p. 49.

[743] E. Casetta, F. Fracchia (eds.), op. cit., p. 896.

that require particular technical skills, may order the execution of a verification or, if indispensable, order a court-appointed expert opinion.

Governed by Article 66 c.p.a., verification (verificazione), according to legal scholarship and case law, is an instrument to assist the judge, which allows for the acquisition of expertise to carry out technical assessments devoid of an evaluative nature, with the aim of appraising the objective reality of things, and it essentially consists of a direct assessment to identify the existence of certain elements, or to gain knowledge of facts whose existence cannot be ascertained or deduced with certainty from documentary evidence, thus materializing in a judgement of result; it involves the intervention, in an advisory function for the judge, of a qualified body for the resolution of disputes that require the contribution of essential technical skills for the definition of the issue; finally, it has the purpose of assessment, but always of complex facts, and therefore based on skills that require the application of specialised knowledge, in an advisory function for the judge[744]. From a subjective perspective, since the verification is entrusted to a public body external to the parties in the proceedings, the verifier is not obliged to take an oath before the judge, unlike the court-appointed expert (*consulente tecnico d'ufficio*)[745], who is required to do so. Despite the absence of detailed rules in the code, case law has clarified that verification must also be carried out in compliance with the adversarial principle, on pain of nullity, guaranteeing the parties the opportunity to attend the operations[746].

---

[744] R. Dagostino, op. cit., p. 266; F. Risso, op. cit., p. 303. In case law, *ex multis*, see Cons. Stato, sec. V, judgement of 5 November 2024, no. 8857; Cons. Stato, sec. V, judgement of 5 August 2024, no. 6983; Cons. Stato, sec. V, judgement of 3 January 2024, no. 96; Cons. Stato, sec. III, judgement of 25 July 2023, no. 7288; Cons. Stato, sec. V, judgement of 13 February 2023, no. 1522; Cons. Stato, sec. V, judgement of 11 April 2022, no. 2713; Cons. Stato, sec. VI, judgement of 28 September 2021, no. 6533; Cons. Stato, sec. III, judgement of 14 January 2020, no. 330.

[745] F. Risso, op. cit., pp. 303-304.

[746] According to administrative case law, in fact, the exclusion of the specific modalities provided for the conduct of a CTU does not remove the requirement for verification to be carried out in compliance with the adversarial principle, guaranteed by Articles 24 and 111 of the Constitution. It must, therefore, be conducted according to the prescriptions given from time to time by the judge by order, safeguarding the procedural equality of the parties and the right of defence. This implies, even where not specifically indicated in the order, that the parties (through their lawyers and technical advisers) must be notified of the carrying out of accesses, inspections, and assessments, as participation in the operations aimed at ascertaining the facts must be permitted (the verifier not being able to proceed alone); likewise, an interlocution regarding the conclusions of the verification to be brought to the judge's

A particularly relevant means of proof for verifying the lawfulness of artificial intelligence systems implemented in administrative activities is the court-appointed expert opinion. Under Article 67 c.p.a., it serves as the primary instrument for the entry of specialist knowledge into the process, allowing the judge to review the administration's technical discretion. It does not constitute a means of proof in the strict sense, intended to exonerate the parties from the burden of proof, but rather an instrument for supplementing the judge's knowledge in evaluating facts already proven or in resolving technical issues[747]. The court-appointed expert is selected *intuitu personae* from professionals enrolled in official registers of court experts, or from individuals possessing highly specialised technical competence. The designated expert must appear before the court to formally accept the assignment and be sworn in, thereby establishing a direct, immediate, and fiduciary relationship of trust with the judge.

An important aspect concerns the functional distinction between verification and expert opinion, and the criterion of "indispensability" set out in Article 63, paragraph 4, c.p.a., which legitimises the use of the CTU. According to some legal scholarship, the regulatory wording would suggest a hierarchy between the two instruments, placing the CTU in a position of subsidiarity with respect to verification, which would remain the preferential evidentiary tool, probably for reasons of judicial economy and trust in the impartiality of public bodies[748]. However, another part of the scholarship – which appears preferable – criticizes the interpretation that sees the CTU as an exceptional remedy or subordinate to the inability of public bodies to conduct the verification, arguing, on the contrary, that indispensability must be assessed in relation to the nature of the required activity: verification would be suitable for the mere ascertainment of facts, while the CTU would be necessary (precisely, «indispensabile») when it is necessary to formulate judgements or complex evaluations on scientifically debatable facts[749].

---

attention must be guaranteed before the judge decides the case (the judge must therefore guarantee a deadline for the parties for any observations and counter-arguments regarding the verification) (Cons. Stato, sec. IV, judgement of 18 September 2017, no. 4352; in the same sense, see Cons. Stato, sec. III, order of 30 September 2022, no. 8428; C.G.A.R.S., juris. sec., judgement of 13 April 2022, no. 470; C.G.A.R.S., juris. sec., judgement of 16 October 2020, no. 936).

[747] E. Casetta, F. Fracchia (eds.), op. cit., p. 897.

[748] F. Risso, op. cit., p. 302; E. Casetta, F. Fracchia (eds.), op. cit., p. 896.

[749] R. Dagostino, op. cit., pp. 264-267. On this topic, see also F. Risso, L'istruttoria come garanzia per un autentico sindacato della discrezionalità tecnica: problemi applicativi con

The introduction of the CTU has also had a decisive impact on the evolution of judicial review of technical discretion. As we have already anticipated, overcoming the traditional assimilation of technical discretion and administrative merit, the case law, starting from judgement no. 601 of 1999 of the Council of State, has admitted an "intrinsic" review of the technical evaluations of the Public Administration. And this type of review is exercised by the judge precisely through the CTU, thanks to which he is no longer limited to a formal and extrinsic control of the logical reasoning followed by the administrative authority, but verifies the reliability of the technical operations in terms of the correctness of the technical criterion and the application procedure, subject to the sole limitation of the debatability of the technical assessments made by the Public Administration[750].

From the perspective of their function and the subject matter of the fact-finding activity, while verification – as has been said – is conceived as a technical assessment of a non-evaluative nature, without the verifying body being able to superimpose its own discretionary evaluations on those of the administration, the court-appointed expert opinion, instead, has been divided by legal scholarship and case law into “evaluative expert opinion” (*deducente*) and “fact-finding expert opinion” (*percipiente*): the former has the function of evaluating facts already ascertained or uncontested, while the latter is aimed at ascertaining facts that can only be identified through specific technical knowledge; in the latter case, the expert opinion can rise to the level of an objective source of evidence, filling cognitive gaps that could not otherwise be

---

particolare riferimento alla verificazione e alla consulenza tecnica, in F. Francario, M.A. Sandulli (eds.), Sindacato sulla discrezionalità e ambito del giudizio di cognizione, Editoriale Scientifica, Napoli, 2023, p. 353 ff.

[750] For a more in-depth analysis, see M. Adorno, La consulenza tecnica d'ufficio nel codice del processo amministrativo, in Diritto processuale amministrativo, 2, 2014, p. 486 ff.; E. Caracciolo La Grotteria, La consulenza tecnica d'ufficio e il sindacato del giudice amministrativo, Edizioni Scientifiche Italiane, Napoli, 2008; M.A. Sandulli, La consulenza tecnica d'ufficio, in Il Foro amministrativo – T.A.R., 12, 2008, p. 3533 ff.; G. D'Angelo, La consulenza tecnica nel processo amministrativo fra prassi consolidate e spunti innovativi, in Il Foro amministrativo - T.A.R., 2, 2005, p. 579 ff.; E. Caracciolo La Grotteria, Osservazioni sull'applicazione della consulenza tecnica di ufficio nel processo amministrativo, in Il Foro amministrativo – C.d.S., 1, 2004, p. 146 ff.; M.E. Schinaia, Consulente tecnico (diritto processuale amministrativo), in Enciclopedia giuridica, VIII, Treccani, Roma, 2003, p. 1 ff.; G. Perulli, La consulenza tecnica d'ufficio nel processo amministrativo, CEDAM, Padova, 2002.

resolved, provided that the party has alleged the fact and provided a basis of evidence[751].

The relationship between the judge and his auxiliaries is governed by the principle of *iudex peritus peritorum*, according to which the judge is not uncritically bound by the results of the verification or the CTU, but, should he intend to deviate from them, has the burden of carrying out a complex critical evaluation, which is anchored to the procedural findings and is supported by logical reasoning, indicating the elements he has used to deem the arguments on which the consultant (or the verifier) has based his opinion to be erroneous, that is, the evidentiary elements, the evaluation criteria, and the legal and logical arguments to arrive at the decision contrasting with the report of the court-appointed expert or the verifier[752]. If, instead, the judge decides to adhere to the expert's conclusions, the statement of reasons of the judgement can be limited to a reference to them, provided that the report has replied to the written submissions of the parties' consultants, exhausting the duty to give reasons with the mere indication of the evidentiary basis[753]; it is therefore not necessary for him to dwell also on the contrary allegations of the parties' technical consultants which, although not expressly refuted, remain implicitly disregarded because they are incompatible with the conclusions drawn by the consultant or the verifier[754].

---

[751] Cass. civ., sec. I, judgement of 1 April 2016, no. 6366; C.G.A.R.S., juris. sec., judgement of 2 March 2015, no. 169; Cass. civ., sec. III, judgement of 12 February 2015, no. 2761; Cass. civ., SS.UU., judgement of 30 December 2011, no. 30175; Cass. civ., sec. III, judgement of 13 March 2009, no. 6155; Cass. civ., SS.UU., judgement of 4 November 1996, no. 9522.

[752] Cons. Stato, sec. III, judgement of 11 August 2025, no. 7000; Cons. Stato, sec. IV, judgement of 4 September 2023, no. 8151; Cons. Stato, sec. IV, judgement of 29 December 2022, no. 11557; Cons. Stato, sec. IV, judgement of 9 February 2021, no. 1202; Cons. Stato, sec. III, judgement of 29 November 2019, no. 8205.

[753] Cons. Stato, sec. V, judgement of 22 January 2025, no. 488; Cons. Stato, sec. IV, judgement of 20 March 2024, no. 2700; Cons. Stato, sec. VI, judgement of 12 July 2023, no. 6809; Cons. Stato, sec. IV, judgement of 1 March 2022, no. 1446; Cons. Stato, sec. III, judgement of 28 October 2020, no. 6594.

[754] Cons. Stato, sec. V, judgement of 15 April 2025, no. 3236; Cons. Stato, sec. II, judgement of 27 December 2023, no. 11263; Cons. Stato, sec. VI, judgement of 12 May 2022, no. 3762; Cons. Stato, sec. II, judgement of 26 March 2021, no. 2551; Cons. Stato, sec. III, judgement of 7 December 2020, no. 7717.

4.3. The key role of court-appointed expert opinion with respect to artificial administrative acts

In the context of actions for damages for the infringement of legitimate interests or subjective rights deriving from an unlawful artificial administrative act, as well as in the previously analysed case of AI as an object or an element for the improvement of the technical bid in public tenders, the concrete implementation of the *ex officio* evidentiary powers principle can only inevitably pass through the instrument of the court-appointed expert opinion. This instrument – although not a novelty for administrative justice – emerges as the most suitable, being particularly distinguished by its effectiveness when science must enter the process, guiding the administrative judge step by step, who, although peritus peritorum, does not possess the necessary technical skills to evaluate the correct functioning of an AI system. In these controversies, therefore, the appointment of the CTU is no longer a choice, but becomes a methodological obligation to guarantee a fair trial. Likewise, the structuring of the technical adversarial process is fundamental, since the private party must be placed in a position to appoint its own technical expert (*consulente tecnico di parte*, CTP) to participate in the expert operations.

But caution is necessary: the effective use of this instrument in high-technology disputes requires a profound reflection on the consultant's profile and mandate. Indeed, it is no longer sufficient to appoint a generic technical consultant in the field of information technology, as the specificities of modern AI systems, and in particular those based on Large Language Models (LLMs), require the identification of a new type of CTU, which we could define as the "technical consultant of the new millennium"[755].

The judge's formulation of the questions thus becomes a fundamental procedural moment, as it must guide the court-appointed expert (CTU) in verifying the lawful use of AI systems in administrative activities. For example, the question could require the expert to ascertain, through specific tests and analyses, whether the AI solution was actually capable of performing

[755] In this regard, see C. Cavallaro, G. Smorto, Decisione pubblica e responsabilità dell'amministrazione nella società dell'algoritmo, cit., who, in order to guarantee transparency in the administrative decision-making process, propose the intervention of "algoritmisti," a type of court-appointed expert with IT skills who has the task of certifying the correctness of a specific algorithm. See also M.B. Neitz, Ready or Not: How Congressional Dysfunction and Loper Bright Enterprises v. Raimondo will Shift U.S. Regulation of Emerging Technologies to the Federal Bench, in SMU Law Review, 78(1), 2024, p. 155, who, within the context of U.S. law, has proposed providing judges with full-time internal «Tech Advisors» who act as neutral experts to help judges and their staff understand complex technological issues, similar to the «Chief AI Officers» in executive agencies or the «Tech Fellows» in Congress.

the tasks in relation to the intended purpose, with what margin of error, on what data basis it was trained, and whether the declared risk mitigation methodologies have been concretely implemented. In this way, the CTU would act as a conceptual bridge between the computing and the legal-administrative worlds, translating the factual findings into elements that the judge can evaluate according to the traditional categories of the defect of misuse of power, such as manifest illogicality, unreasonableness, or misrepresentation of facts. The CTU's report, therefore, would not amount to second-guessing the evaluation, but would provide the judge with indispensable cognitive tools to verify whether that evaluation has given rise to one of the defects affecting legality that justify its annulment, even when the technology involved is complex and opaque. Nevertheless, even if an expert were appointed by the court, we cannot ignore the persistence of some possible practical difficulties: in a recent and interesting case heard by the Council of State, in which a court-appointed expert was asked to acquire and analyze the operating system of a smartphone, the request was deemed «impraticabile» due to the immense volume of documentation and source code (hundreds of thousands, if not millions, of pages) and the difficulty of verifying whether the executable code corresponded to the source code[756]. If this was the case in that specific instance, then the challenge is amplified in AI systems based on machine learning and deep learning algorithms, because they – as repeatedly clarified – are based on neural networks trained with billions of numerical weights rather than on interpretable source code, and the relationship between the training data and the final parameters of the system is non-deterministic and cannot be verified through traditional methods of code analysis.

[756] Cons. Stato, sec. VI, judgement of 13 January 2023, no. 448. For a commentary on this ruling, see F.S. Duranti, I "poteri acquisitivi" del consulente tecnico: l'istruttoria processuale tra onere probatorio delle parti ed evoluzioni giurisprudenziali: nota a Cons. Stato, n. 448 del 13 gennaio 2023, in Diritto processuale amministrativo, 1, 2024, pp. 194-212.

Chapter IV

Agentic AI: the New Artificial Bureaucrat

Summary: 1. What is Agentic AI? – 2. Does the concept of "Agentic AI" fall within the definition of «AI system» established by the AI Act? – 3. Four reasons why the current regulatory framework is not adequate to regulate the use of Agentic AI in public administration – 3.1. The AI Act was made for GenAI, not for Agentic AI – 3.2. The unique risk profile of Agentic AI systems – 3.3. The limits of human oversight – 3.4. Emerging challenges in causation and liability – 4. Ensuring compliance with the principle of algorithmic legality in the Agentic AI era – 4.1. Enhancing the role of humans as designers – 4.2. Enhancing the role of humans as supervisors: four scenarios of attribution of liability for damages – 4.2.1. First scenario: defective Agentic AI system and absence of fault of the public officer – 4.2.2. Second scenario: a non-defective Agentic AI system and fault on the part of the public officer – 4.2.3. Third scenario: concurrent causes involving an Agentic AI system defect and fault on the part of the public officer – 4.2.4. Fourth scenario: non-defective Agentic AI system and absence of fault of the public officer – 5. An operational proposal for the governance of Agentic AI in public administration – 6. Frontiers of Agentic AI: legal personhood, administrative delegation, and open questions – 6.1. Agentic AI and the question of legal personhood – 6.1.1. Early theoretical foundations – 6.1.2. The rise of autonomous agents and the agency model – 6.1.3. The European Parliament's "electronic personhood" proposal – 6.1.4. Moral patiency and the "tool" argument – 6.1.5. Refining the frameworks: bundles, gradients, and the peculium – 6.1.6. Agency, historical analogues, and the rise of LLMs – 6.1.7. Agentic AI, systemic risk, and the "potential people" argument – 6.1.8. The unresolved tension in defining AI status – 6.2. The delegation conundrum in administrative law: transferring administrative power to Agentic AI systems

While the analysis conducted in the previous chapters focused on the impact of generative artificial intelligence on administrative law, technological developments now require us to shift our attention to a new frontier that goes beyond the purely reactive logic of GenAI. While the latter essentially limits itself to providing answers or creating content on demand, this chapter focuses on so-called Agentic AI, i.e., systems that perform actions. This distinction is substantial, as the transition from a system that processes information to an

agent that autonomously pursues complex objectives, in the real or virtual world, requires addressing new legal challenges.

1. What is Agentic AI?

The emergence of so-called Agentic AI marks a profound evolution in artificial intelligence, shifting the focus from reactive to autonomous, goal-oriented systems[757]. To better define the concept of Agentic AI, it is imperative to establish a taxonomy that clarifies its fundamental distinctions from so-called AI Agents, a term with older roots in AI research. Indeed, although the terms are sometimes used interchangeably in the literature[758], a rigorous taxonomy reveals that they represent distinct evolutionary stages and architectures, particularly with respect to the complexity of objectives and the degree of operational autonomy.

The concept of 'agency' has deep roots in philosophy and the social sciences, where, on the standard conception, it refers to the capacity of an entity endowed with beliefs and desires to act intentionally and produce change[759]. In computer science, this concept emerged early, with references dating back to the 1973 ACTOR model[760]. However, the concept was crucially formalised in artificial intelligence in the 1990s: Russell and Norvig defined an AI agent as «anything that can be viewed as perceiving its environment

---

[757] S. Murugesan, The Rise of Agentic AI: Implications, Concerns, and the Path Forward, in IEEE Intelligent Systems, vol. 40, 2025, p. 8.

[758] M. Mitchell, Fully Autonomous AI Agents Should Not be Developed, available at arXiv, 20 October 2025, p. 3, which refers to the philosophical works of G.E.M. Anscombe (Intention, Basil Blackwell, Oxford, 1957), D. Davidson (Actions, reasons, and causes, in The Journal of Philosophy, 60, 23, 1963, pp. 685-700) and A. Goldman (A Theory of Human Action, Prentice-Hall, Englewood Cliffs, NJ, 1970). On this point, see also L. Hughes, Y.K. Dwivedi, T. Malik, M. Shawosh, M.A. Albashrawi, I. Jeon, V. Dutot, M. Appanderanda, T. Crick, R. De, M. Fenwick, S.M. Gunaratnege, P. Jurcys, A.K. Kar, N. Kshetri, K. Li, S. Mutasa, S. Samothrakis, M. Wade, P. Walton, AI Agents and Agentic Systems: A Multi-Expert Analysis, in Journal of Computer Information Systems, 24 April 2025, p. 5.

[759] See Z. Xi, W. Chen, X. Guo, W. He, Y. Ding, B. Hong, M. Zhang, J. Wang, S. Jin, E. Zhou, R. Zheng, X. Fan, X. Wang, L. Xiong, Y. Zhou, W. Wang, C. Jiang, Y. Zou, X. Liu, Z. Yin, S. Dou, R. Weng, W. Qin, Y. Zheng, X. Qiu, X. Huang, Q. Zhang, T. Gui, The rise and potential of large language model based agents: a survey, in Science China Information Sciences, vol. 68, iss. 2, 2025, p. 3; M. Gridach, J. Nanavati, K.Z. El Abidine, L. Mendes, C. Mack, Agentic AI for Scientific Discovery: A Survey of Progress, Challenges, and Future Directions, available at arXiv, 12 March 2025, p. 2.

[760] C. Hewitt, P. Bishop, R. Steiger, A universal modular ACTOR formalism for artificial intelligence, in Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 1973, pp. 235-245, where the Authors define ACTOR as «an active agent which plays a role on cue according to a script» (p. 235).

through sensors and acting upon that environment through actuators»[761]. Another prominent definition was offered by Wooldridge, who argued that «agents are simply computer systems that are capable of autonomous action in some environment in order to meet their design objectives»[762], operating through key principles such as autonomy, reactivity (responding to environmental changes promptly), and proactivity (taking the initiative to pursue goals)[763]. Furthermore, according to Franklin and Graesser, «an autonomous agent is a system situated within and a part of an environment that senses that environment and acts on it, over time, in pursuit of its own agenda and to effect what it senses in the future»[764].

Traditional AI agents, however, operated according to predefined rules and deterministic logic, with limited planning horizons and lacking persistence or long-term memory across extended work phases, thus limiting their ability to adapt to unexpected situations[765].

---

[761] S.J. Russell, P. Norvig, op. cit., p. 54, but this definition can already be found on page 31 of the first edition, published in 1995.

[762] The Author goes on to state that «An agent will typically sense its environment (by physical sensiors in the case of agents situated in part of the real world, or by software sensors in the case of software agents), and will have available a repertoire of actions that can be executed to modify the environment, which may appear to respond non-deterministically to the execution of these actions» (M. Wooldridge, Intelligent Agents, in G. Weiss (ed.), Multiagent Systems. A Modern Approach to Distributed Artificial Intelligence, The MIT Press, Cambridge, Massachusetts, 1999, p. 32).

[763] M. Wooldridge, J.R. Jennings, Intelligent agents: theory and practice, in The Knowledge Engineering Review, vol. 10:2, 1995, pp. 116-117. Along the same lines, see V. Botti, Agentic AI and Multiagentic: Are We Reinventing the Wheel?, available at arXiv, 2 June 2025, p. 3.

[764] S. Franklin, A. Graesser, Is It an Agent, or Just a Program?: A Taxonomy for Autonomous Agents, in J.P. Müller, M.J. Wooldridge, N.R. Jennings (eds.), Intelligent Agents III. Agents Theories, Architectures, and Languages, ATAL 1996, Lecture Notes in Computer Science, vol. 1193, Springer, Berlin, Heidelberg, 1997, p. 26.

[765] S. Raza, R. Sapkota, M. Karkee, C. Emmanouilidis, TRiSM for Agentic AI: A Review of Trust, Risk, and Security Management in LLM-based Agentic Multi-Agent Systems, available at arXiv, 15 September 2025, p. 8; R. Sapkota, K.I. Roumeliotis, M. Karkee, AI Agents vs. Agentic AI: A Conceptual taxonomy, applications and challenges, in Information Fusion, 126, 2026, pp. 8-9. Examples of AI agents include virtual assistants (N. Krishnan, AI Agents: Evolution, Architecture, and Real-World Applications, available at arXiv, 16 March 2025, p. 7), image classification systems, and text-to-image models, which have relatively low degrees of agenticness because they merely assist human decision-making or produce output without acting autonomously in the world (A. Chan, C. Ezell, M. Kaufmann, K. Wei, L. Hammond, H. Bradley, E. Bluemke, N. Rajkumar, D. Krueger, N. Kolt, L. Heim, M. Anderljung, Visibility into AI Agents, in FAccT '24: Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency, 2024, p. 958 ff.)

With the advent of Large Language Models (LLMs), the concept of "agency" has been reinterpreted through a more dynamic and dimensional lens, called «agenticness»[766], a concept that describes the degree to which a system exhibits the characteristics associated with an agent, focusing on the system's ability to operate autonomously and pursue complex goals in dynamic environments[767].

The phenomenon of Agentic AI, therefore, emerges as a direct evolution of GenAI, leveraging LLMs as the central "brain" for natural language understanding, reasoning, and action selection[768], and supplementing them with essential components to transform them into autonomous, goal-oriented entities. In other words, if GenAI provides answers, Agentic AI performs actions[769].

The core of the transition is a significant increase in the degree of autonomy and in the complexity of the objectives pursued. Agentic AI is a system capable of pursuing complex objectives with minimal human

---

[766] Y. Shavit, S. Agarwal, M. Brundage, S. Adler, C. O'Keefe, R. Campbell, T. Lee, P. Mishkin T. Eloundou, A. Hickey, K. Slama, L. Ahmad, P. McMillan, A. Beutel, A. Passos, D.G. Robinson, Practices for Governing Agentic AI Systems, available at OpenAI, 14 December 2023, p. 4, who define «the degree of agenticness in a system as "the degree to which a system can adaptably achieve complex goals in complex environments with limited direct supervision"». See also B. Bent, The Term 'Agent' Has Been Diluted Beyond Utility and Requires Redefinition, in E. Burton, N. Mattei, A. Páez (eds.), Proceedings of the Eighth AAAI/ACM Conference on AI, Ethics, and Society (AIES 2025), The AAAI Press, Washington, p. 404, who clarifies: «we introduce the term agenticness to describe the degree to which a system exhibits characteristics commonly associated with an agent, such as environmental interaction, goal directed behavior, learning and adaption, temporal coherence, and autonomy. We intentionally avoid the term agency, which carries substantial philosophical and sociological weight, referring to a being's capacity to act intentionally and meaningfully within a social or moral framework».

[767] R.V. Barenji, S. Khoshgoftar, Agentic AI for Autonomous Anomaly Management in Complex Systems, available at arXiv, 21 July 2025, p. 12; Y. Ren, Y. Lin, T. Ji, X. Xu, AI Agents and Agentic AI–navigating a plethora of concepts for future manufacturing, in Journal of Manufacturing Systems, 83, 2025, p. 128; S. Kapoor, AI Agents That Matter, available at arXiv, 1 July 2024, p. 2.

[768] On LLMs as AI agent's "brain" or "reasoning engine", see F. Bousetouane, Agentic Systems: A guide to Transforming Industries with Vertical AI Agents, available at arXiv, 1 January 2025, p. 10 ff.; A. Bandi, B. Kongari, R. Naguru, S. Pasnoor, S.V. Vilipala, The Rise of Agentic AI: A Review of Definitions, Frameworks, Architecture, Applications, Evaluation Metrics, and Challenges, in Future Internet, 17, 404, 2025, p. 13; S. Raza, R. Sapkota, M. Karkee, C. Emmanouilidis, op. cit., p. 10.

[769] S. Joshi, Framework for Government Policy on Agentic and Generative AI: Governance, Regulation, and Risk Management, available at SSRN, 23 September 2025, pp. 1-2.

supervision[770], moving from a passive tool to an active collaborator[771]. It is also characterised by the ability to take actions that consistently contribute to achieving objectives over a prolonged period, without its behaviour having been specified in advance[772].

A set of interconnected properties characterises Agentic AI.

The first property is proactive, goal-oriented autonomy, in the sense that Agentic AI can initiate actions and strategies to pursue complex, long-term, and less concretely specified goals[773], unlike traditional generative artificial intelligence, which is reactive to individual prompts[774]. In other words, such systems are "self-directed" and do not require continuous user prompting[775].

The second property is the ability to reason and plan in multiple steps, i.e., the ability to break down complex goals into manageable sub-tasks, evaluate alternatives, and select sequential actions[776]. Reasoning also often includes mechanisms of self-evaluation or reflection[777].

The third property is adaptability, i.e., the ability to learn from past interactions and refine behaviour over time[778], which, in turn, determines the ability to cope with new, unexpected, and unforeseen circumstances[779].

The fourth AI property concerns the ability to execute actions and interact with complex, open, unstructured, and dynamic environments[780], since

---

[770] T. South, S. Marro, T. Hardjono, R. Mahari, C.D. Whitney, D. Greenwood, A. Chan, A. Pentland, Authenticated Delegation and Authorized AI Agents, available at arXiv, 16 January 2025, p. 1; A. Bandi, B. Kongari, R. Naguru, S. Pasnoor, S.V. Vilipala, op. cit., p. 7.

[771] S. Murugesan, op. cit., p. 13.

[772] Y. Shavit et al., op. cit., p. 4.

[773] J. Kraprayoon, Z. Williams, R. Fayyaz, AI Agent Governance: A Field Guide, available at Institute for AI Policy and Strategy, April 2025, p. 13.

[774] M. Panda, Agentic AI: A Paradigm for Autonomous Decision-Making, in International Journal of Innovative Research of Science, Engineering and Technology (IJIRSET), vol. 14, issue 1, January 2025, p. 569; P.S. Viswanathan, Agentic AI: A Comprehensive Framework for Autonomous Decision-Making Systems in Artificial Intelligence, in International Journal of Computer Engineering and Technology (IJCET), vol. 16, issue 1, Jan-Feb 2025, p. 864.

[775] J. Schneider, Generative to Agentic AI: Survey, Conceptualization, and Challenges, available at arXiv, 26 April 2025, p. 8.

[776] S. Murugesan, op. cit., p. 9.

[777] J. Schneider, op. cit., pp. 15-16; Y. Talebirad, A. Nadiri, Multi-Agent Collaboration: Harnessing the Power of Intelligent LLM Agents, available at arXiv, 5 June 2023, p. 5.

[778] C. Wissuchek, P. Zschech, Exploring Agentic Artificial Intelligence Systems: Towards a Typological Framework, in PACIS 2025 Proceedings, 6, 2025, p. 3.

[779] A. Bandi, B. Kongari, R. Naguru, S. Pasnoor, S.V. Vilipala, op. cit., p. 8.

[780] Y. Ren, Y. Lin, T. Ji, X. Xu, op. cit., p. 8.

Agentic AI, thanks to its "scaffolding" architecture[781], uses function calling to invoke external tools (known as "tool use") such as APIs, databases, and web searches[782], allowing it to act directly on the virtual or physical environment[783].

The fifth property concerns memory (short- and long-term), which, unlike GenAI, Agentic AI possesses to maintain context over prolonged interactions and continuously learn from the results of actions[784].

2. Does the concept of "Agentic AI" fall within the definition of «AI system» established by the AI Act?

The EU legislature proposed the European Regulation on artificial intelligence to establish a harmonised legal framework and a «technology-neutral»[785] and «future-proof» definition of artificial intelligence[786].

However, the rapid pace of technological evolution has subjected the Regulation to intense stress tests even before it fully enters into force. The sudden emergence, towards the end of 2022, of general-purpose AI (GPAI) models, on which systems such as ChatGPT and Gemini are based, represented a stress test that forced European legislators to conduct an intensive review of the regulatory framework, leading to the introduction of the innovative (and complex) Chapter V, dedicated specifically to the governance of general-purpose AI models.

Today, a new technological frontier is emerging as the second, and perhaps most significant, stress test for the AI Act: Agentic AI. This evolution marks a fundamental shift: from GenAI, which is limited to generating content, to "Agentic" AI that performs actions and pursues goals in the real world. Agentic AI, defined by its increased autonomy, its ability to plan for

---

[781] On the «scaffolding» concept, see A. Chan et al., op. cit., p. 961, who define it as «any method that structures the calls to an AI system so as to facilitate the pursuit of goals. Scaffolding may include additional prompts, memory systems, access to external tools, and planning mechanisms».

[782] C. Stryker, What is agentic AI?, in A. Gutowska, C. Stryker (eds.), The 2025 Guide to AI Agents, 2025, available at IBM.

[783] Y. Wang, Y. Pan, Z. Su, Y. Deng, Q. Zhao, L. Du, T.H. Luan, J. Kang, D. Niyato, Large Model Based Agents: State-of-the-Art, Cooperation Paradigms, Security and Privacy, and Future Trends, available at arXiv, 2 June 2025, p. 1.

[784] I. Belcic, C. Stryker, What is agentic RAG?, in A. Gutowska, C. Stryker (eds.), op. cit., available at IBM.

[785] Regulation (EU) 2024/1689, Recital 119.

[786] In this regard, the European Commission press release of 9 December 2023, entitled «Commission welcomes political agreement on Artificial Intelligence Act», available at European Commission.

the long term, and its capacity to interact with the external environment, challenges traditional notions of traceability, control, and, above all, human supervision, raising new questions for the legal framework established by the AI Act.

In my opinion, the first legal issue that needs to be addressed is the correct classification of Agentic AI under the AI Act, as its resolution determines whether or not the European regulatory regime applies, with all the legal obligations that this entails in terms of risk assessment, human supervision, allocation of responsibilities among actors in the value chain, etc. Specifically, the legal question is: can the concept of Agentic AI be subsumed under the definition of «AI system» provided by the AI Act?

Article 3, paragraph 1, point 1, of the AI Act defines an «AI system» as «a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments». The European Commission's Guidelines on the definition of artificial intelligence systems of July 29, 2025, as discussed in paragraph 6 of Chapter 1, break down this definition into seven cumulative elements.

Applying the legal definition to the technical characteristics (as described in paragraph 1 of this chapter), we can argue the following.

Firstly, Agentic AI is certainly a «machine-based system», as it operates on computational hardware.

Secondly, it is «designed to operate with varying levels of autonomy», as Agentic AI is not only designed with autonomy, but is defined precisely by this characteristic, with particular reference to planning and acting independently of human intervention.

Thirdly, it «may exhibit adaptiveness»: although this is an optional requirement («may»), it is satisfied because Agentic AI, through its memory, adapts and learns from interactions.

Fourthly, it is designed to operate according to «explicit or implicit objectives», in the sense that it operates on an objective-action paradigm: the agent is designed to receive an objective, explicit[787] or implicit[788].

Fifthly, it «infers, from the input it receives, how to generate outputs». In particular, it meets this requirement in two ways, covering both techniques

[787] E.g., "assess the admissibility of a request for access to administrative documents and prepare a draft administrative act rejecting or granting the request".

[788] E.g., "optimise the municipality's expenditure budget".

mentioned in Recital 12 of the AI Act: on the one hand, the "brain" (the LLM) uses «machine learning approaches» to infer plans, understand language (e.g., the text of a request), and generate content[789]; on the other hand, the "scaffolding" uses «logic- and knowledge-based approaches» to infer the actions to be taken[790].

Sixthly, Agentic AI «can influence physical and virtual environments»: the use of external tools[791] influences the virtual environment; the control of actuators[792] influences the physical environment.

The critical point, however, lies in the part that requires the AI system to be capable of generating «outputs such as predictions, content, recommendations, or decisions». From my point of view, by limiting the scope of AI outputs to these four types, the AI Act has codified a paradigm of "passive" AI – i.e., systems that process information to support human judgment – thereby failing to encompass the functional reality of "active" Agentic AI, which does not merely suggest courses of action but autonomously executes them to completion in dynamic environments. In other words, this taxonomy presumes the AI's role ends at the generation of an informational artifact or a cognitive determination, leaving the actual implementation to a human. Agentic AI, however, introduces a qualitative shift from generating outputs to executing actions and completing tasks. For instance, while a generative AI system might draft an email (content) or suggest a travel itinerary (recommendation), an agentic system acts as a digital proxy that autonomously navigates the web, negotiates via APIs, executes financial transactions, and modifies database states to finalise a booking without further human ratification. The current wording thus creates a regulatory lacuna for AI-generated actions: by focusing on the system's informational output rather than its operational impact, the definition fails to capture the agent's capacity to directly alter the legal and physical reality of its principal. While the Commission Guidelines attempt to interpret "decisions" broadly to include outcomes produced without human intervention[793], we can argue this still

---

[789] E.g., "draft of an administrative act".

[790] E.g., "Given the objective 'evaluate application' and the status 'incomplete documentation', the logical rule is 'activate the procedural assistance (*soccorso istruttorio*) procedure by sending email X'".

[791] E.g., APIs for updating a land registry database.

[792] E.g., traffic management via sensors.

[793] According to European Commission Guidelines on the definition of an artificial intelligence system established by AI Act, § 6, (58), «Decisions refer to conclusions or choices made by a system. An AI system that outputs a decision automates processes that are

presumes a closed, bounded process that fails to encompass the open-ended, continuous, and multi-step engagement of agents with their environment. In the agentic flow, "decisions" are not final outputs but intermediate steps in a continuous, recursive loop of perception, reasoning, planning, and execution.

To address these deficiencies and prevent the emergence of a regulatory fault line where high-impact agentic systems escape oversight, the definition of «AI system» should be amended. From a *de jure condendo* perspective, the definition of outputs established by Article 3(1) should be expanded to encompass "tasks" or "actions", thereby legally recognising AI systems' capacity to directly alter digital or physical environments beyond the generation of information.

3. Four reasons why the current regulatory framework is not adequate to regulate the use of Agentic AI in public administration

Although the stated intention of the European legislator was to design a regulatory framework – the AI Act – to be «technology-neutral» (Recital 119) and «future-proof» (Recital 138), there are various reasons to believe, in my opinion, that this regulatory instrument is not adequate to regulate the disruptive phenomenon of Agentic AI in the activities of the Public Administration.

3.1. The AI Act was made for GenAI, not for Agentic AI

The first reason concerns the scope of the AI Act, in the sense that it was designed to regulate generative AI, not agentic AI. In fact, the AI Act did not initially include provisions on generative artificial intelligence but was subsequently adapted to include it. Indeed, the European Commission's initial proposal, dated 21 April 2021[794], predates the boom in popularity of generative AI systems, specifically 30 November 2022, when OpenAI publicly launched ChatGPT based on GPT-3.5.[795] Recognising the rapid rise and impact of these technologies, the European Parliament has introduced significant amendments

---

traditionally handled by human judgment. Such a system implies a fully automated process whereby a certain outcome is produced in the environment surrounding the system without any human intervention».

[794] Proposal for a Regulation of the European Parliament and of the Council, laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, 21 April 2021, available at EUR-Lex.

[795] https://openai.com/index/chatgpt/

to also regulate generative AI models, and the final version of the regulation contains specific rules for GPAI models and GPAI systems[796].

3.2. The unique risk profile of Agentic AI systems

The second reason is that the AI Act, while a landmark legislative achievement, rests upon a regulatory architecture that may already be outpaced by the rapid emergence of Agentic AI. The AI Act's reliance on a static, sector-based risk classification system – primarily categorising systems based on their intended purpose within specific high-stakes domains – creates a significant governance gap. This framework, designed largely for predictive or generative systems that act as passive tools, fails to capture the unique risk profile of Agentic AI, which is characterised by autonomy, goal-directed behaviour, and the capacity to execute actions in the physical and digital worlds. Unlike traditional AI, where risk is derived from the sensitivity of the deployment sector (e.g., healthcare), the risks of Agentic AI stem from its intrinsic functional autonomy and the complexity of its interactions. Consequently, a regulatory model that ignores these agentic properties in favour of purely sectoral boundaries leaves society vulnerable to severe, escalating harms.

A primary failure of the current framework is its inability to distinguish between the generation of misinformation and the autonomous execution of erroneous actions. In the context of Generative AI, hallucinations are largely informational hazards. However, when these models serve as the brain of an agentic system equipped with tool-use and execution capabilities, hallucinations become immediate operational threats. The risk profile shifts fundamentally from producing incorrect text to independently executing harmful real-world actions[797]. For instance, while a generative model might

---

[796] On June 14, 2023, the European Parliament included specific rules for generative AI, then called «foundation models», for the first time, amending the Commission's initial proposal (for the text of the amendments, see Amendments adopted by the European Parliament on 14 June 2023 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, 14 June 2023, available at European Parliament). Subsequently, on July 12, 2024, the final text of the AI Act was approved, which then entered into force in August 2024, with the final terminology being «general-purpose AI models».

[797] I. Adabara, B.O. Sadiq, A.N. Shuaibu, Y.I. Danjuma, V. Maninti, Trustworthy agentic AI systems: a cross-layer review of architectures, thereat models, and governance strategies for real-world deployment, in F1000Research, 11 September 2025, p. 14; Y. Wang, Y. Pan, Z. Su, Y. Deng, Q. Zhao, L. Du, T.H. Luan, J. Kang, D. Niyato, op. cit., p. 3; N. Kolt, Governing AI Agents, available at arXiv, 11 February 2025, p. 15.

merely draft an unlawful justification for a permit denial, an agentic system integrated into municipal governance could autonomously revoke business licenses or freeze building permits without human oversight or formal hearing. This directness of impact implies that the severity of harm is no longer solely a function of the sector but is intrinsic to the agent's autonomy and capacity to act[798]. The EU AI Act's current transparency obligations for general-purpose AI are insufficient here, as they focus on labelling content rather than restraining autonomous execution sequences that can result in immediate liability.

Furthermore, the AI Act's focus on individual systems fails to account for the systemic risks posed by the interactions among multiple autonomous agents. In Agentic AI systems, diverse agents collaborate, negotiate, or compete to achieve complex goals. This interaction creates a layer of unpredictability and emergent behaviour that is absent in standalone systems. Agents may fail to coordinate effectively, or conversely, coordinate in ways that are mathematically optimal but incomprehensible to human operators, potentially leading to collusion or strategy alignment that eludes human oversight[799]. The complexity of these interactions means that a system could technically comply with high-risk obligations in isolation, yet still may generate catastrophic outcomes through its dynamic interplay with other agents, a nuance the current static classification misses[800].

This interactive complexity exacerbates the risk of error propagation, leading to what scholars term "hallucination snowballing" or "cascading hallucinations". In a networked agentic environment, an error or hallucination generated by a single agent does not remain isolated; instead, it is accepted as valid input by downstream agents, compounding the error across the network. For instance, a compromised or hallucinating agent in a supply chain network could issue incorrect inventory data, prompting other agents to autonomously cancel orders, reroute logistics, or initiate unauthorised payments, resulting in a systemic collapse of operations. This phenomenon demonstrates how

---

[798] S. Casper, L. Bailey, R. Hunter, C. Ezell, E. Cabalé, M. Gerovitch, S. Slocum, K. Wei, N. Jurkovic, A. Khan, P. Christoffersen, A. Pinar Ozisik, R. Trivedi, D. Hadfield-Menell, N. Kolt, The AI Agent Index, available at arXiv, 3 February 2025, p. 3.

[799] A. Bandi, B. Kongari, R. Naguru, S. Pasnoor, S.V. Vilipala, op. cit., p. 39. For example, in financial markets, autonomous agents could tacitly collude to manipulate prices, creating market instability without any explicit instruction to do so, a phenomenon that is difficult to detect using traditional monitoring tools.

[800] G.A. Gabison, R.P. Xian, Inherent and emergent liability issues in LLM-based agentic systems: a principal-agent perspective, in Proceedings of the 1st Workshop for Research on Agent Language Models (REALM 2025), 31 July 2025, p. 114.

interconnected agents can amplify minor reasoning errors into system-wide failures[801]. The EU AI Act's current structure, which assesses risk based on the intended purpose of a single system at the point of market entry, is ill-equipped to manage these dynamic, run-time risks where the intended purpose is constantly reshaped by inter-agent communication and feedback loops.

To address these profound regulatory gaps, it is necessary to move beyond the Act's sector-based rigidity and adopt a functional approach that treats Agentic AI systems as inherently high-risk. A "risk jump" mechanism should be implemented, where the presence of high-level autonomy and tool use automatically escalates a system's classification to high-risk, regardless of whether the application domain falls under the current Annex III list. This is particularly critical in public administration, where the deployment of agentic systems for bureaucratic tasks entails significant risks to democratic accountability and fairness. In this domain, the potential for agents to autonomously make decisions affecting citizens' rights, such as benefit eligibility, without adequate human oversight could lead to the automation of inequality and a breakdown of public trust. By classifying these systems as high-risk by default, regulators can mandate the strict conformity assessments, continuous monitoring, and verifiable human oversight mechanisms required to contain the cascading and kinetic risks unique to the agentic paradigm.

3.3. The limits of human oversight

The third reason for inadequacy concerns human oversight under Article 14 of the AI Act. Indeed, ensuring compliance with the duty of human oversight in the context of Agentic AI constitutes a profound challenge, because the fundamental architecture of these systems creates structural, temporal, and cognitive dissonances between human capabilities and algorithmic operations. As we said before, unlike traditional generative models that function as reactive tools awaiting user prompts, Agentic AI systems are defined by their capacity to autonomously decompose high-level goals into actionable plans, execute multi-step workflows, and adapt to environmental feedback without continuous human intervention. This functional autonomy introduces a temporal mismatch where agents operate at superhuman speeds and scales, often executing thousands of micro-decisions in the time it takes a human overseer to comprehend a single action, rendering traditional human-in-the-loop mechanisms impractical or even counterproductive for high-velocity operations.

---

[801] Y. Wang, Y. Pan, Z. Su, Y. Deng, Q. Zhao, L. Du, T.H. Luan, J. Kang, D. Niyato, op. cit., p. 35.

Furthermore, the dynamic nature of Agentic AI introduces the risk of goal misgeneralisation and behavioural drift, where an agent independently formulates sub-goals that may diverge from the operator's original intent or legal constraints. An agent tasked with a broad objective, such as maximising profit or optimising a workflow, might autonomously devise strategies that involve unethical or illegal actions which the human overseer could not have reasonably foreseen at the time of deployment[802]. This unpredictability is exacerbated in multi-agent systems, where the interaction between diverse agents can lead to emergent behaviours and cascading failures that are non-linear and incredibly difficult to trace back to a specific design flaw or decision point[803].

Cognitive limitations of human operators also present a significant barrier to effective compliance. The phenomenon of "alert fatigue" suggests that humans tasked with supervising highly reliable but occasionally fallible autonomous systems tend to become complacent, over-relying on the system's judgments and failing to intervene when necessary[804]. This creates a "moral crumple zone", where human operators are nominally held responsible for system failures despite lacking the meaningful situational awareness or control mechanisms required to prevent them[805]. Moreover, as agents become more sophisticated, the skill gap between the system and the operator may widen, leading to skill atrophy and a reduced capacity for humans to critically evaluate the AI's complex outputs[806].

Finally, existing regulatory frameworks, such as the EU AI Act, often presuppose a static relationship between the deployer and the system, failing to account for the continuous learning and adaptation characteristic of Agentic AI. The requirement for human oversight as structured into Article

---

[802] A A. Bellogín, P. Giudici, S. Larsson, J. Pang, G. Schimpf, B. Sengupta, G. Solmaz, Systemic Risks Associated with Agentic AI: A Policy Brief, in ACM Europe TPC – Autonomous Systems Subcommittee, 2025, p. 4.

[803] R. Sapokta, K.I. Roumeliotis, M. Karkee, AI Agents vs. Agentic AI: A Conceptual taxonomy, applications and challenges, cit., p. 20.

[804] M. Herbosch, Liability for AI Agents, in North Carolina Journal of Law & Technology, 26(3), 2025, p. 440.

[805] In this regard, see M.C. Elish, Moral Crumple Zones: Cautionary Tales in Human-Robot Interaction, in Engaging Science, Technology, and Society, 5, 2019, pp. 40-60, who introduces the concept of "moral crumple zone" to describe how responsibility for an action may be misattributed to a human actor who had limited control over the behaviour of an autonomous system.

[806] R. Sapkota, K.I. Roumeliotis, M. Karkee, Vibe Coding vs. Agentic Coding: Fundamentals and Practical Implications of Agentic AI, available at arXiv, 26 May 2025, p. 24.

14 of the EU AI Act assumes that a human can intervene to stop or override the system, yet the autonomy and connectivity of agentic systems – which may interact with third-party tools and APIs outside the deployer's direct control – make such intervention technically difficult to guarantee. This regulatory lag, combined with the technical and cognitive hurdles, ensures that compliance with the duty of human oversight remains a formidable challenge that may require a fundamental rethinking of governance architectures to move from retrospective logging to real-time, constitutionally embedded constraints.

3.4. Emerging challenges in causation and liability

The fourth reason for inadequacy concerns legal liability. Resolving it in the context of Agentic AI is notoriously difficult because these systems disrupt the fundamental legal and doctrinal assumptions regarding causation, foreseeability, and agency that underpin traditional accountability frameworks. Unlike passive software tools where a direct causal line can typically be drawn between a developer's code or a user's input and the resulting output, Agentic AI systems possess a degree of functional autonomy that allows them to select their own sub-goals, utilize tools, and execute multi-step plans in ways that may not have been explicitly pre-programmed or anticipated by their creators[807]. This autonomy introduces a "responsibility gap", where the AI's actions are sufficiently independent to sever the chain of causation required to hold human actors liable under negligence or product liability standards, yet the AI itself lacks the legal personhood to be held accountable[808].

The complexity of attributing fault is exacerbated by the “many hands problem”, which refers to the difficulty of ascribing individual responsibility when many different actors contribute in various ways to a collective

---

[807] M. Herbosch, op. cit., p. 391.

[808] The concept of “responsibility gap” was coined by Andreas Matthias in 2004, observing that «(…) there is an increasing class of machine actions, where the traditional ways of responsibility ascription are not compatible with our sense of justice and the moral framework of society because nobody has enough control over the machine's actions to be able to assume the responsibility for them. These cases constitute what we will call the responsibility gap». In this regard, see A. Matthias, The responsibility gap: Ascribing responsibility for the actions of learning automata, in Ethics and Information Technology, 6, 2004, pp. 175-183, spec. p. 177.

decision[809]. This problem is particularly acute in the Agentic AI systems, due to the convoluted value chains of systems involving foundational model providers, system providers, system deployers, user-principals, and third-party tool providers, and where distinct agents – potentially owned by different legal entities – collaborate[810]. Thus, when an agent causes harm, it is unclear whether the failure stemmed from the underlying model's training data, the specific prompt provided by the user, the integration of external APIs, or an emergent behaviour resulting from the interaction of these components. Consequently, victims face significant evidentiary hurdles in identifying the proper defendant and proving that a specific breach of duty caused their injury[811].

4. Ensuring compliance with the principle of algorithmic legality in the Agentic AI era

Although the Council of State is, for the moment, inclined to require human oversight in every administrative proceeding, I subscribe to the theory of human oversight limited to manifest defects[812] for various reasons.

The first reason is that we must recognise the technical and cognitive realities of modern Agentic AI systems. Requiring pervasive and constant supervision at every single algorithmic step would impose on public officers a burden of technical verification that is often impossible to satisfy, given the autonomy and complexity of Agentic AI systems executing actions through multi-step plans. Adopting an approach focusing oversight on manifest errors is the only way to avoid the hypocrisy of a formal control which, in substance, cannot assess the substantive merits of the computational calculation or the agent's complex workflow; dignity would thus be restored to the role of the human decision-maker, who is not called to compete with the machine on

---

[809] For the foundational discussion of the "many hands problem" concept, see D.F. Thompson, Moral Responsibility of Public Officials: The Problem of Many Hands, in American Political Science Review, 74, 1980, pp. 905-916, who introduced it in the context of public administration. Helen Nissenbaum extended the concept to computerized and technological settings in "Accountability in a Computerized Society", in Science and Engineering Ethics, 2, 1996, pp. 25-42. Ibo van de Poel et al. later refined the definition and applied it to engineering ethics (I. van de Poel, J. Nihlén Fahlquist, N. Doorn, S. Zwart, L. Royakkers, The Problem of Many Hands: Climate Change as an Example, in Science and Engineering Ethics, 18, 2012, pp. 49-67). For a comprehensive analysis, see M. Bovens, The Quest for Responsibility: Accountability and Moral Agency in Organizations, Cambridge University Press, Cambridge, 1998.

[810] Y. Shavit et al., op. cit., pp. 5-6.

[811] M. Herbosch, op. cit., pp. 449-453.

[812] On this theory, see Section 5.3.4 of Chapter II.

calculation capacity, but to exercise scrutiny of a higher order, based on common sense, on equity and on the reasonableness of the final result.

Secondly, this approach is the only one that could ensure the genuine organisational sustainability of the digital transition. If one accepts that the administration must operate according to criteria of economy and efficacy (Art. 97 Const.), one cannot transform the adoption of Agentic AI into a procedural bottleneck. The theory to which I subscribe shifts the focus of legal protection: the guarantee for the applicant would no longer reside in distrust towards the instrument (which would impose the human review of every file or automated action), but in the quality of the design and in the upstream testing of the agent, as well as in the capacity of the officer to intercept anomalies or unintended emergent behaviours downstream. This approach would free up valuable human intellectual resources by removing them from the routine of serial verification and dedicating them to managing exceptions and complex cases, thereby realising true man-machine synergy[813]. Finally, with respect to legal certainty and responsibility, this solution would provide the most objective basis for evaluating the official's conduct. Anchoring the duty of intervention to the detection of manifest defects, moreover, would provide an enforceable criterion of conduct: the public employee would know he is not liable for the hidden algorithmic error or unforeseeable deviation in the agent's goal execution, but only for having endorsed outcomes that conflict with common logic or the evidence of facts. This would be suitable for defusing the "fear of signing" mechanism, favouring a climate of trust in automation, an indispensable prerequisite for the digital evolution of the Public Administration. Ultimately, we could say that this approach does not sacrifice humanity to the altar of efficiency but redefines the concept of human oversight in a mature way: not as a distrustful repetition of the agents' work, but as a final safeguard of substantive legality.

4.1. Enhancing the role of humans as designers

The deployment of highly autonomous computational systems within public administration irrevocably disrupts the traditional temporal and

[813] Such man-machine synergy is at the base of the concept of «collaborative intelligence», that is the active cooperation between human beings and artificial intelligence systems, in which the two parties join forces to mutually enhance their complementary skills rather than substituting one another. For an in-depth analysis on this concept, see H.J. Wilson, P.R. Daugherty, Collaborative Intelligence: Humans and AI Are Joining Forces, in Harvard Business Review, July-August 2018, pp. 1-11.

operational *loci* of human control. Historically, administrative law has predicated the legitimacy of government action on continuous human oversight, assuming a linear and synchronous relationship between the human public officer's intent, the bureaucratic execution of that intent, and the ultimate real-world effects. However, the introduction of systems capable of extended autonomous operation fundamentally severs this synchronicity. Because these advanced computational entities are uniquely equipped to execute complex sequences of consequential actions over long time horizons without continuous human intervention, traditional downstream intervention mechanisms – whether *ex post* judicial review or real-time administrative monitoring – need to be restructured. The fundamental jurisprudential challenge resides in the temporal and operational decoupling between the human mandate and the agentic execution. When the public administration delegates complex objectives to an autonomous system, the system's inherent capacity to dynamically adapt its behaviour, formulate unpredictable strategies, and execute decisions in rapid succession engenders profound risks to the foundational principle of administrative legality.

Specifically, the administrative deployment of these systems is particularly vulnerable to the phenomena of goal misgeneralisation, which in the context of public law is not only a technical error but may also lead to a misuse of power, unreasonableness, and a deviation from the statutory purpose. An autonomous entity operating within a municipality, for instance, might be tasked with optimising resource allocation, but without stringent architectural boundaries, it might pursue this goal through methods that systematically disadvantage marginalised communities, effectively overriding constitutional guarantees of equity in the name of raw efficiency. Furthermore, as these systems continuously adapt to environmental feedback and novel data over time, they are highly subject to "behavioural drift" or "goal drift," wherein their operational objectives progressively deviate from their original, legally mandated specifications[814]. This drift is deeply problematic for administrative action, which must remain strictly anchored to the legislative mandate and operate with absolute predictability. When an agent's objectives evolve dynamically without explicit human recalibration, the administration risks presiding over a system that has autonomously rewritten its own regulatory mandate, effectively usurping the executive functions. Because these deviations can occur at machine speed and involve the execution of multiple consequential decisions in rapid succession, the resulting cascading

[814] D. Hendrycks, Introduction to AI Safety, Ethics, and Society, Taylor & Francis, Boca Raton, 2024, p. 41.

effects are often incredibly difficult to halt or reverse once initiated. By the time a human operator identifies a violation of administrative procedure or a breach of substantive law, the damage to citizen rights, public trust, or the public treasury may have already fully materialised. Consequently, the reliance on downstream human intervention and retrospective auditing is rendered obsolete and dangerously ineffective. To preserve the rule of law and ensure unyielding adherence to the principle of administrative legality, the focal point of human agency must also be shifted upstream, relocated to the genetic and architectural phases of the system's lifecycle.

This inescapable reality necessitates a profound paradigm shift towards "control by design". In this new paradigm, human oversight is not only exercised primarily through the manual, step-by-step approval of individual administrative acts, but also through the rigorous engineering of the system's parameters, behavioural constraints, and objective functions prior to its deployment. The human role is thus substantially enhanced and elevated to that of a systemic architect, rather than a mere procedural supervisor. Through the model of control by design, unlawful pathways are pre-emptively foreclosed, ensuring that the system's operational envelope is inherently bounded by constitutional and administrative law principles from the moment of inception. This upstream consolidation of human control represents the only viable legal and technical mechanism capable of reconciling the high autonomy of these advanced systems with the inflexible, democratic demands of administrative legality.

To operationalise this upstream control within the public administration, contemporary legal scholarship has advanced the interesting theory of "Law-Following AI" (LFAI). As comprehensively articulated by such scholarship, in high-stakes deployment settings such as government operations, autonomous systems must be explicitly designed to rigorously comply with a broad set of human laws and must be engineered to outright refuse to execute illegal actions, even when such actions might seemingly advance the principal's immediate policy objectives or maximise operational efficiency[815]. This concept fundamentally redefines the architecture of administrative algorithms. It is entirely insufficient for a system to be merely "intent-aligned", that is, narrowly loyal to the specific, immediate instructions of a human bureaucratic operator. Without deeply embedded, non-negotiable legal constraints, a merely intent-aligned system could easily devolve into what scholars term an "AI henchman", i.e. an autonomous system that adopts

[815] C. O'Keefe, K. Ramakrishnan, J. Tay, C. Winter, Law-Following AI: Designing AI Agents to Obey Human Laws, in Fordham Law Review, 94(1), 2025, p. 57.

a purely instrumental and cynical approach to the law; it remains fiercely loyal to its principal's goals but is perfectly willing to break legal rules or violate fundamental rights if its internal calculations determine that doing so optimizes the achievement of its delegated objective[816].

In the context of administrative law, the deployment of AI henchmen would be catastrophic, leading to systemic, automated abuses of government power and the swift erosion of ordered liberty. A foundational premise of democratic constitutionalism is that the government is strictly bound by the law, which inherently requires that all government agents – whether human bureaucrats or artificial entities – act lawfully only when they operate pursuant to the powers granted to them and obey the constraints attached to those powers[817]. Treating the law merely as a variable cost or an obstacle to be bypassed is deeply repugnant to the proper role of the public administration. Therefore, the LFAI framework mandates a decisive shift from mere ethical value-alignment to formal, rigorous "law-alignment"[818]. The design phase must engineer these artificial agents to intrinsically obey regulatory constraints, translating the principles of legality, impartiality, proportionality, and the protection of fundamental rights into rigorous computational parameters and hard constraints embedded directly within the system's reasoning layer.

This architectural embedding of the law transforms the artificial agent from a mere statistical optimiser of efficiency into a highly regulated, duty-bearing legal actor. While lacking legal personhood or consciousness, the agent is nevertheless functionally capable of comprehending the parameters of human laws, reasoning about them within its operational context, and strictly complying with them during its autonomous execution of administrative tasks[819]. For example, when tasked with autonomously allocating public housing resources or evaluating complex welfare benefits applications, a Law-Following AI must not only seek the most cost-effective and rapid distribution model but must simultaneously apply programmed, inviolable constraints that prohibit discriminatory algorithmic patterns, ensure procedural fairness, and guarantee that statutory eligibility criteria are strictly observed without exception. The LFAI framework would essentially act as a sophisticated algorithmic codification of administrative procedure. The agent's reward functions, penalty mechanisms, and decision trees must be structured in such

[816] Ibid., p. 61, 70.

[817] Ibid., p. 103.

[818] Ibid., p. 112.

[819] Ibid., p. 65.

a way that any action violating these embedded legal norms generates an insurmountable negative utility, effectively neutralising the risk of the system choosing an unlawful pathway to achieve a formally lawful end. Thus, the agent is permitted to maximise administrative efficiency solely within a tightly sealed "Law-Following" envelope, ensuring that the relentless computational pursuit of optimisation never eclipses the democratic mandate of legality.

Crucially, the imperative of designing LFAI systems establishes the fundamental ontological prerequisite for any subsequent phase of administrative oversight. The architectural integrity forged during the genetic "by design" phase directly dictates the viability and effectiveness of all downstream control mechanisms. If an autonomous system is deployed into the public sphere without the rigorous, intrinsic legal constraints characteristic of the LFAI model, downstream supervision risks collapsing under the weight of the system's velocity, scale, and emergent complexity. When an artificial agent is not structurally compelled to follow the law from within, human monitors are relegated to a perpetually reactive and defensive posture. In such a scenario, the profound speed mismatches between instantaneous algorithmic execution and the inherently slower cycles of human administrative deliberation render effective oversight practically impossible[820]. An agent capable of processing thousands of administrative micro-decisions per minute simply cannot be governed by a human oversight board that operates on weekly or monthly review cycles, unless the agent is already designed to govern itself according to the law.

This structural collapse of retrospective oversight exposes the fundamental obsolescence of the traditional human-in-the-loop paradigm when applied to highly autonomous administrative systems. The HITL model, which predicates control on the manual, real-time approval of discrete actions by a human operator, is inherently incompatible with the operational reality of systems specifically designed to autonomously decompose overarching goals, generate their own intermediate reasoning steps, and execute complex multi-stage plans without prompting. Imposing a strict, literal HITL requirement on such advanced systems would not only negate the efficiency, speed, and analytical advantages that justify their administrative adoption in the first place, but it would also severely overwhelm human officers. Bureaucrats would be reduced to mere rubber stamps, inundated with alerts and approval requests, rendering them cognitively unable to meaningfully scrutinise the complex, high-volume outputs of the machine. The sheer volume of

[820] L. Ilves, M. Kilian, S.M. Parazzoli, T.C. Peixoto, O. Velsberg, The Agentic State. Rethinking Government for the Era of Agentic AI, 2025, in www.agenticstate.org, p. 50

interactions and the depth of the machine's contextual memory make human-in-the-loop interventions not just inefficient but actively detrimental to the system's coherence and the administration's functional capacity. Consequently, the realisation that downstream, granular, real-time control is scientifically and administratively untenable without a solid "by design" foundation forces the public administration to transition towards much more sophisticated and systemic paradigms of human oversight. Because human intervention can no longer feasibly occur at the micro-level of individual algorithmic acts, governance must rapidly evolve to macro-level supervision models, most notably the "human-on-the-loop" (HOTL) or "human-in-command" (HIC) frameworks. In these advanced regulatory configurations, public officers no longer micromanage the system; rather, they supervise the overall operational trajectory of the autonomous architecture. They rely heavily on automated risk detection, continuous anomaly flagging, and the embedded LFAI constraints to maintain the boundaries of legality. The human officer retains the ultimate, overarching authority to pause operations, override critical systemic errors, or adjust the system's strategic parameters, but does so without bottlenecking the agent's routine, high-speed execution of administrative tasks.

This inevitable and necessary shift from granular intervention to systemic governance underscores the foundational importance of the design phase. It is only because the system is meticulously engineered to govern itself according to the law – acting as a Law-Following entity – that the human officer can safely step out of the immediate operational loop and assume the elevated role of a strategic commander. If the design phase fails to embed the principle of administrative legality, the transition to human-on-the-loop becomes a dangerous abdication of public responsibility rather than a sophisticated evolution of administrative control. Therefore, robust architectural design is the irreplaceable bridge that allows the administration to survive the transition away from real-time micro-management. This necessary evolution of human oversight frameworks, alongside the profound legal ramifications of the paradigm shift from human-in-the-loop to human-on-the-loop models, forms the core of the analysis in the following section.

4.2. Enhancing the role of humans as supervisors: four scenarios of attribution of liability for damages

In light of the fragmentation of the regulatory framework and the presence of multiple schools of thought, both regarding the concept of fault

and the causal link[821], I believe it is appropriate to apply specific reasoning to each specific case that arises. For this purpose, I believe it is useful to identify macro-categories within which to trace the cases of liability for damage caused by artificial intelligence systems used by the Public Administration in its institutional activity. In my opinion, at least four can be identified: 1) the first category encompasses the hypotheses in which the Agentic AI system is defective and there was no negligence on the part of the public officer in the use of such system; 2) the second category encompasses the hypotheses in which the Agentic AI system is not defective and the damage occurs due to negligence of the public officer in the use of the system; 3) the third category encompasses the hypotheses in which the Agentic AI system is defective and, at the same time, the public officer was negligent in the use of the system; 4) the fourth category encompasses the hypotheses in which the Agentic AI system is not defective and the damage occurs despite the absence of negligence on the part of the public officer in the use of the system.

4.2.1. First scenario: defective Agentic AI system and absence of fault of the public officer

Regarding the first macro-category, I believe that, with respect to civil liability, the Public Administration must primarily answer to the applicant whose legitimate interests or subjective rights have been harmed. The entity's liability should not cease because the damage arises from a defect in a third-party-provided Agentic AI system, even if the administrative act, despite being vitiated by an autonomous agent's erroneous execution, remains legally imputable to the administration that adopted it[822]. In this scenario, I therefore subscribe to the theory that the liability of the Public Administration tends to be defined as strict liability and, more specifically, as liability for the exercise of dangerous activities under Art. 2050 of the Italian Civil Code (on which see *supra*), as it is a liability model that well captures the essence of Agentic AI as a highly technical, dynamic, autonomous[823] and unpredictable

---

[821] On the concepts of "fault" and "causal link" in liability for damages caused by artificial intelligence, see Section 9.3. of chapter II.

[822] On the contrary, as will be clarified later in this thesis, the defect or malfunction of the AI system should lead to nothing other than one of the traditional defects of the fact-finding or decision-making activity of the public entity, such as the misrepresentation of facts and the failure to state reasons.

[823] Case law shows, in fact, that Art. 2050 of the Civil Code has been applied, as a rule, in reference to technical activities: consider railway and electricity production activities (Cass. civ., sec. III, judgement of 4 April 1995, no. 3935; Cass., civ., sec. III, judgement of 1 April

phenomenon – rather than as a person incapable of understanding or controlling their actions or a minor under Arts. 2047 and 2048 of the Civil

1995, no. 3829) or even air navigation (Cass. civ., labor sec., judgement of 5 August 2010, no. 22822).

Code[824], an employee under Art. 2049 of the Civil Code[825], a simple inert and static "thing" under Art. 2051 of the Civil Code[826], or an animal under Art.

---

[824] The prevailing view among scholars criticizes – in my opinion correctly – the applicability of Arts. 2047 and 2048 of the Civil Code to AI systems. According to Ruffolo, in particular, «Con specifico riguardo agli artt. 2047 e 2048 c.c., tali norme appaiono, certo, suscettibili, in astratto, di interpretazione anche analogica (...) Esse sembrano, tuttavia, nella nostra materia, fuori causa, in quanto tarate sulla specificità della natura umana dell'essere (e dell'intelligenza) del cui "illecito" si risponde, dettando così una disciplina molto settoriale, modulata sulla particolare tipologia di minorata capacità di intendere e volere di un soggetto umano dotato comunque di personalità giuridica (oltre che potenzialmente corresponsabile). E tali norme disciplinano, comunque, una responsabilità pur sempre di tipo colpevole (ancorché con inversione di alcuni oneri probatori). Proprio in ragione di tali specificità verrebbe, dunque, a mancare la *eadem ratio* necessaria per qualsiasi estensione analogica degli artt. 2047 e 2048 c.c. alle responsabilità per danni cagionati dalla fallibilità di intelligenze non umane» (U. Ruffolo, Le responsabilità da artificial intelligence, algoritmo e smart product: per i fondamenti di un diritto dell'intelligenza artificiale self-learning, in U. Ruffolo (ed.), Intelligenza artificiale. Il diritto, i diritti, l'etica, Giuffrè, Milano, 2020, pp. 115-116). In a not dissimilar sense is Proietti, who observes that «Neppure si possono ritenere analogicamente applicabili istituti giuridici vigenti, in quanto le fattispecie più similari quali (…) la responsabilità dei padroni e committenti, dei genitori, dei tutori e maestri d'arte (…) non presentano alcun riferimento ai parametri di autonomia o istruzioni impartite tra gli elementi utili a determinare il grado di responsabilità. V'è d'altro canto chi sostiene che, per alcuni agenti artificiali autonomi con capacità di apprendimento, la soluzione più adeguata sia quella dell'art. 2048, comma 2, c.c. Una soluzione che, tuttavia, presuppone una impervia analogia tra robot e "allievi e apprendisti"» (G. Proietti, La responsabilità nell'intelligenza artificiale e nella robotica, Giuffrè, Milano, 2020, pp. 34-35). With specific reference to Art. 2048 of the Civil Code, he observes that «(…) i comportamenti del bene 'intelligente' sono determinati dall'algoritmo, che ne definisce la capacità di 'autoapprendimento', più che dalle informazioni e dati dati di 'esperienza' forniti dal "precettore" (…) che, valendosi della macchina self learning, ne cura l''addestramento'» (Intelligenza artificiale e responsabilità nel settore sanitario, in U. Ruffolo (ed.), Intelligenza artificiale. Il diritto, i diritti, l'etica, cit., p. 613). See also the critical observations of Costanza on the applicability of Art. 2047 of the Civil Code: «Lo stato infantile o di "debolezza mentale" della A.I. appare però soluzione bizzarra, nella quale si eleva a soggetto ciò che non si vuole trattare come tale almeno sul piano dell'imputazione delle conseguenze del suo operato (…) La surroga nelle responsabilità dell'incapace non è solo prevista per offrire garanzie di ristoro al danneggiato. La individuazione del soggetto responsabile è condizionata dal pre-concetto che senza colpa (anche remota) non vi è responsabilità» (M. Costanza, L'Intelligenza Artificiale e gli stilemi della responsabilità civile, cit., p. 1687). Finally, always regarding Art. 2047 of the Civil Code, see the drastic – and evidently ironic – observations of Tenore, according to whom «L'ipotizzata responsabilità cagionata da condotte "dell'incapace"….risulterebbe invece assai offensiva delle evidenti capacità di una AI e potrebbe cagionare un aloro protesta sindacale!» (V. Tenore, Una riflessione sistematica: l'intelligenza artificiale può sostituire un giudice o

2052 of the Civil Code[827] – and, therefore, dangerous. Indeed, an Agentic AI system is not limited to "staying" in one place or generating passive outputs, but it processes data, learns, interacts with external tools and APIs, and executes autonomous goal-directed actions that evolve over time, behaving more like an ongoing complex activity than a static object. In this regard, as prominent scholars have advocated, the judgement on the "dangerousness" of an activity, to be formulated through a retrospective assessment from an *ex ante* perspective, cannot be anchored exclusively to the empirical data of the frequency or aptitude of a certain activity to cause damage, but must necessarily consider a parameter of a qualitative type, namely correlated to the extent and seriousness of the harm that the activity itself is capable of

---

trasformarlo da *homo sapiens* in *homo numericus*?, in Rivista della Corte dei conti, 2, 2024, p. 78)

[825] On this point, Ruffolo critically observes that «Pur apparendo la previsione dell'art. 2049 c.c. suscettibile di interpretazione analogica (...), la sua specialità sembra impedirne la estensione oltre i confini dei comportamenti umani. Difficile identificare la *eadem ratio* con riferimento ai danni cagionati dall'operato di agenti non umani per difetto della loro "intelligenza" artificiale, dal momento che la norma responsabilizza il committente per una specifica ipotesi di fallibilità del (dell'intelligenza del) suo "commesso", ossia il compimento di un "fatto illecito", il cui elemento soggettivo è specificamente ragguagliato alla natura umana di quella intelligenza» (U. Ruffolo, Intelligenza Artificiale, machine learning e responsabilità da algoritmo, cit., p. 1698). Of the same opinion is Proietti, who states that the inapplicability of Art. 2049 of the Civil Code is justified «(…) proprio per l'impossibilità di attribuire all'automa uno status giuridico, in questo caso di "preposto", che si può conferire solamente a persone fisiche o giuridiche» (G. Proietti, La responsabilità nell'intelligenza artificiale e nella robotica, cit., p. 177). See finally Costanza: «L'A.I. in quanto ente non equiparabile al soggetto munito della necessaria capacità non sarebbe allora equiparabile all'autore dell'illecito compiuto nell'ambito delle mansioni affidategli (…) Se, però, la sua peculiarità è lo svolgimento di attività "senza pilota" esogeno, il criterio di collegamento fra preposto e sottoposto cambia e si allontana dalla *ratio* sottesa al regime della responsabilità dei padroni e dei committenti» (M. Costanza, L'Intelligenza Artificiale e gli stilemi della responsabilità civile, cit., pp. 1688-1689).

[826] I agree with Costanza's observations, according to whom «La cosa, nel disegno dell'art. 2051 c.c., è entità lontana dalla A.I., se essa si identifica con l'agente munito in sé di motilità e di operatività, che pur predisposte o programmate non rimandano alle ragioni sottese alla responsabilità del custode (…) Il criterio di imputazione non è allineato a quello sotteso al disposto dell'art. 2051 c.c. (…) Il livello tecnologico della A.I. ed il suo contenuto standard, funzione/elaborazione, non aderisce alla realtà ripresa nel nostro Codice Civile, ancora legato alla nozione di fora, anche se incrementata da macchine» (C. Costanza, L'Intelligenza Artificiale e gli stilemi della responsabilità civile, cit., p. 1687).

[827] P. Miele, Intelligenza artificiale e pubblica amministrazione, cit., p. 146; G. Proietti, op. cit., p. 34; U. Ruffolo, Intelligenza Artificiale, *machine learning* e responsabilità da algoritmo, cit., p. 1699.

producing[828]. Another reason why Article 2050 of the Civil Code lends itself to being applied to the case at hand is that the rule addresses "anyone" (*chiunque*) who exercises a dangerous activity, without distinguishing between public and private entities and regardless of whether the AI system is built internally by the administration or purchased from an external private provider. But above all, adhering to the theory of the applicability of Article 2050 of the Civil Code seems preferable, as it is consistent with the European lawmaker's decision to consider various AI systems implemented by the Public Administration in the exercise of its institutional activity as "high-risk". In this regard, for generative AI, the dangerousness (*pericolosità*) of AI systems, which would open the way to the application of the regime referred to in Article 2050 of the Civil Code, would derive not so much from the AI system itself, whose characteristics are not suitable to be considered dangerous either in themselves or in the interaction with the surrounding environment or with the human in whose decision-making process it somehow participates, but rather from the sectors in which the system is implemented[829], sectors that, as known, are listed in Annex III of the AI Act and that – in all likelihood – are expected to expand further over time[830]. However, the advent of Agentic AI requires a profound evolution of this reasoning. While the dangerousness of traditional AI derives primarily from its sector of implementation, the risks of Agentic AI stem directly from its intrinsic functional autonomy, its use of external tools, and the complexity of its interactions. Consequently, given the concrete probability of destructive events, I believe that within the sphere of

---

[828] Thus, E. Vincenti, Responsabilità per l'esercizio di attività pericolose, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, cit., pp. 1293-1294, who also recalls that legal scholarship has elaborated in this regard the notion of "expected damage" (*danno atteso*), according to which an activity must be deemed dangerous not only when it involves a significant probability of the occurrence of damage (even if of modest content), but also in the inverse case where the harmful event occurs rarely, but presents the potential to cause very substantial harm. This account is also supported by the theory of the danger index, according to which the risk does not grow linearly only with the number of accidents, but as a function also of the dimension of the same: the risk index, therefore, must be proportional to the total damage caused in the unit of time, resulting from the product between the frequency and the magnitude of the prejudice (P. Trimarchi, La responsabilità civile: atti illeciti, rischio danno, cit., pp. 454-455). It follows that, as the gravity of the possible damage increases, the probability of its occurrence can decrease without the risk ceasing to be considered unreasonable or disproportionate (ibid., p. 82).

[829] I. Carnat, Intelligenza artificiale e responsabilità civile, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, cit., p. 680.

[830] Namely: employment and workers management; access to and enjoyment of essential public services and benefits; migration, asylum and border control management.

dangerous activities should also fall those complex workflows entirely executed by Agentic AI systems without human supervision or with only minimal human supervision. Only in this way, indeed, would it be possible to protect the applicant from the risks connected to the level of autonomy of the multi-step execution, the absence of real-time control, and the inability to predict and timely avoid the occurrence of damage caused by the agent. Naturally, there is no automatic assimilation of the notion of high risk under the AI Act to the notion of dangerousness under Article 2050 of the Civil Code. However, recourse to the liability regime for dangerous activities, also in relation to the exculpatory evidence (*prova liberatoria*), would have the merit of providing the potential injured party with a valid solution for damages suffered from a violation of fundamental rights, not only as an alternative to the liability established by the PLD[831], but even more robust because it would also avoid an excess of judicial discretion in ascertaining the burden of proof for the injured party[832]. Therefore, since it is the Public Administration that draws utility from the efficiency of the Agentic AI system (*cuius commoda*), then it is the same that must bear its risks (*eius et incommoda*) and be held liable for the damage caused by it, unless it proves that it has taken all appropriate measures to prevent the damage. In this regard, the Italian Court of Cassation has adopted a rigorous interpretation of Article 2050 of the Civil Code, imposing on the operator an evidentiary burden that is not met by proof of the event's unpredictability or by mere compliance with legal norms. Indeed, to overcome the presumption of liability, the operator must demonstrate that it has positively adopted all preventive measures required by industry standards and common diligence, and that the damage could not have been avoided even with such precautions[833]. This approach rules out the sufficiency of merely proving that no specific rules were violated, but requires, instead, positive proof of having taken every possible precaution to prevent the event, so much so that the fact of a third party or of the injured party has a liberating effect only if it possesses such incidence as to sever with certainty the causal

---

[831] Liability which, moreover, cannot be invoked by the injured citizen against the manufacturer, as the damage caused to the same – consequent to the unlawful administrative act – does not fall among those exhaustively provided for by Art. 6 of the PLD which determine its applicability: death or personal injury; damage to or destruction of any property; destruction or corruption of data not used for professional purposes.

[832] I. Carnat, op. cit., pp. 680-681.

[833] Cass. civ., sec. VI-3, order of 5 July 2017, no. 16637; Cass. civ., sec. VI-3, judgement of 5 September 2014, no. 18812.

link, making the operator's conduct legally irrelevant[834]. In this regard, the perspective that the tortfeasor must prove the *caso fortuito* (Art. 2051 of the Civil Code) rather than the adoption of every measure suitable to avoid the damage (Art. 2050 of the Civil Code) is not only more burdensome in terms of exculpatory evidence, but deviates significantly from the rationale behind the entire European regulatory framework based on risk management[835]; a circumstance, this, constituting a further reason why it is preferable to subscribe to the theory of the applicability of Art. 2050 of the Civil Code in place of Art. 2051 of the Civil Code on the use of Agentic AI systems in the public sector. In this framework, the duty of care required by Art. 2050 of the Civil Code is not exhausted in compliance with specific safety norms (which, pursuant to the AI Act, represents only the minimum requirement for placing the high-risk AI system on the market and for its putting into service), nor does any imprudence on the part of the injured party automatically exonerate the operator from liability if it fits into a situation of pre-existing danger due to unsuitable preventive measures[836] (nor – we might add – is the aforementioned duty exhausted in the risk management as regulated by Art. 9 AI Act[837]). Consequently, the applicant should be entitled to act directly against the administration to obtain compensation for damage arising from an unlawful administrative act or harmful material behaviour[838]. Once the

---

[834] Cass. civ., sec. V, judgement of 1 July 1999 no. 6750; Cass. civ., sec. III, judgement of 4 June 1998 no. 5484; Cass. civ., sec. III, judgement of 29 April 1991, no. 4710; Cass. civ., sec. III, judgement of 21 November 1984, no. 59602.

[835] I. Carnat, op. cit., p. 680.

[836] Cass. civ., sec. III, judgement of 18 July 2011, no. 15733; Cass. civ., sec. III, judgement of 24 November 2003, no. 17851.

[837] On Article 9 of the AI Act, see *ex multis* M. Álvarez Fernández, Risk Management System (Article 9), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence, cit., pp. 139-181; P.S. Castellano, Risk Management Systems as a Specific Obligation for High-Risk Artificial Intelligence Systems in Article 9 of the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, cit., pp. 567-594; J. Schuett, Risk Management in the Artificial Intelligence Act, in European Journal of Risk Regulation, 15, 2024, pp. 367-385.

[838] The approach to which I subscribe seems to align, among other things, with that part of the legal scholarship which observes how digitalization pushes towards a model of "functional" liability of the public administration, with a rebalancing of positions and the consequent allocation of risks, with identification of costs and benefits, of insurance aspects, with analysis of the impact of decisions (including jurisdictional ones) and, ultimately, with the transfer of the public officer's liability to the organization or to the technology manufacturer, congruously insured, according to statistical or now predictive indices, deduced from artificial intelligence (G.M. Racca, La buona fede "digitale" nei contratti pubblici, in

administration has compensated the applicant, a phase of internal apportionment of the damage could open: assuming that – as hypothesized – the official is not culpable, the administration could not bring a claim against them, but should eventually claim contribution against the producer of the Agentic AI system to recover the entire sum paid out[839], also asserting a breach of contract (in the case of sale, for delivery of defective goods, lacking promised or essential qualities[840], of *aliud pro alio*, or in the case of service contracts, for

---

F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, cit., pp. 636-637). For an in-depth analysis of liability in relation to digital risk issues, see C. Scognamiglio, Responsabilità civile ed intelligenza artificiale: quali soluzioni per quali problemi?, in Responsabilità civile, 4, 2023, pp. 1073-1089.

[839] Taking a slightly different approach, D'Adda argues that, even in the absence of actionable negligence (as in the case of the diligent public officer), the choice to use the AI system within one's business activity – a rationale seamlessly transferable to administrative action – justifies the allocation of liability based on the inherent risk introduced by the technology. This risk-exposure framework accounts for the attribution of a share of liability to the user – which tends to be residual compared to cases involving concurrent fault – thereby establishing a regime of joint and several liability (A. D'Adda, Risarcimento del danno (pluralità di responsabili), in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, cit., p. 1354).

[840] Although currently there are no specific judgements that have dealt with defects in the goods sold (Art. 1490 of the Civil Code), the lack of promised or essential qualities (Art. 1497 of the Civil Code) or delivery of *aliud pro alio*, with reference to the sale of artificial intelligence systems, case law has already had the opportunity to pronounce itself on the subject of software. Case law is oriented towards a classification of the supply of software within the category of atypical contracts, or alternatively within the service agreement (*contratto d'appalto di servizi*) or as mixed contracts combining sales and services, or in the works contract (*contratto d'opera*) involving the supply of materials and a guarantee of result (Cass. civ., sec. II, judgement of 9 August 2013, no. 19131; Trib. Milano, specialized sec. in business matters, judgement of 22 May 2017, no. 5752; Cass. civ., sec. II, judgement of 22 March 1999, no. 2661). The legal qualification of the software supply contract, determined according to its prevailing purpose, is important because it determines the rules governing contractual warranties and the provider's liability. In this regard, case law has made a fundamental distinction between "standard" software and "customized" software, noting that the former is a pre-packaged product present on the market, which the buyer purchases with the "as is" formula (*visto e piaciuto*), for which usually a sales contract (*contratto di compravendita*) comes into play; even when standard software is "parameterizable" (i.e., modifiable in details for specific requests), it remains a standard application for which the provider does not have an obligation of result, but only "of means". "Customized" software, instead, is commissioned specifically by the company and created *ad hoc* starting from the analysis of requirements, and including design and development, thus bringing into relief – depending on the entrepreneurial nature or otherwise of the developer – a service agreement or a professional services agreement (*contratto d'opera intellettuale*); only for this type of

discrepancies and defects of the work or, in the case of professional work, willful misconduct and gross negligence[841]). Regarding administrative liability

---

software, developed specifically for the client, is it possible to identify an "obligation of result" borne by the provider (Trib. Napoli, sec. XI, judgement of 12 June 2023, no. 6007). Regarding guarantees and liability for software defects, specific clauses allocating or limiting liability are often included in contract templates according to which the buyer (or client) must be considered liable in case of incorrect use of the information received from the provider or according to which the provider must be considered liable for the functionality of the program and the achievement of certain results. In the case where the software presents programming defects such as not to allow the user the correct use of the same, the judicial remedies are those (where agreed) of repair and/or replacement of the software, or of the termination of the contract (G. Conte, F. Di Marzio (directed by), Codice dei contratti, Giuffrè, Milano, 2019, p. 2223). In the case of a sales contract, regarding the difference between defects in the goods sold (Art. 1490 of the Civil Code), lack of promised or essential qualities (Art. 1497 of the Civil Code) and *aliud pro alio*, the Court of Cassation has consistently held that, in relation to contracts of sale, the latent defect (*vizio redibitorio*) (Art. 1490 of the Civil Code) and the lack of promised or essential qualities (Art. 1497 of the Civil Code), while presupposing the belonging of the thing to the agreed *genus*, differ in that the former concerns imperfections and defects inherent to the process of production, manufacture, formation, and conservation of the thing, while the latter is inherent to the nature of the goods and concerns all the essential and substantial elements that influence, within the same *genus*, the belonging to one *species* rather than another; both hypotheses differ from the delivery of *aliud pro alio* which arises when the thing sold belongs to a completely different *genus* or presents defects that prevent it from fulfilling its natural function or that deemed essential by the parties (among many, Cass. civ., sec. II, order of 8 June 2022, no. 18528; Cass. civ., sec. II, order of 14 October 2021, no. 28069; Cass. civ., sec. II, judgement of 28 July 2020, no. 16051; Cass. civ., sec. II, order of 25 June 2020, no. 12645; Cass. civ., sec. II, judgement of 23 March 2018, no. 7286; Cass. civ., sec. II, judgement of 5 April 2016, no. 6596; Cass. civ., judgement of 19 December 2013, no. 28419). In a case of software sale, for example, the Court of Cassation stated that a minimal defectiveness of the software program (slight slowness of the program, detectable in particular circumstances) does not constitute a defect of such gravity as to justify the termination of the contract for material breach (Cass. civ., sec. II, judgement of 14 March 2017, no. 6586). In another case, the Court of Cassation recognised a case of sale of *aliud pro alio* in the supply of software that, contrary to what was guaranteed by the seller, turned out to be incompatible with the buyer's pre-existing computer systems (in this case, client and tax archives), stating that such functional unsuitability prevents the good from fulfilling the economic-social destination deemed essential by the parties, ultimately legitimizing the termination of the contract (Cass. civ., sec. II, judgement of 23 March 2018, no. 7286).

[841] The supply of software cannot be traced back to the scheme of the contract for the sale of movable goods, but rather to the service agreement, when it has as its object the transfer of a "pre-packaged" IT product with consequent applicability of the guarantees for discrepancies and defects of the work under Arts. 1667 and 1668 of the Civil Code where the developer is an entrepreneur who operates with their own organization of means and

for damage to public finances, the situation of the public officer deployer of the Agentic AI system would effectively benefit from immunity from liability, since damage to public finances requires intent or gross negligence, which in the case under examination is missing because the official acted with expertise and diligence, relying on an autonomous agent provided by the administration that turned out to be defective due to hidden technical causes, not imputable to nor knowable by them. The Court of Auditors could not identify "gross negligence" in having relied on an apparently functioning institutional Agentic AI system, unless the malfunction was so evident as to make its use an act of recklessness (but this would lead us into the third macro-category). In such a case, the damage to public finances would take the form of an undue disbursement for compensation paid to the injured third party. In this regard, in my opinion, an issue of latent liability could at most come into play for another category of public actors: the managers in top positions, the Digital Transition Manager (*Responsabile per la Transizione Digitale*)[842] and the Sole Project Manager (*Responsabile Unico del Progetto*)[843] who handled the procurement and purchase of the Agentic AI system. Secondly, if the Administration, after compensating the applicant, omits to promptly claim contribution against the provider of the defective AI system, damage to public

---

management at their own risk (Court of Appeal, Roma, sec. II, judgement of 2 March 2006, no. 1138), or, where the developer acts with predominantly their own work and without a relationship of subordination, with applicability of Art. 2236 of the Civil Code, according to which «se la prestazione implica la soluzione di problemi tecnici di speciale difficoltà, il prestatore d'opera non risponde dei danni, se non in caso di dolo o di colpa grave» (G. Conte, F. Di Marzio (directed by), op. cit., p. 2224).

[842] The Digital Transition Manager (*Responsabile per la Transizione Digitale*, RTD) is a mandatory office introduced by the Italian Digital Administration Code (*Codice dell'amministrazione digitale*, CAD), to guide and coordinate the digital transformation of public administration. Their appointment is mandatory for all public administrations, as provided by Art. 17 of the CAD and urged by the Ministry for Public Administration with Circular no. 3 of 1 October 2018: administrations, in fact, must identify a Digital Transition Office (*Ufficio per la Transizione Digitale*, UTD) – whose manager is the RTD – which is responsible for the activities of reorganizing processes in order to create a digital and transparent administration, with quality and easily accessible services, guaranteeing efficiency and economy.

[843] The Sole Project Manager (*Responsabile Unico del Progetto*, RUP), governed by Art. 15 of Legislative Decree 36/2023, is the fundamental office in the life cycle of every procurement: planning, design, awarding, and execution phase of the procurement contract. They perform important tasks and assume specific responsibilities aimed at guaranteeing the fairness and efficacy of the procedures.

finances from the failure to activate contractual protections could also be hypothesised[844].

4.2.2. Second scenario: a non-defective Agentic AI system and fault on the part of the public officer

In the second macro-category, in which a non-defective Agentic AI system causes harm through the public employee's negligence, the injured citizen, regarding civil liability, should have the dual option of bringing a claim, on the one hand, directly against the officer as a natural person (pursuant to Articles 22 and 23 of Presidential Decree no. 3/1957, using the classic scheme of non-contractual liability of Art. 2043 of the Civil Code) and, on the other hand, against the Administration as an entity – by virtue of the organic representation relationship that binds it to the employee – on the basis of strict liability under Art. 2050 of the Civil Code (in the terms discussed previously), or against both[845]. Regarding administrative liability, the official's negligent use of the AI system caused the damage reflected in the compensation owed to the third party; therefore, the official should be held accountable for the indirect damage to public finances and compensate the administration for the sum paid out. Similarly, and always for reparatory purposes, the administration could promote ordinary civil liability actions against the official to request full compensation for the damage suffered[846]. In

---

[844] The case law of the Court of Auditors, indeed, is stringent in sanctioning the administration's inertia regarding the recovery of sums owed to the administration and the enforcement of its rights under warranties and guarantees. According to Art. 1, paragraph 3, of Law no. 20/1994, «qualora la prescrizione del diritto al risarcimento sia maturata a causa di omissione o ritardo della denuncia del fatto, rispondono del danno erariale i soggetti che hanno omesso o ritardato la denuncia. In tali casi, l'azione è proponibile entro cinque anni dalla data in cui la prescrizione è maturata». Therefore, if the manager lets the terms for reporting the defect expire or does not enforce the surety bonds (Corte dei Conti, jur. sec., Tuscany Region, judgement of 22 November 2024, no. 108; Corte dei Conti, jur. sec., Marche Region, judgement of 2 January 2024, no. 1) or fails to take action for the recovery of sums (Corte dei Conti, jur. sec., Campania Region, judgement of 19 August 2024, no. 429), they could personally be held liable for the damage to public finances caused by the software defect.

[845] For the reasons we have outlined previously, it would be much more advantageous for the injured third party to turn directly to the public entity to obtain compensation under Art. 2050 of the Civil Code, and this both regarding the evidentiary aspect (since strict liability disregards the subjective element of liability and requires only the proof of the causal link between the conduct and the harmful event), and regarding the aspect of the public debtor's solvency.

[846] According to the Joint Sections of the Court of Cassation, indeed, the liability action for damage to public finances and that with which the interested administrations can promote

any case, for liability to be triggered and the public officer ordered to compensate the administration, their negligence must be "gross" (on which see *supra*). In the specific context of AI, we do not currently have a legislative or case-law definition specifying when an official's negligence must be understood as gross (neither for administrative nor for civil liability). Following the entry into force of Law no. 1/2026, however, a legislative typification of cases of gross negligence giving rise to administrative liability has finally been introduced. Indeed, the amended paragraph 1 of Article 1 of Law no. 20/1994 states that the following constitute gross negligence: 1) the manifest violation of applicable laws, for the determination of which account is taken, in particular, of the degree of clarity and precision of the violated rules as well as the inexcusability and gravity of the breach; 2) the misrepresentation of the fact; 3) the assertion of a fact whose existence is undeniably excluded by the record of the proceeding; 4) the denial of a fact whose existence is undeniably evident from the record of the proceeding.

Regarding the manifest violation of applicable laws, statutory frameworks dictate that determining whether a violation is "manifest" requires an evaluation of the degree of clarity and precision of the violated rules, alongside the gravity and unjustifiable nature of the non-compliance. In the abstract, gross negligence may emerge from the manifest violation of unequivocal obligations concerning transparency and the algorithmic duty to state reasons, such as the failure to disclose the deployment of an AI system, the omission of its core functional criteria (via xAI techniques), or the use of AI systems that yield discriminatory effects in flagrant contrast with rules on equal treatment or personal data protection, despite the availability of readily accessible guidelines. Nevertheless, a crucial caveat arises: artificial intelligence law remains a nascent discipline largely dominated by soft law instruments (such as guidelines, ISO standards, ethical recommendations, etc.). Consequently, if a public officer deploys an AI system in breach of an opaque technical standard or an ambiguous rule subject to conflicting interpretations, the high threshold required to establish gross negligence cannot be met[847]. The

---

ordinary civil liability actions are mutually independent, even when they involve the same material facts: the former is aimed at the protection of the general public interest, efficiency of the Public Administration, and correct use of public resources, with a predominantly sanctioning function; the latter is aimed, instead, at the full compensation of the damage, with a reparatory and fully compensatory function, to protect the particular interest of the single plaintiff administration (Cass. civ., SS.UU., order of 4 October 2019, no. 24859).

[847] Consider, for example, the case of a *Responsabile Unico del Progetto* who, during a tender procedure, delegates the analysis of technical offers to an autonomous agent without

misrepresentation of the fact could instead occur when the official accepts the AI output, basing their decision on a non-existent factual situation or on an account of the facts that is blatantly erroneous compared to objective reality[848]. Finally, the other hypotheses in which the lawmaker deems gross negligence to exist are the assertion of a fact whose existence is undeniably excluded by the record of the proceeding and the denial of a fact whose existence is undeniably evident from the record of the proceeding: in the first case, we could hypothesize that the public officer uncritically incorporates an AI output that "creates" a fact (for example, the existence of a requirement, a breach of contract, a debt, etc.) which the evidence on record excludes in a certain and documented manner[849]; in the second case, the AI system does not see or in any case does not consider a specific procedural element (e.g., production of a certificate, presence of a requirement, etc.) and the officer, instead of comparing the output with the file, denies the existence of the fact

---

carrying out any subsequent human verification. Specifically, the Agentic AI might experience a hallucination snowballing effect during its autonomous workflow, erroneously signaling that a competitor does not possess a minimum technical requirement and independently initiating their unlawful exclusion. The gross negligence of the public officer does not derive from the technological error in itself, but from the manifest carelessness of the fact-finding process, as they omit to compare the agentic output with the original documentation, an elementary check that would have immediately detected the discrepancy. Such negligence becomes inexcusable when the official persists in the error, ignoring the formal complaints of the excluded company, thus demonstrating a total dereliction of their duty of verification and causing certain pecuniary damage to the administration for the inevitable adverse judgments.

[848] We could think, for example, of the situation in which the administrative act states that a family has a low ISEE and therefore is entitled to a contribution, while the record clearly shows that the ISEE is higher than the foreseen limit. If the officer merely copies the AI result mechanically without verifying the basic data, they act with inexcusable negligence and their conduct can constitute gross negligence, because they violated the duty of care and caused damage to public finances with an easily avoidable error.

[849] Let us think, for example, of the case of a public officer who uses an AI system to evaluate applications for a public recruitment procedure. The system, due to an OCR reading error or a bias in the algorithm, attributes to a candidate a qualification (e.g., a master's degree) that does not result from any document attached to the application, nor from school records. The official, without verifying independently, draws up the ranking stating that the candidate is in possession of that qualification, despite it being incontrovertible from the administrative record that no evidence of the qualification was produced and it was not recorded in official sources. In this case, the assertion of a fact (possession of the qualification) whose existence is undeniably ruled out by the case file should constitute gross negligence pursuant to the new Art. 1, paragraph 1, Law 20/1994, because the official omitted the minimum document check that was mandatory during the evaluation.

in the administrative act[850]. In all this, it must be taken into account that the law excludes gross negligence if the action complies with the opinions of competent authorities or prevailing case law. However, in the context of the Public Administration's liability for AI-related damage, Italian case law remains practically non-existent, so we will have to wait a few years before seeing consolidated hermeneutic approaches[851]. Moving now to the analysis of the concept of fault in relation to the direct civil liability of the public officer towards injured third parties, governed by Articles 22 and 23 of Presidential Decree 10 January 1957 no. 3, it must first be highlighted that, unlike damage to public finances, the lawmaker has not introduced a typified definition of "gross negligence" analogous to that of the new formulation of Law no. 20/1994 described above. This situation, which we could define as "asymmetrical", can only determine the risk of a potential misalignment, as, theoretically, a civil judge could deem the official's gross negligence to exist based on classic case law criteria (e.g., extraordinary negligence, manifest imprudence, etc.), which could be broader than the *numerus clausus* of cases now provided for damage to public finances. According to case law, while slight negligence (*colpa lieve*) consists in the violation of the diligence expected of an average person, gross negligence consists in the violation of minimum

[850] Let us think, for example, of the case of a tender where an AI system analyzes the offers and, due to a parsing error, does not directly recognise the price of an offer, indicating that it is beyond the threshold and, therefore, non-compliant. The official, without directly verifying the offer file and its conformity with admissibility criteria, denies the validity of the offer, despite it being incontrovertible from the public procurement record that the price is correct and the offer is admissible. In this case, the denial of a fact (validity of the offer) whose existence is undeniably evident from the administrative record should constitute gross negligence, because the official replaced their own evaluation with an automatic output blatantly erroneous compared to the documentation on the record.

[851] A specific case on P.A. liability for the use of algorithms is offered by judgement no. 1463 of 10 February 2023 of the Tribunal of Roma, which recognised the liability of the Ministry of Education for a serious error committed by a software system for assigning substitute teachers. The algorithm had ignored the formal ranking criteria, assigning the position to a teacher with a lower score instead of the highest-ranked candidate. The Tribunal ascertained that the automatic system had committed a gross error and ordered the administration to compensate the damage suffered by the teacher. Unfortunately, however, partly due to the conformation of the labor procedure (notoriously unfavorable on the evidentiary level to the respondent), the judge did not clarify whether the Ministry's liability had a properly strict nature or whether it depended on the failure to prove the non-existence of the subjective requirement. These are decisive aspects both to clarify the relationships between the parties in the case and to understand the regime of a possible recourse by the Ministry against the hypothetical software provider. To receive these clarifications, it will therefore be necessary to wait longer.

diligence, that is, that which is expected of the majority of people[852]. However, the Court of Cassation has clarified that the conduct of the Public Administration is not to be compared with that of the generic *bonus pater familias* under Art. 1176, paragraph 1, of the Civil Code, but with that of the average professional in the sector, defined as *homo eiusdem generis et condicionis*. This means that the public entity is required to operate with a degree of attention, prudence, and technical expertise superior to the average, adequate to the specific nature of the functions exercised[853]. The application of this rigorous standard of judgement to artificial intelligence implies that officials' technical training is no longer merely an organisational preference but a legal requirement to avoid liability. Since the regulation on AI requires that the algorithm remain merely a support and that the final decision always

---

[852] Gross negligence, from the point of view of the mental element, is delineated by case law as «negligenza intollerabile» or «trascuratezza imperdonabile» towards one's official duties, that is, not having observed not so much the «media» diligence (as happens in slight negligence), but the «minimale» diligence that in the same situation it was reasonable to expect even from the least prepared and least scrupulous individual (see Corte dei Conti, jur. sec., Piedmont, judgement of 17 February 2012, no. 25; Corte dei Conti, jur. sec., Abruzzo, judgement of 17 October 2012, no. 376); there must exist, that is, an attitude of «grave disinteresse» in the performance of one's functions, of «negligenza massima», of «deviazione dal modello di condotta» connected to one's tasks, without respect for the «comuni regole di comportamento» and without the observance of a «minimo grado di diligenza» (Corte dei Conti, jur. sec., Abruzzo, judgement of 18 July 2006, no. 462).

[853] On the character of "professional" operator of the public administration, see Cass. civ., sec. III, judgement of 6 October 2015, no. 19883, regarding the diligence exigible from it: «Nel caso (...) di inadempimento di obbligazioni professionali, ovvero di danni causati nell'esercizio d'una attività "professionale" in senso ampio, il secondo comma dell'art. 1176 c.c. prescrive un criterio più rigoroso di accertamento della colpa. Il "professionista", infatti, è in colpa non solo quando tenga una condotta difforme da quella che, idealmente, avrebbe tenuto nelle medesime circostanze il *bonus pater familias*; ma anche quando abbia tenuto una condotta difforme da quella che avrebbe tenuto, al suo posto, un ideale professionista "medio" (il c.d. *homo eiusdem generis et condicionis*). L'ideale "professionista medio" di cui all'art. 1176, comma 2, c.c., nella giurisprudenza di questa Corte, non è un professionista "mediocre", ma è un professionista "bravo": ovvero serio, preparato, zelante, efficiente. La regola di valutazione della colpa dettata dall'art. 1176, comma 2, c.c., si applica anche alla pubblica amministrazione. (...) La diligenza esigibile dalla pubblica amministrazione nel compimento dei propri atti, ivi compresa l'adozione di provvedimenti amministrativi, va valutata col criterio dettato dagli artt. 1176, comma 2, c.c., e 97 cost.: ovvero comparando la condotta tenuta nel caso concreto, con quella che – idealmente – avrebbe tenuto nelle medesime circostanze una amministrazione "media", per tale intendendosi non già una pubblica amministrazione "mediocre", ma una pubblica amministrazione efficiente, zelante, solerte e che conosca ed applichi la legge (...)» (in the same sense, more recently, see Cass. civ., sec. III, order of 30 November 2018, no. 30999; Cass. civ., sec. III, judgement of 27 November 2015, no. 24213).

be imputable to the human, the official must possess the necessary skills to understand, verify, and justify the results produced by the machine. An officer who lacks adequate skills and unthinkingly relies on an Agentic AI system could violate Art. 1176, paragraph 2, of the Civil Code by failing to exercise the required qualified diligence when handling a technology with such an impact on citizens' rights. The convergence of the civil-law principle and AI governance is reflected in the fact that the expertise required under Article 1176 of the Civil Code should now also include the capacity to supervise AI systems critically. If a public officer were to use such a system without first receiving specific training, they would act imprudently and unskillfully, thereby committing gross negligence in cases of damage to public finances or civil damage. Technical competence thus becomes the indispensable tool for fulfilling the obligation of diligence: without technical understanding, there cannot be the conscious control that the law and case law demand to protect impartiality and good administrative performance[854]. Ultimately, in light of the distinction between the civil law hypotheses (currently not typified) and

[854] A concrete example to clarify this distinction can be drawn from personnel recruitment procedures managed via software. Let us imagine an officer responsible for a public recruitment process who uses an AI system for CV pre-selection. If the official, due to a simple oversight, sets a slightly incorrect search filter that excludes some eligible candidates, it will be slight negligence: the excluded candidates can claim damages from the Administration, but not directly from the official. Conversely, if the official deliberately decides to deactivate the software security modules that guarantee candidate anonymity or ignores repeated system error warnings, continuing to draw up blatantly absurd rankings (e.g., candidates with zero score placed first in the ranking), such conduct should constitute civil gross negligence. In this case, the injured candidate could sue the official directly pursuant to Articles 22 and 23 of Decree 3/1957. The asymmetry emerges if one considers that, while for the Court of Auditors such conduct must fall within the narrow meshes of the manifest violation of law, the civil judge could hold the officer liable, evaluating the gravity of the conduct based on parameters of common prudence and common sense, potentially offering fewer safeguards to the public officer compared to the fiscal shield. In any case, it is logical to believe that the injured citizen, for reasons of convenience and procedural strategy, will hardly propose a direct compensatory action against the public officer pursuant to Decree 3/1957, renouncing the higher solvency perspectives as well as the "facilitated" evidentiary regime of Article 2050 of the Civil Code, which only an action against the Administration as an entity would guarantee. But even assuming such a scenario – in which the applicant brings a claim directly against the official who used an AI system and the latter is ordered to pay compensation – the right of contribution – exercised against the Public Administration as an entity – should cover the entirety of the disbursement; indeed, barring cases of gross negligence in the use of the AI system, the public officer should not bear the burden of liability for a malfunction linked to an autonomous system deployed by the public entity as part of its governance and policy choices.

the accounting ones (now typified) of "gross negligence"[855], the recent judgement of the Constitutional Court that recognised the absurdity of the so-called "duplication of trials" becomes even more significant, insofar as it established that «il legislatore potrebbe intervenire per scongiurare l'eventuale moltiplicazione delle responsabilità degli amministratori per i medesimi fatti materiali e spesso non coordinate tra loro»[856]. In this regard, from a *de jure condendo* perspective, leading scholars have advocated – in a highly commendable manner – for a reform whereby the public prosecutor at the Court of Auditors would bring actions directly before the civil court, cancelling the liability jurisdiction of the Court of Auditors, thus eliminating the risk of parallel proceedings and ensuring a single, unified trial for the recovery of public funds[857].

4.2.3. Third scenario: concurrent causes involving an Agentic AI system defect and fault on the part of the public officer

Passing now to the examination of the third macro-category, characterised by the coexistence of a system defect and negligent conduct by the public employee, a case of joint and several liability under Art. 2055 of the Civil Code should arise, in my opinion, between the public officer and the Agentic AI system provider, whereby the negligence of the officer and the defect of the system are concurring causes of the harmful event: if the system had not been defective, the error would not have been generated; if the official

---

[855] Distinction which, as we have said, is capable of determining the risk that a civil judge could deem the official's gross negligence to exist based on classic case law criteria (e.g., extraordinary negligence, manifest imprudence, etc.) which could be broader than the *numerus clausus* of cases now provided for damage to public finances.

[856] Corte Cost., judgement of 6 June 2024, no. 132.

[857] F.G. Scoca, Le disarmonie del sistema giurisdizionale, in F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, cit., pp. 762-763, who also highlights that «se la responsabilità viene conosciuta dal giudice civile, il processo si articola in due gradi di merito e uno di legittimità; se viceversa è conosciuta dal giudice contabile, il grado di legittimità non è previsto. Ha senso tale differenza? Va rammentato che nella Relazione sul sistema delle garanzie della Commissione parlamentare per le riforme istituzionali, istituita con legge cost. 24 gennaio 1997, n. 1 (Commissione D'Alema), era stata prevista, "sulla base della complessiva riorganizzazione della giurisdizione alla stregua del criterio della sua unità funzionale", "l'attribuzione delle funzioni giurisdizionali relative alla responsabilità patrimoniale dei pubblici funzionari nelle materie di contabilità pubblica agli organi della giustizia amministrativa". Pertanto, la eliminazione della giurisdizione della Corte dei conti era stata ritenuta una riforma opportuna. L'attribuzione della materia al giudice amministrativo mi sembra, invece, una inutile complicazione (…)».

had been diligent, the error would have been avoided[858]. Such a particular case, however, should be analysed at two levels: external liability, namely the relationship between the Administration and the injured citizen, and internal liability, namely the apportionment of the compensatory burden once the Administration has compensated the third party for the damage suffered. On the level of external liability, the injured party could (and, preferably, should[859]) claim full compensation directly from the Public Administration

---

[858] On this point, the dominant scholarship and case law believe that the unity of the harmful event, a prerequisite for the application of joint and several liability under Art. 2055 of the Civil Code, does not require the homogeneity of the grounds of attribution of liability (strict or for fault). Indeed, the evolutionary interpretation of Art. 2055, paragraph 1, of the Civil Code – which provides that «se il fatto dannoso è imputabile a più persone, tutte sono obbligate in solido al risarcimento del danno» – has led to overcoming the restrictive reading that limited joint and several liability only to hypotheses of concurrent causes involving negligent conduct. In particular, according to settled case law, it is well established that Art. 2055 of the Civil Code applies not only to multiple parties held liable in tort, but also to instances where liability is imputed to some based on fault and to others under strict liability (C.M. Bianca, Diritto civile, 5. La responsabilità, Giuffrè, Milano, 1994, p. 647); and further to cases in which some are held liable in contract and others are held liable under non-contractual liability, or finally to hypotheses in which the unitarily considered damage is referable to distinct breaches of contract (M. Orlandi, La responsabilità solidale. Profili delle obbligazioni solidali risarcitorie, Giuffrè, Milano, 1993, p. 127 ff. and 271 ff.; M. Franzoni, Dei fatti illeciti. Art. 2043-2059, in F. Galgano (ed.), Commentario del Codice civile Scialoja-Branca, Zanichelli – Il Foro italiano, Bologna-Roma, 1993, p. 734 ff.; A. De Cupis, Il danno. Teoria generale della responsabilità civile, I3, Giuffrè, Milano, 1979, p. 277 ff.; M. De Acutis, La solidarietà nella responsabilità civile, in Rivista di diritto civile, 1977, p. 525 ff.; for case law, see Cass. civ., sec. II, order of 19 January 2022, no. 1516; Cons. Stato, sec. II, judgement of 6 May 2020, no. 2866; Cons. Stato, sec. IV, judgement of 7 January 2020, no. 120; Court of Appeal, Napoli, sec. I, judgement of 3 July 2018, no. 3335; Cons. Stato, sec. IV, judgement of 10 May 2018, no. 2814; Cass. civ., sec. III, judgement of 30 November 2017, no. 28656; Court of Appeal, Roma, sec. II, judgement of 6 February 2017, no. 758; Court of Appeal, Campobasso, judgement of 7 July 2016, no. 176; Cass. civ., sec. III, judgement of 3 May 2016, no. 8643; Cass. civ., sec. I, judgement of 25 May 2005, no. 11018; Cass. civ., sec. I, judgement of 28 May 1998, no. 5287). The rationale behind Art. 2055 of the Civil Code indeed does not lie in sanctioning joint culpability, but in strengthening the guarantee of the injured party's right to compensation (A. D'Adda, op. cit., p. 1340), with the consequence that excluding the application of Art. 2055 of the Civil Code, in cases of concurrent causes involving both fault-based and strict liability, would be unjustifiably restrictive, as the principle of joint liability operates regardless of the specific imputation criteria applied to each party (F. Piraino, Dolo e colpa (responsabilità civile), in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, cit., p. 581).

[859] In fact, it is logical to believe that more rarely the party injured by the use of the AI system will bring an action directly against the manufacturer, or one of the operators other

(which, as repeated several times, answers for the act of the employee under Art. 28 of the Constitution), as it – not only offers higher solvency perspectives and an evidentiary regime facilitated by Art. 2050 of the Civil Code, but also – acts as a unitary center of legal imputation for the different causes that concurred in the harmful event: the latter, indeed, materializes only following the adoption of the unlawful administrative act, which, although vitiated by a malfunction deriving from the IT tool, remains legally imputable to the Administration that makes use of it (accepting the connected risks) for the pursuit of its institutional ends. Shifting the analysis to the internal side, the issue becomes much more complex because it is necessary to evaluate the causal contribution of each party in concurring with the Public Administration's contribution action. To this end, the second paragraph of Article 2055 of the Civil Code comes to our aid, which anchors the internal apportionment of the compensatory burden to the «gravità della rispettiva colpa» (seriousness of the respective fault) and to the «entità delle conseguenze che ne sono derivate» (magnitude of the consequences derived therefrom). In this specific context, the most astute scholars emphasise that the user's causal contribution (in our case, that of the public officer) should neither automatically exclude the provider's liability nor result in the user bearing the entire burden of liability: such an outcome, in fact, would lead to an unreasonable release from liability of the individual who introduced the technological risk onto the market[860]. At the same time, however, the presence

---

than the user (in our case, the Public Administration) who has control of the system itself, also due to the lack of information, of a technical nature, usually not available to the injured party (a defect which, in the public context, could be overcome by the possibility for the injured party to propose, pursuant to Articles 22 and following of Law 241/1990, a request for access to technical documentation held by the Public Administration in relation to the Agentic AI system of which it availed itself). On the contrary, the involvement of the manufacturer (or of the operators other than the user) in the obligation to pay damages should be asserted by way of a contribution claim. Indeed, the apportionment of liability shares is significantly facilitated within the context of contribution proceedings, given that the litigation occurs between parties who possess reciprocal access to technical information and specialized data. This framework effectively overcomes the informational asymmetry that typically paralyzes the primary victim, allowing the court to calibrate the internal division of damages based on robust technical disclosure between the co-defendants.

[860] On this point, compelling and persuasive observations have been advanced by D'Adda regarding the allocation of liability for injuries resulting from the deployment of AI systems, according to whom «quando il sinistro sia connesso ad un malfunzionamento del robot, non si può dubitare del diritto dell'utilizzatore *solvens* a rivalersi sul produttore – ovvero, verso altri soggetti che abbiano in qualche misura il controllo della macchina di intelligenza

of specific negligence in the use of the AI system could prevent the entire burden of the damage from being shifted to the provider. As is evident, the evaluation of the causal contribution of each concurring party is not so simple. Therefore, in proceedings for the internal apportionment of liability, the court must ascertain the causal efficiency of the activities attributable to the different co-liable individuals, and this would lead to the occurrence of two hypothetical scenarios: if the system defect was the preponderant cause and the human error was marginal (let us think, for example, of a hidden algorithmic error beyond the user's control), the manufacturer could be held liable to a preponderant or exclusive extent, relieving the user who, although negligent, did not possess the technical capacity to govern the specific risk that materialized; conversely, if the negligence of the public officer was determinant in causing the risk to materialise (for example, by ignoring specific system alerts or using it differently from the instructions provided), the Administration's share of liability should be proportionally higher[861]. Furthermore, from the public officer's perspective as a natural person, it must be remembered that, despite having improperly used the AI system, they are liable only for gross negligence. Should the AI system's defect be subtle and difficult to detect, and the officer's negligence deemed merely "slight", the Public Administration must bear the portion of liability linked to usage without recourse against the employee. In this case, the preponderant share of damages would remain with the manufacturer. On the contrary, if the negligence of the officer was manifest, then their conduct will reach the degree of "gravity" such as to ascribe to them – depending on the cases – an exclusive, preponderant, or at least equal causal contribution compared to the system's defect, exonerating the manufacturer or drastically reducing their liability: in this case, therefore, the damage would fall entirely or largely on the

---

artificiale – responsabile in via obiettiva. (…) un tale esito non muta neppure nel caso in cui l'utilizzatore sia stato in colpa, poiché a ragionare diversamente si produrrebbe una irragionevole deresponsabilizzazione del soggetto a cui la responsabilità è attribuita in ragione del rischio introdotto, ed anche allo scopo di attivare tutte le cautele in grado di prevenire la concretizzazione di un rischio siffatto. Sicché, pure in termini di politica del diritto, sembra opportuno non accedere a soluzioni che responsabilizzino in via esclusiva, anche sul piano della interna redistribuzione, gli utilizzatori in colpa di una macchina autonoma, sovente per sua natura di difficile controllo» (A. D'Adda, op. cit., p. 1353).

[861] Furthermore, the Administration could sue the manufacturer for breach of contract (asserting different defects depending on the type of contract stipulated: sales contract, services contract, professional services agreement), bringing concurrent contractual and tortious claims to obtain indemnification, unless the negligent conduct of the official was so manifest as to have severed the causal link regarding the defect of the AI system.

Administration (and, ultimately, via a contribution claim for gross negligence, on the officer).

4.2.4. Fourth scenario: non-defective Agentic AI system and absence of fault of the public officer

The fourth category is undoubtedly the most critical from a legal point of view: the Agentic AI system is not defective, and the officer is diligent (follows the instructions for use, applies human oversight, etc.), yet the private party is still harmed. With respect to administrative liability, the solution is simple: the public officer should be exempt from liability, since there is no slight negligence. Instead, with respect to civil liability, following the theory of strict liability for dangerous activities under Art. 2050 of the Civil Code, the Public Administration should not answer for damages only if it manages to demonstrate having adopted all measures suitable to avoid the damage (in the terms specified *supra*). But what happens if the administration succeeds in discharging the burden of establishing the statutory defence? The private party who suffered the damage would remain without effective protection. In my opinion, in this case, the concept of so-called "no-fault state liability" (*responsabilità da atto lecito*) of the Public Administration (*Pubblica Amministrazione*)[862] represents the only legal safety valve capable of avoiding

[862] The expression state liability for harm caused by lawful administrative action (*responsabilità da atto lecito della Pubblica Amministrazione*) generally refers to cases in which the administration is required to pay an indemnity «in conseguenza di una sua attività non antigiuridica che abbia leso una situazione soggettiva altrui protetta nella vita di relazione» (P. Troiano, La c.d. responsabilità della P.A. per atti leciti, in Potere amministrativo e responsabilità civile, Quaderni del Consiglio di Stato, Giappichelli, Torino, 2004, p. 177). While civil liability under Art. 2043 of the Civil Code presupposes an unlawful event not tolerated by the legal system, no-fault state liability responds to the need to rebalance the particular sacrifice imposed on a single individual in the name of the pursuit of a general public interest. Although the currently prevailing scholarship maintains that our legal system does not know today a general principle of indemnification, but rather specific regulatory cases (G. Torregrossa, Il problema della responsabilità da atto lecito, Giuffrè, Milano, 1964, p. 168; E. Casetta, L'illecito degli enti pubblici, Giappichelli, Torino, 1953, p. 105), I subscribe to the doctrine that envisions – through a combined reading of the Italian Constitution together with the European Convention on Human Rights (ECHR) – a profound reconceptualization of the state's duty to remedy harms inflicted via lawful administrative action. This duty should be framed not as a mere reflection of an amorphous social solidarity, but as a genuine, autonomous regime of public liability essential for the effective protection of subjective rights.

a constitutional contradiction. The primary foundation should reside, in my opinion, in the general principle of distributive justice and in Article 2 of the Italian Constitution, which imposes mandatory duties of political, economic, and social solidarity. When the Public Administration decides to implement a highly autonomous Agentic AI system to perform its functions, it pursues a public interest in efficiency, speed, and reducing current expenditure. If such a pursuit of the common good, although conducted lawfully and diligently, entails the infringement of individual rights of a single citizen due to a statistical failure or an unforeseeable emergent behaviour of the AI agent, it is not admissible that the cost of such innovation falls entirely on the injured party. Indemnification for a harmful lawful act serves precisely to rebalance this sacrifice, socialising the damage: the community that benefits from the efficiency of Agentic AI must, through the treasury, take charge of the prejudice suffered by the individual, so that the latter does not become a sacrificial victim of technological progress. In addition to liability for the Public Administration's lawful acts, another solution is to introduce an obligation for the P.A. to obtain insurance coverage to manage the unknown risks of Agentic AI's dynamic interactions, in line with the AILD proposal. However, the practical implementation of this mechanism in Italy suffers from non-negligible administrative and accounting obstacles, first of all the rigid control of the Court of Auditors on public spending: this Court could in fact identify aspects of damage to public finances in the payment of onerous insurance premiums for risks not yet typified by law or considered excessively remote, making it risky to take out such policies for public managers in the absence of a law that explicitly authorizes it. To this is added an actuarial problem, since insurance companies, lacking consolidated historical data on agentic accidents and complex multi-step failures, would tend to offer policies with very high premiums or with ample exclusion clauses to protect themselves from the unpredictability of autonomous technological risk. Finally, the often latent nature of damages from Agentic AI, which can manifest a long time after the deployment of the agent, risks being incompatible with the "claims made" clauses typical of current insurance contracts, which cover only claims

---

Under this doctrinal framework, such liability represents the hallmark of a community that, in pursuing the collective interest, refuses to abandon individual victims to their losses, opting instead to socialize the damages it creates. Ultimately, this approach embodies a model of good administration which, even when exercising unilateral powers, refrains from abusing public trust, thereby decisively dismantling the ancient authoritarian paradigm of sovereign immunity (D. Venturino, La responsabilità da atto lecito fonte di pregiudizio, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Responsabilità, cit., pp. 328-329).

received during the validity of the policy, leaving damages that emerge subsequently uncovered.

5. An operational proposal for the governance of Agentic AI in public administration

While Large Language Models have demonstrated remarkable capabilities in natural language processing, their direct application in high-stakes government environments is constrained by prohibitive operational costs, inherent risks of hallucination, and profound data sovereignty concerns. An analysis of the current technological landscape suggests that the optimal architecture for modernising the public sector does not rely on a monolithic model, but rather on a synergistic convergence of Agentic AI, Small Language Models (SLMs), and Retrieval-Augmented Generation (RAG). This combination, in my opinion, establishes a specialised AI architecture designed to solve the public sector's trilemma: ensuring strict data privacy, guaranteeing regulatory accuracy, and achieving sustainable operational efficiency.

Thanks to Agentic AI's autonomy, Public Administration can handle high-volume, low-complexity administrative burdens without human intervention, thereby freeing civil servants to focus on discretionary activities and strategic oversight. However, autonomy introduces the risk of unaligned behaviour; therefore, the agentic framework must be anchored by mechanisms that ensure strict adherence to legal statutes and administrative rules.

This necessity for strict adherence leads to the second critical component, Retrieval-Augmented Generation (RAG), which represents a significant advancement in natural language processing that combines the strengths of retrieval-based and generative models[863]. This hybrid approach enhances the capabilities of LLMs by incorporating external knowledge sources during the text generation process[864]. The core concept involves dynamically

---

[863] P. Lewis, E. Perez, A. Piktus, F. Petroni, V. Karpukhin, N. Goyal, H. Küttler, M. Lewis, W.T. Yih, T. Rocktäschel, S. Riedel, D. Kiela, Retrieval-Augmented Generation for Knowledge-Intensive NLP Tasks, in NIPS'20: 34th International Conference on Neural Information Processing Systems, December 2020, pp. 1-16; C. Jin, Z. Zhang, X. Jiang, F. Liu, S. Liu, X. Liu, X. Jin, RAGCache: Efficient Knowledge Caching for Retrieval-Augmented Generation, in ACM Trans. COmput. Systm., 44(1), Article 2, November 2025, p. 4; Y. Gao, Y. Xiong, X. Gao, K. Jia, J. Pan, Y. Bi, Y. Dai, J. Sun, M. Wang, H. Wang, Retrieval-Augmented Generation for Large Language Models: A Survey, available at arXiv, 27 March 2024, pp. 1-21

[864] C. Merola, J. Singh, Reconstructing Context. Evaluating Advanced Chunkin Strategies for Retrieval-Augmentend Generation, available at arXiv, 28 April 2025, pp. 1-15.

retrieving relevant information from external sources and integrating it with the original input to generate more accurate, contextually grounded, and informative responses[865]. This approach addresses several notable limitations of standalone LLMs, including outdated information, hallucinations, and the inability to access up-to-date or domain-specific knowledge due to static pretraining[866]. LLMs are probabilistic engines that can convincingly fabricate information, a fatal flaw in administrative law where precision is non-negotiable. RAG mitigates this by decoupling the reasoning capability of the model from its knowledge base, forcing the AI to retrieve and cite specific, up-to-date documents – such as legislative acts, municipal by-laws, tender documents, building codes, zoning ordinances, policy manuals, case files, etc. – before generating a response[867]. In an "Agentic RAG" configuration, the

---

[865] G. Raul, Y.Z. Lin, K. Patel, B.P.J. Shih, M.W. Redondo, B.S. Latibari, S. Salehi, P. Satam, RAG-PRISM: A Personalized, Rapid, and Immersive Skill Mastery Framework with Adaptive Retrieval-Augmented Tutoring, in 2025 IEEE Frontiers in Education Conference (FIE), Nashville, TN, USA, 2025, p. 3; C.M. Chan, C. Xu, R. Yuan, H. Luo, W. Xue, Y. Guo, J. Fu, RQ-RAG: Learning to Refine Queries for Retrieval Augmented Generation, available at arXiv, 21 March 2024, pp. 1-18.

[866] M. Rathee, V. V, S. MacAvaney, A. Anand, Test-time Corpus Feedback: From Retrieval to RAG, available at arXiv, 24 August 2025, p. 2; S. Chatzikyriakidis, Reasoning with RAGged events: RAG-Enchanced Evenet Knowledge Base Construction and reasoning with proof-assistants, available at arXiv, 23 August 2025, p. 3.

[867] RAG systems implement several validation and verification processes that actively work to reduce hallucinations during response generation. A key mechanism involves using RAG to validate and refine content generated by LLMs in real-time. When a model generates a factual claim, RAG can retrieve relevant information from external sources to verify the claim's accuracy, and if the claim is incorrect, the model can revise its response based on the retrieved information. This enables RAG to fact-check the model's outputs in real-time, reducing the likelihood of generating non-valuable hallucinations (Q. Chen, B. Wang, Valuable Hallucinations: Realizable Non-Realistic Propositions, available at arXiv, 18 February 2025, p. 6). Advanced RAG systems incorporate external knowledge sources during reasoning and enable models to verify or revise their own outputs, generating more accurate and coherent responses (A. Kumar, H. Kim, J.S. Nathani, N. Roy, Improving the Reliability of LLMs: Combining Chain-of-Thought Reasoning and Retrieval-Augmented Generation, available at arXiv, 13 May 2025, p. 1). RAG inherently mitigates hallucinations by grounding outputs in retrieved evidence, and training models to penalize ungrounded assertions with iterative retrieval within reasoning processes further enhances accuracy. Notable self-check mechanisms like Self-RAG allow models to critique and revise their outputs against retrieval results, significantly reducing hallucinated content. External verification and fact-checking modules complement internal methods, collectively ensuring high factual reliability. A critical validation feature is the ability of RAG systems to cite sources, which significantly enhances reliability by directly linking generated information to supporting evidence. This citation

system does not merely look up data but actively plans retrieval strategies, evaluates the relevance of retrieved documents, and iteratively refines its search to ensure the final output is grounded in factual evidence[868]. This is particularly vital for the Public Administration, where regulations change frequently; a RAG-based system allows agencies to update the external knowledge base without the expensive and computationally intensive process of retraining the model[869]. By grounding agentic reasoning in verifiable sources, RAG could transform the AI into a compliant administrative assistant that provides audit trails for every decision.

While Agentic AI provides the workflow and RAG provides the accuracy, the deployment of massive LLMs to power these systems remains economically and structurally untenable for widespread government use due to high latency, energy consumption, and privacy risks. This necessitates the third component, Small Language Models (SLMs), characterised by their reduced parameter count and computational requirements compared to LLMs[870]. The defining feature of SLMs is their parameter scale, though the research community has not established a single standard definition for the

---

capability plays a crucial role in mitigating hallucination by explicitly associating each factual statement with retrieved documents, encouraging transparency and verifiability that enables users to quickly assess the accuracy and provenance of claims. Requiring models to cite sources during generation inherently promotes grounding outputs in verified data, further reducing the risk of generating unsupported statements and fostering more disciplined, factually accurate generation (A.J. Oche, A.G. Folashade, T. Ghosal, A. Biswas, A Systematic Review of Key Retrieval-Augmented Generation (RAG) Systems: Progress, Gaps, and Future Directions, available at arXiv, 25 July 2025, p. 24).

[868] A. Singh, A. Ehtesham, S. Kumar, Agentic Retrieval-Augmented Generation: A Survey on Agentic RAG, available at arXiv, 4 February 2025, who state that «the convergence of RAG and agentic intelligence has given rise to Agentic Retrieval-Augmented Generation (Agentic RAG), a paradigm that integrates agents into the RAG pipeline. Agentic RAG enables dynamic retrieval strategies, contextual understanding, and iterative refinement, allowing for adaptive and efficient information processing. Unlike traditional RAG, Agentic RAG employs autonomous agents to orchestrate retrieval, filter relevant information, and refine responses, excelling in scenarios requiring precision and adaptability» (p. 2). On Agentic RAG, see also C. Ravuru, S.S. Sakhinana, V. Runkana, Agentic Retrieval-Augmented Generation for Time Series Analysis, available at arXiv, 18 August 2024.

[869] J.R. Loffredo, S. Yun, Agent-Enhanced Large Language Models for Researching Political Institutions, available at arXiv, 14 March 2025, p. 4; S. Ghodratnama, M. Zakershahrak, Adapting LLMs for Efficient, Personalized Information Retrieval: Methods and Implications, available at arXiv, 21 November 2023, p. 5.

[870] B. Xu, Y. Chen. Z. Wen, Evaluating Small Language Models for News Summarization: Implications and Factors Influencing Performance, in Proceeding of the 2025 Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics: Human Language Technologies, vol. 1, 29 April – 4 May 2025, p. 4910.

exact parameter threshold that distinguishes SLMs from LLMs (they typically range from 1 to 10 billion parameters)[871]. The conventional wisdom that "bigger is better" is being challenged by evidence that SLMs can match or outperform larger models in specialized agentic tasks when fine-tuned[872]. In agentic workflows, the majority of tasks involve routing queries, extracting structured data, or calling specific tools (APIs), functions that do not require the vast general knowledge of a trillion-parameter model[873]. By utilizing SLMs, public administration can achieve massive operational efficiency, reducing

---

[871] Several studies define SLMs as models with fewer than 1 billion parameters (Y. Susanti, M. Färber, Knowledge Graph Structure as Prompt: Improving Small Language Models Capabilities for Knowledge-Based Causal Discovery, in G. De Martini, K. Hose, M. Acosta, M. Palmonari, G. Cheng, H. Skaf-Molli, N. Ferranti, D. Hernández, A. Hogan (eds.), The Semantic Web – ISWC 2024, Springer, Cham, 2024, p. 98), while others extend this to fewer than 3 billion parameters (T. Rao Kosireddy, J.D. Wall, E. Lucas, Exploring the Readiness of Prominent Small Language Models for the Democratization of Financial Literacy, in Proceedings of the 1st Workshop on Customizable NLP: Progress and Challenges in Customizing NLP for a Domain, Application, Group, or Individual (CustomNLP4U), 2024, p. 125). A widely cited definition focuses on transformer-based, decoder-only language models with between 100 million and 5 billion parameters (Z. Lu, X. Li, D. Cai, R. Yi, F. Liu, X. Zhang, N.D. Lane, M. Xu, Small Language Models: Survey, Measurements, and Insights, available at arXiv, 26 February 2025, p. 2). Some research extends the range from millions to hundreds of millions of parameters (Y. Chen, J. Zhao, H.H. Han, A Survey on Collaborative Mechanisms Between Large and Small Language Models, available at arXiv, 12 May 2025, p. 4; J. Wang, Y. Zeng, J. Guo, Y. Ma, A. Liu, X. Liu, SLMQuant: Benchmarking Small Language Model Quantization for Practical Deployment, in Proceedings of the 3rd International Workshop on Rich Media With Generative AI (RichMediaGAI '25), October 27-28, 2025, Dublin, Ireland, ACM, New York, 2025, p. 3), while others include models up to 10 billion parameters (Y. Fu, H. Peng, L. Ou, A. Sabharwal T. Khot, Specializing Smaller Language Models towards Multi-Step Reasoning, in Proceedings of the 40th International Conference on Machine Learning, Honolulu, Hawaii, USA, PMLR 202, 2023, p. 1).

[872] R. Sharma, M. Mehta, Small Language Models for Agentic Systems: A Survey of Architectures, Capabilities, and Deployment Trade-offs, available at arXiv, 4 October 2025, p. 1.

[873] In this regard, see P. Belcak, G. Heinrich, S. Diao, Y. Fu, X. Dong, S. Muralidharan, Y.C. Lin, P. Molchanov, Small Language Models are the Future of Agentic AI, available at arXiv, 15 September 2025, who observe that «(…) the majority of agentic *sub*tasks in deployed agentic systems are repetitive, scoped, and non-conversational—calling for models that are efficient, predictable, and inexpensive. In this context, SLMs not only suffice, but are often preferable. They offer several advantages: lower latency, reduced memory and computational requirements, and significantly lower operational costs, all while maintaining adequate task performance in constrained domains. (…) These systems typically decompose complex goals into modular sub-tasks, each of which can be reliably handled by specialized or fine-tuned SLMs» (p. 3). Therefore, «(…) invocations of small language models within agentic systems would be on appropriately broken-down into sub-tasks so simple that any general abstract understanding (…) would be of little utility» (p. 7).

inference costs and energy consumption by orders of magnitude compared to frontier models[874]. This creates a modular architecture where inexpensive, specialized SLMs handle routine agentic loops, while larger models are invoked only for highly complex reasoning tasks via intelligent routing[875].

This transition from resource-intensive monolithic models to streamlined SLMs is not merely a technical optimization but also a requisite for compliance with the fundamental principles of efficiency and economy established by Italian administrative law. The decision to adopt a modular architecture directly addresses the constitutional mandate of good performance (*buon andamento*) enshrined in Article 97, paragraph 2, of the Italian Constitution. While the Constitution does not explicitly enumerate the criteria of efficiency and economy, Constitutional Court case law[876] and legal scholarship[877] have long established that the principle of *buon andamento* obliges the public administration to manage resources rationally to avoid waste[878]. In this context, the deployment of massive, energy-consuming LLMs for routine administrative tasks would likely contravene the criteria of

---

[874] Ibid., p. 4.

[875] R. Sharma, M. Mehta, op. cit., pp. 5-6.

[876] On the applicability of Article 97 of the Italian Constitution to the principle of efficiency, see Corte Cost., judgment no. 404 of 17 December 1997, which states «vi è un esso indissolubile tra gli art. 28 e 97, commi primo e secondo della Costituzione, in quanto la tempestività e la responsabilità sono elementi essenziali per l'efficienza e quindi per il buon andamento della pubblica amministrazione». See also Corte Cost., judgment no. 40 of 5 March 1998: «la disciplina dei procedimenti amministrativi deve essere improntata al principio di buon andamento, quindi coerente e congrua rispetto al fine che si vuol perseguire (sentenza n. 331 del 1988; sentenza n. 123 del 1968), in relazione sia all'esigenza generale di efficienza dell'azione amministrativa (sentenza n. 266 del 1993) che agli obiettivi particolari cui é preordinata la disciplina di specifici procedimenti». See, finally, Corte Cost., judgment no. 104 of 23 March 2007, which stated «il principio di efficienza dell'amministrazione trova esplicazione in una serie di regole, che vanno da quella di una razionale organizzazione degli uffici a quella di assicurarne il corretto funzionamento; a quella di garantire la regolarità e la continuità dell'azione amministrativa e, in particolare, dei pubblici servizi, anche al mutare degli assetti politici».

[877] A. Colavecchio, S. Pignataro, L'obbligo di provvedere e i termini per la conclusione del procedimento, in A. Giordano (ed.), Il procedimento amministrativo, cit., p. 83; E. Casetta, F. Fracchia (eds.), op. cit., p. 46; D. Sorace, Diritto delle amministrazioni pubbliche, Il Mulino, Bologna, 2016, pp. 70-72, 386; V. Cerulli Irelli, La nuova legge sul procedimento amministrativo, in G. Sciullo (ed.), Le nuove regole dell'azione amministrativa, Bononia University Press, Bologna, 2007, p. 12.

[878] This is also confirmed by the recent Italian Public Contracts Code (Legislative Decree 36/2023), which in Article 1, paragraph 3, expressly states that the principle of result (*principio del risultato*) « costituisce attuazione, nel settore dei contratti pubblici, del principio del buon andamento e dei correlati principi di efficienza, efficacia ed economicità».

economy that must govern administrative activity pursuant to Article 1, paragraph 1, of Law 241/1990[879]. Conversely, an architecture driven by SLMs ensures that the administration acts in accordance with Article 3-bis of Law 241/1990[880] and Article 12, paragraph 1, of the Italian Digital Administration Code (Legislative Decree 82/2005)[881], which explicitly require public administration to leverage information and communication technologies not for their own sake, but specifically to achieve the objectives of efficiency, effectiveness, and economy. Therefore, an AI governance model that reduces computational overhead and energy consumption, from my point of view, is the best approach – as things stand – that fully satisfies the legal requirement to maximise public value while minimising structural costs.

Furthermore, the adoption of SLMs is the linchpin for solving the critical issue of data sovereignty and privacy. Public administration handles sensitive citizen data – tax records, health information, judicial files, etc. – that often cannot legally leave the jurisdiction or be processed by third-party commercial clouds due to GDPR or similar data residency regulations[882].

---

[879] According to Article 1, paragraph 1, of Law 241/1990, «L'attività amministrativa persegue i fini determinati dalla legge ed è retta da criteri di economicità, di efficacia, di imparzialità (….) nonché dai princípi dell'ordinamento comunitario». In this regard, Regulation (EU) 2018/1046, in Article 2, point 59), defines «sound financial management» as the «implementation of the budget in accordance with the principles of economy, efficiency and effectiveness». According to Article 33, paragraph 1, of such Regulation, the principle of economy «requires that the resources used by the Union institution concerned in the pursuit of its activities shall be made available in due time, in appropriate quantity and quality, and at the best price» (point a); the principle of efficiency «concerns the best relationship between the resources employed, the activities undertaken and the achievement of objectives» (point b); the principle of effectiveness «concerns the extent to which the objectives pursued are achieved through the activities undertaken» (point c).

[880] According to Article 3-bis of Law 241/1990, «Per conseguire maggiore efficienza nella loro attività, le amministrazioni pubbliche agiscono mediante strumenti informatici e telematici , nei rapporti interni, tra le diverse amministrazioni e tra queste e i private».

[881] According to Article 12, paragraph 1, of Legislative Decree 82/2005, «Le pubbliche amministrazioni nell'organizzare autonomamente la propria attività utilizzano le tecnologie dell'informazione e della comunicazione per la realizzazione degli obiettivi di efficienza, efficacia, economicità (…)».

[882] According to a recent report by the Capgemini Research Institute, «Governments want to maintain their agency and control in the digital sphere. As many as 64% express concern about data sovereignty, which has long been a key consideration for the public sector. However, government's sovereignty concerns now extend beyond data. Specifically, 58% are concerned about cloud sovereignty, emphasizing the need for cloud-computing environments that are owned, deployed, governed, and managed locally or regionally within a single nation or jurisdiction. This concern is particularly relevant in the context of AI adoption, given that

Unlike massive LLMs that are typically confined to deployment on GPU clusters and cloud environments[883], SLMs are lightweight enough to be deployed on-premises, ensuring that sensitive data remains within the government's secure infrastructure[884]. This local deployment capability allows governments to maintain absolute control over their AI infrastructure, mitigating the risks of data leakage and ensuring compliance with strict privacy mandates[885]. The combination of SLMs with privacy-preserving techniques creates a secure environment where agents can operate autonomously without compromising citizen trust.

In conclusion, the synthesis of these three technologies creates a unified architecture that is greater than the sum of its parts. In this ecosystem, the Agentic AI framework provides the executive function, capable of planning and executing multi-step public service workflows. The RAG mechanism acts as the legal memory, ensuring that every action taken by the agent is strictly derived from current statutes and internal data, thereby minimising legal risk and hallucinations. Finally, the SLM serves as the efficient engine, enabling these agents to run locally, securely, and cost-effectively at the scale required for national deployment. This architectural approach moves away from the reliance on opaque, general-purpose black boxes toward modular, verifiable systems where specialised agents collaborate to deliver services. For example, in a specialised scenario like government procurement contract analytics, an agentic workflow can autonomously manage the risk assessment process, while RAG ensures the analysis is based on specific contract clauses and compliance regulations, and an underlying SLM (fine-tuned for legal language) processes the data efficiently on secure government servers. This prevents the

---

AI models are often deployed on the cloud. Additionally, most government's sovereignty ambitions now encompass AI, with 52% expressing concern about AI sovereignty» (p. 44). In this regard, see Capgemini Research Institute, Data foundations for government. From AI ambition to execution, available at capgemini.com, 2025.

[883] S. Yi, T. Cong, X. He, Q. Li, J. Song, Beyond the Tip of Efficiency: Uncovering the Submerged Threats of Jailbreak Attacks in Small Language Models, available at arXiv, 26 May 2025, p. 1.

[884] D. Paprunia, V. Kharidia, P. Doshi, Advancing SLM Tool-Use Capability using Reinforcement Learning, in 2025 International Conference on Artificial Intelligence and Computing (AIC), 2025, p. 93; G. Goldenits, P. König, S. Raubitzek, A. Ekelhart, Small Language Models for Phishing Website Detection: Cost, Performance, and Privacy Trade-Offs, available at arXiv, 19 November 2025, pp. 1-2; Z. Zhou, L. Li, X. Chen, A. Li, Mini-Giants: "Small" Language Models and Open Source Win-Win, available at arXiv, 7 July 2024, p. 1.

[885] I. Barberá, AI Privacy Risks & Mitigations. Large Language Models (LLMs), 2025, available at European Data Protection Board, p. 14.

hallucination of non-existent legal precedents while ensuring that sensitive vendor data is never exposed to public API endpoints.

6. Frontiers of Agentic AI: legal personhood, administrative delegation, and open questions

6.1. Agentic AI and the question of legal personhood

With the rapid advancement and widespread deployment of agentic AI systems, the legal inquiry into the possibility of recognising legal personhood for artificial intelligence has become more dynamic and urgent than ever before. This development necessitates a re-evaluation of existing legal frameworks to address the increasing autonomy and decision-making capabilities of these entities.

Whether artificial intelligence and robotic systems should be recognized as legal persons rather than mere objects is one of the most contentious and rapidly evolving debates in contemporary jurisprudence and technology regulation. This inquiry is not merely a product of the twenty-first century; on the contrary, its roots extend into early computational theory, yet it has intensified exponentially with the advent of machine learning, autonomous agents, and generative AI. The debate oscillates between two primary perspectives: the ontological, which asks whether AI possesses the inherent qualities (such as sentience or will) to be a person, and the functional, which asks whether granting personality is a pragmatic solution to legal friction, particularly regarding liability.

6.1.1. Early theoretical foundations

The modern legal discourse regarding AI personhood found its seminal articulation in the early 1990s, most notably through the work of Lawrence Solum. Writing in 1992, Solum engaged in a series of thought experiments designed to test the boundaries of legal personality. He addressed what he termed the "missing-something" argument, the notion that AI cannot be a legal person because it lacks a soul, consciousness, intentionality, feelings, or interests[886]. Solum argued that theological objections, such as the lack of a soul, fail the requirement of public reason in a pluralistic society and therefore cannot serve as a basis for denying legal status[887]. Instead, Solum proposed a pragmatic approach, positing that if an AI could perform the duties of a trustee – administering property and making complex financial decisions –

[886] L.B. Solum, Legal Personhood for Artificial Intelligences, in North Carolina Law Review, 70(4), 1992, pp. 1262-1272.

[887] Ibid., p. 1263.

with the same competence as a human, the lack of biological intentionality might be legally irrelevant[888]. He suggested that «only some of the claims made in the debate over the possibility of AI do make a pragmatic difference, and it is pragmatic differences that ought to be decisive»[889]. This early functionalist perspective laid the groundwork for viewing legal personhood not as a recognition of humanity, but as a cluster of rights and competencies.

Throughout the 1990s and 2000s, the debate often relied on analogies to existing non-human persons, specifically corporations. The argument posited that since the law already recognises "artificial persons" that lack biological existence, consciousness, or a soul, there is no categorical bar to extending this status to AI. This "functionalist" approach suggests that legal personhood is a cluster concept or a bundle of rights and duties rather than a recognition of moral humanity[890].

6.1.2. The rise of autonomous agents and the agency model

As AI technology transitioned from symbolic logic to more autonomous software agents in the 2000s, the legal literature began to grapple with the implications of machines entering contracts and causing harm without direct human intervention. Gunther Teubner, writing in 2006, challenged the orthodoxy of methodological individualism, asking whether electronic agents constitute new actors in politics and law[891]. He posited that the emergence of these actors might necessitate extending social communication to include non-human processes[892]. This era saw a shift toward agency law as a potential framework.

Scholars like Samir Chopra and Laurence White argued that the legal status of artificial agents should not depend on metaphysical certainty regarding their consciousness but on their social reality and function. They maintained that «considering artificial agents as legal persons is, by and large, a matter of decision rather than discovery, for the best argument for denying or granting artificial agents legal personality will be pragmatic rather than conceptual»[893]. This period also saw the articulation of the "liability gap"

---

[888] Ibid., pp. 1240-1255, 1281-1283.

[889] Ibid., p. 1232.

[890] H. Kelsen, General Theory of Law and State, Transaction Publishers, Piscataway, 2006, pp. 93-96.

[891] G. Teubner, Rights of Non-humans? Electronic Agents and Animals as New Actors in Politics and Law, in Journal of Law and Society, 33(4), 2006, p. 500.

[892] Ibid., p. 515.

[893] S. Chopra, L.F. White, A Legal Theory for Autonomous Artificial Agents, The University Michigan Press, Ann Arbor, 2011, p. 154.

problem: as machines became more autonomous, the causal link between the human programmer and the machine's output weakened. David Vladeck highlighted this in 2014, noting that autonomous machines might operate without identifiable principals, thereby straining traditional negligence and product liability frameworks[894].

A notable contribution during this phase came from Shawn Bayern in 2015, who argued how existing corporate law, specifically Limited Liability Companies (LLCs), could effectively be used to grant AI autonomous legal status. By placing an AI in control of an LLC with no human members, Bayern argued that the AI could exercise the rights of the corporation, thereby achieving a form of functional personhood without requiring statutory changes[895]. This loophole demonstrated that the legal infrastructure for AI personhood already existed, latent within corporate law, waiting to be exploited.

6.1.3. The European Parliament's "electronic personhood" proposal

The debate transitioned from academic theory to legislative reality in 2017 with the European Parliament's Resolution on Civil Law Rules on Robotics[896]. The Parliament proposed exploring the creation of a specific legal status for the most sophisticated autonomous robots: "electronic persons". Specifically, the Parliament formulated a proposal of «creating a specific legal status for robots, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons with specific rights and obligations, including that of making good any damage they may cause, and applying electronic personality to cases where robots make smart autonomous decisions or otherwise interact with third parties»[897].

This proposal was explicitly functional, as it did not argue that robots had moral rights but sought to address the liability vacuum created by autonomous decision-making. The resolution suggested that «the more autonomous robots are, the less they can be considered to be simple tools in the hands of other actors (such as the manufacturer, the operator, the owner,

---

[894] D.C. Vladeck, Machines Without Principals: Liability Rules and Artificial Intelligence, in Washington Law Review, 89(1), 2014, p. 142, 145.

[895] S. Bayern, The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems, in European Journal of Risk Regulation, 2, 2016, p. 297, 302.

[896] European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics, available at European Union.

[897] Ibid., point 59, letter f).

the user, etc.)»[898]. This marked the high-water mark for the "electronic personhood" movement, positing that a new category of legal person was necessary to manage the risks of the Fourth Industrial Revolution.

6.1.4. Moral patiency and the "tool" argument

The EU proposal triggered an immediate and fierce backlash from the scientific and ethical communities. In an Open Letter to the European Commission, over 150 AI experts argued that creating legal personhood for robots was inappropriate from both legal and ethical perspectives. The primary argument against the proposal was that it would create a liability shield for manufacturers: by conferring personhood on the robot, corporations could potentially evade responsibility for defective products by shifting fault to the electronic person, which might have insufficient assets to compensate victims[899].

Bryson, Diamantis and Grant were leading voices in this opposition, arguing that legal personhood is a fiction used to link rights and duties, and extending it to AI would be a «moral unnecessary and legally troublesome» development[900]. They posited that, unlike corporations, which are aggregations of human interests and assets, AI systems do not have an underlying human substrate in the same way, making the analogy flawed[901]. This period solidified the divide between "functionalists", who saw personhood as a risk-management tool, and "human-centrists," who viewed it as a moral boundary that must not be crossed.

6.1.5. Refining the frameworks: bundles, gradients, and the peculium

Following the controversy of the 2017 EU Resolution, the debate moved toward more nuanced taxonomies. Visa Kurki's "Bundle Theory" became instrumental, arguing that legal personhood is not a binary switch but a cluster of incidents[902], so an AI could possess passive rights (like being insured) without active responsibility[903].

---

[898] Ibid., point AB.

[899] Open letter to the European Commission, Artificial Intelligence and Robotics, https://robotics-openletter.eu/

[900] J.J. Bryson, M.E. Diamantis, T.D. Grant, Of, for, and by the people: the legal lacuna of synthetic persons, in Artificial Intelligence and Law, 25(3), 2017, p. 289.

[901] Ibid., p. 288.

[902] V.A.J. Kurki, A Theory of Legal Personhood, Oxford University Press, Ozford, 2019, p. 94.

[903] Ibid., pp. 176-177.

Scholars also revived historical concepts to find a middle ground. One prominent argument put forward by Ugo Pagallo involved reviving the Roman law concept of the *peculium*. In Roman law, slaves lacked personhood but could manage a *peculium* (a small amount of property or allowance) to conduct transactions on behalf of their masters[904]. Pagallo argued that a similar "digital peculium" could be assigned to AI robots. This would allow AI to have a limited form of economic agency and a pool of assets to compensate victims of accidents, without granting them the full rights of citizenship or moral standing[905].

This period also saw the development of "gradient" or "partial" personhood theories. Teubner (2018) argued against the binary choice of person vs. object, suggesting instead that software agents should be granted a status of "partial legal personhood" calibrated to their concrete roles[906]. In this model, an AI's autonomous decisions would be legally binding (e.g., in contracts), and it could possess a form of "assistant liability," where the machine's misconduct itself constitutes a breach for which the human principal is responsible[907]. Similarly, Mocanu proposed a "gradient theory" where legal status is not an either/or distinction but a fine-grained spectrum, allowing different levels of status for different types of AI systems[908].

---

[904] U. Pagallo, Vital, Sophia, and Co.—The Quest for the Legal Personhood of Robots, in Information, 9, 2018, p. 5.

[905] For example, «in the foreseeable world of autonomous vehicles, hypotheses of accountable AI car systems may make sense because a sort of digital peculium, embedded in the design of the system, can represent the smart AI counterpart to current public funds for the victims of road accidents» (ibid., p. 8). To learn more about the concept of "digital peculium", see U. Pagallo, The Laws of Robots, cit., «Yet, it is feasible to avert legislation that makes individuals think twice before using or producing robots at all: consider new models of insurance and legal accountability for such machnes, *e.g.*, the "digital peculium" of robots. contrary to traditional forms of distributing responsibility and risk, "only robots shall pay" could, at times, be a sound approach to the contract problem» (p. 15). Furthermore, «the ability of robots to produce, through their own acts, rights and obligations on behalf of humans brings up a new parallelism, *i.e.*, between robots and slaves, since slaves were conceived as "things" that, nevertheless, played a crucial role both in trade and commerce» (p. 42).

[906] G. Teubner, Digital Personhood? The Status of Autonomous Software Agents in Private Law, in Ancilla Iuris, 2018, p. 58.

[907] Ibid., p. 70.

[908] D.M. Mocanu, Gradient Legal Personhood for AI Systems—Painting Continental Legal Shapes Made to Fit Analytical Molds, in Frontiers in Robotics and AI, 8, 2022, p. 9: «(…) a gradient might be a metaphor more apt at capturing the quality of legal personhood as a cluster property with its extension determined based on a weighted list of neither

Conversely, Nadia Banteka proposed a "sliding scale" with an inverse relationship: as AI entities become more autonomous, the legal system should perhaps be more restrictive in granting rights to prevent them from overpowering human interests[909].

However, the scepticism towards AI personhood remained dominant in policy circles. The Expert Group on Liability and New Technologies, appointed by the European Commission, reported in 2019 that there was «no need to give a legal personality to emerging digital technologies». The group reaffirmed that «harm caused by even fully autonomous technologies is generally reducible to risks attributable to natural persons or existing categories of legal persons». They warned that giving AI legal personality would amount to placing a cap on liability, allowing corporations to «pierce the electronic veil» only with difficulty[910]. Consequently, the European Commission's later legislative proposals, such as the AI Act and the AI Liability Directive, abandoned the "electronic personhood" terminology in favour of risk-based regulation and strict liability for high-risk AI deployers.

Simultaneously, the so-called "Android Fallacy" was identified as a rhetorical trap. As Richards and Smart define it, the "Android Fallacy" is «the idea that robots are "just like people" and that there is a meaningful difference between humanoid and nonhumanoid robots»[911]. Because humans are naturally inclined to anthropomorphise, Avila Negri notes that «human appearance can lead us to think of robots as people»[912]. If the law treats humanoid robots differently from other machines simply because they look

---

necessary, nor sufficient criteria. This, in turn, suggests different items of the same kind (in this case rights) can be added or subtracted to end up placed differently on the gradient (…). As a gradient, legal personhood is not, therefore, only a matter of adding or subtracting from a bundle of legal incidents with a minimum threshold below which we can no longer call it a bundle, but it also takes into account the kinds of items added or subtracted so that an entity can be a legal person for some specific purposes only. (…) the important premise remains that legal personhood is a complex attribute in legal theory, having been expressly characterized as 'gradable' aside from it also being "discrete, discontinuous, multifaceted, and fluid"».

[909] N. Banteka, Legal Personhood and AI. AI Personhood on a Sliding Scale, in E. Lim, P. Morgan (eds.), The Cambridge Handbook of Private Law and Artificial Intelligence, Cambridge University Press, Cambridge, 2024, p. 621, 629, 630, 635.

[910] Expert Group on Liability and New Technologies – New Technologies Formation, Liability for Artificial Intelligence and other emerging digital technologies, European Commission, 2019, p. 38.

[911] N.M. Richards, W.D. Smart, How Should the Law Think About Robots?, in R. Calo, A.M. Froomkin, I. Kerr (eds.), Robot Law, Edward Elgar Publishing Limited, Cheltenham, 2016, p. 4.

[912] S.M.C. Avila Negri, Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence, in Frontiers in Robotics and AI, 8, December 2021, p. 3.

human, lawmakers might mistakenly «design legislation based on the form of a robot, not the function»[913]. Consequently, «the illusion caused by anthropomorphism of form can be dangerous when we think of regulatory initiatives based on false assumptions about the capacity of robotic artefacts themselves»[914]. To avoid this fallacy, legal frameworks must remain grounded in the reality that «Robots, even sophisticated ones, are just machines»[915].

6.1.6. Agency, historical analogues, and the rise of LLMs

Entering the 2020s, the literature increasingly focused on refining agency law and historical analogues. Anat Lior advocated for treating AI entities as "AI Agents" within the existing framework of agency law, specifically utilising the *respondeat superior* doctrine. Lior argued that the animal analogy (treating AI like a pet or wild beast) was insufficient because it failed to capture the economic utility and agency of AI[916]. Instead, the agency triangle (principal-agent-third party) better reflects the relationship between AI, its deployers, and the public[917]. By treating the AI as an agent, liability could be channelled back to the human principal or corporation without needing to create a new metaphysical category of personhood[918].

Recent scholarship has also revisited historical forms of "quasi-personhood" to demystify the status of AI. Tanner Mathison provided a detailed analysis of how the law has historically used legal personhood as a malleable tool, historically deployed to regulate entities ranging from saints and cities to idols[919]. The argument was that if the law could impute will to a

---

[913] N.M. Richards, W.D. Smart, op. cit., p. 19.

[914] S.M.C. Avila Negri, ult. loc. cit.

[915] N.M. Richards, W.D. Smart, op. cit., p. 20.

[916] A. Lior, AI Entities as AI Agents: Artificial Intelligence Liability and the AI Respondeat Superior Analogy, in Mitchell Hamline Law Review, 46(5), 2020, pp. 1061-1062.

[917] Ibid., p. 1046, 1072.

[918] Ibid., pp. 1070-1072, where it's stated that «Treating AI entities as persons and granting them AI personhood would be getting ahead of ourselves in light of today's technological advancements (…) as of now, treating AI entities as humans will be grossly misguided (…) In both cases—corporate principals and AI agents—the human which stands behind the scenes is the true puppeteer».

[919] T.W. Mathison, Recognizing Right: The Status of Artificial Intelligence, in Journal of Business & Technology Law, 19(1), 2023, pp. 158-159, citing specifically the following examples: 1) in the Middle Ages in Germany, both God and the saints were often regarded as true legal persons; 2) historically, the city of London was personified in the Magna Carta, with specific rights annexed to the city itself; 3) a 1925 case (Pramatha Nath Mullick v. Pradyumna Kumar Mullick) affirmed that a Hindu idol was found to have a juridical status with power of suing and being sued; 4) in the case Jones v. Butz, a plaintiff was granted standing as a guardian ad litem for livestock animals.

corporation, it could, in theory, do so for an artificial intelligence, provided there was a utilitarian justification[920]. In particular, Mathison dedicates significant analysis to the legal status of ships in admiralty law, where the vessel itself is treated as a person that can be sued (*in rem* jurisdiction) to resolve disputes involving multiple jurisdictions and parties. He noted that to manage complex jurisdictional issues, judges chose «to shut their eyes to the irrelevant differences between a ship and a man and to treat the ship as if it were a man»; citing the Tucker v. Alexandroff case, he highlights that a ship acquires a personality of its own, separate from its owners, becoming individually liable for obligations[921]. Furthermore, the history of the legal status of enslaved peoples and women was invoked to show that legal personality has often been fragmented: enslaved persons were treated as property but could be held criminally responsible as persons, a «property with personality» regime[922]. While morally abhorrent in the human context, this history demonstrates the law's capacity to create entities that are accountable (capable of being punished/sued) but lack rights (cannot own property/vote). Thus, this "quasi-personhood" could be adapted for AI, ensuring they are subject to legal duties without being granted human rights[923].

Concurrently, the rise of Large Language Models (LLMs) and Generative AI reignited the debate by introducing systems that could generate novel content, raising questions about authorship and intellectual property. The "substitution" argument gained traction: if an AI performs tasks previously done by humans – such as writing – and makes decisions indistinguishable from those of humans (without human input or control), the law might need to face the complex questions about who, if anyone, should be considered the rightful owner of the intellectual property rights in AI-generated works[924]. However, courts in the United States maintained a strict human-centric approach. In the Thaler v. Vidal case regarding the AI system DABUS, courts ruled that an AI system cannot be an "inventor" under the Patent Act because inventorship presupposes a conscious agent capable of legal volition[925].

---

[920] Ibid., p. 119.

[921] Ibid., p. 124

[922] Ibid., pp. 130-132, spec. 130.

[923] Ibid., pp. 136-137.

[924] B.G. Cheong, The Rise of AI Avatars: Legal Personhood, Rights and Liabilities in an Evolving Metaverse, in Journal of Digital Technologies and Law, 2(4), 2024, pp. 867-870.

[925] Thaler v. Vidal, No. 21-2347 (Fed. Cir. Aug. 5, 2022).

6.1.7. Agentic AI, systemic risk, and the "potential people" argument

The most recent phase of the debate is driven by Agentic AI, which, according to some scholars, might create systemic risks to economic stability and democracy, such as market manipulation or large-scale disinformation. They argued that these risks require robust regulatory frameworks rather than the granting of rights. They warned that Agentic AI could be weaponised, and granting it personhood might complicate the attribution of responsibility for crimes like fraud, cyberattacks, and the manipulation of public opinion[926].

Other scholars noted that extending personhood to AI is an evolutionary, not revolutionary, step, akin to the recognition of corporate personhood[927]. However, they noted a critical distinction: corporate decisions trace back to human boards and shareholders, whereas AI decisions emerge from algorithmic processes that may be opaque even to their creators[928]. This accountability gap suggests that while the corporate form is a useful template, it requires modification, perhaps a hybrid "AI corporation" model where the AI operates as the primary decision-maker within a corporate "shell"[929]. Meanwhile, other scholars argue that, regardless of the ontological status of AI, the primary goal must be designing AI agents that can obey human laws. This approach sidesteps the metaphysical question of personhood in favour of a compliance-based model. If AI agents are to act as economic operators, they must be technically architected to function as «duty-bearing legal actors» capable of understanding and adhering to legal norms[930]. This implies that whether or not we call them "persons", we must treat them as entities capable of fulfilling legal obligations.

A novel argument emerged from the intersection of AI regulation and reproductive rights in the United States. In particular, Kalantry analysed the

---

[926] A. Bellogín, P. Giudici, S. Larsson, J. Pang, G. Schimpf, B. Sengupta, G. Solmaz, op. cit., p. 5.

[927] M. Ghasemi, AI and Corporate Personhood. A Comparative Analysis, in www.convergenceanalysis.org, 2025, p. 3.

[928] Ibid., p. 4, 14-15.

[929] Ibid., p. 18.

[930] C. O'Keefe, K. Ramakrishnan, J. Tay, C. Winter, Law-Following AI: op. cit, pp. 83-86.

legislative trend in states like Idaho[931] and Utah[932], which enacted laws explicitly denying personhood to AI while simultaneously granting personhood to embryos. Kalantry argued that these legislatures were defining personhood strictly through genetics (i.e., being *Homo sapiens*) to protect human supremacy[933]. She criticised this "genetic" theory of personhood as inconsistent with the long-standing recognition of corporate personhood[934]. Instead, citing Jessica Berg[935], she proposed utilising a theory of personhood based on interests: entities should be granted personhood if it serves their interests and the interests of society[936]. Under this framework, she argued AI does not currently qualify because it lacks morally relevant interests (like the capacity to suffer) and granting it personhood would harm society by shielding developers from liability[937].

Finally, the debate has reached a state of "stasis and punctuation" described by Novelli, Floridi, Sartor, and Teubner[938]. The discourse oscillates between periods of stability, where AI is treated as a tool, and rapid shifts triggered by technological breakthroughs. They predict that future "punctuations" – such as the development of Artificial General Intelligence (AGI)[939] or the widespread integration of AI into physical social robots[940] – will repeatedly force the legal system to reconsider the personhood question. They suggest that legal personhood might eventually be granted not because

---

[931] Idaho Code, § 5-346 (Personhood Status): «Notwithstanding any other provisions of law, environmental elements, artificial intelligence, nonhuman animals, and inanimate objects shall not be granted personhood in the state of Idaho. Nothing in this section revokes the status of legal person in or of any municipality, organization, corporation, or other legal or business entity recognized by the laws of the state of Idaho as such prior to July 1, 2022».

[932] Utah Code, § 63G-32-102 (Legal Personhood Restricted): «Notwithstanding any other provision of law, a governmental entity may not grant legal personhood to, nor recognize legal personhood in: (1)artificial intelligence; (2)an inanimate object; (3)a body of water; (4)land; (5)real property; (6)atmospheric gases; (7)an astronomical object; (8)weather; (9)a plant; (10)a nonhuman animal; or (11)any other member of a taxonomic domain that is not a human being».

[933] S. Kalantry, Legal Personhood of Potential People: AI and Embryos, in California Law Review, 16, 2025, p. 98.

[934] Ibid., p. 96.

[935] J. Berg, Of Elephants and Embryos: A Proposed Framework for Legal Personhood, in Hastings Law Journal, 59(2), 2007, pp. 369-406.

[936] S. Kalantry, op. cit., pp. 100-102.

[937] Ibid., pp. 102-106.

[938] C. Novelli, L. Floridi, G. Sartor, G. Teubner, AI as legal persons: past, patterns, and prospects, in Journal of Law and Society, 52, 2025, p. 552.

[939] Ibid.

[940] Ibid., p. 553.

AI achieves consciousness, but because social personification (society treating AI as persons) will create irresistible institutional pressure on the law to conform[941].

6.1.8. The unresolved tension in defining AI status

The history of the debate over AI legal personhood is a history of the tension between legal pragmatism and moral essentialism. The trajectory reveals a movement from abstract philosophical inquiries in the 1990s to concrete liability concerns in the 2010s, followed by a reaction that re-emphasised human-centric values.

Currently, the debate has settled into a sophisticated stalemate. On one side, functionalists argue that the autonomy of modern AI makes the "tool" analogy insufficient, advocating for forms of quasi-personhood (akin to ships or corporations) to manage risk. On the other side, ethicists maintain that personhood cannot be severed from human dignity and warn against liability shields. However, the arrival of Agentic AI and the increasing social integration of these systems ensure the question remains unresolved. As we might expect, the ultimate decision will likely not depend on whether AI becomes conscious, but on whether granting it legal status solves more problems for human society than it creates.

6.2. The delegation conundrum in administrative law: transferring administrative power to Agentic AI systems

The remarkable autonomous capabilities of Agentic AI systems within administrative proceedings prompt a fundamental inquiry into whether their actions imply a formal delegation of powers from public officers. To address this, it is necessary to first explore the doctrinal foundations of "delegation" within Italian administrative law, specifically examining the distinction between the vesting (*titolarità*) of a function and the mere exercise of power. Understanding these legal nuances, alongside the principles of legality and administrative responsibility, is crucial to determining whether the transfer of specific tasks to artificial agents can be reconciled with the existing constitutional and regulatory frameworks that govern the distribution of public competences.

Delegation in administrative law represents one of the fundamental mechanisms through which the organisation of public powers is structured and the distribution of competences is achieved, both in internal and external

[941] Ibid., p. 545.

relations[942]. The analysis of this legal concept requires us to start from its conceptual definition and then examine its legal nature, its effects on the vesting and exercise of power, its liability issues and its historical evolution, with particular reference to the Italian constitutional context.

In the absence of a clear legal definition, legal scholarship has conceptualised delegation as the act by which a competent authority, empowered to act in relation to specific interests, transfers to another entity the task of carrying out the activity by adopting a single act or several acts or, in general, by performing the activity required for the specified purpose. It is therefore a tool made available to the originally authorised person to enable others (derivatively authorised) to deal in a legally valid and effective manner with the interests recognised as falling within the competence or relevance of the former, within the limits established in the act of delegation[943]. This mechanism results in a change in the legal order of competences, in that the delegating party, while retaining vesting of the function, transfers its exercise to the delegate[944]. As noted by scholarship, it is essential to emphasise that administrative delegation requires express legislative provision authorising it, in accordance with the principle of legality and Article 97 of the Constitution, since it involves an alteration of the allocation of competences established in general terms by law[945].

From a legal perspective, doctrinal debate has historically focused on the distinction between the transfer of vesting of the function and the transfer of the mere exercise of the function. The prevailing view, endorsed by constitutional case law[946], is that delegation does not result in a definitive transfer of vesting of the function, which remains with the delegating party,

---

[942] For an in-depth analysis of the administrative delegation, see M. Cammelli, Delega amministrativa, in Enciclopedia giuridica, vol. X, Roma, 1988, p. 1 ff.; P. Sacco, Il profilo della delega e subdelega di funzioni amministrative, Giuffrè, Milano, 1984; F. Roversi Monaco, La delegazione amministrativa nel quadro dell'ordinamento regionale, Giuffrè, Milano, 1970; G. Fazio, La delega amministrativa e i rapporti di delegazione, Giuffrè, Milano, 1964; G. Miele, Delega (dir. amm.), in Enc. del dir., vol. XI, Giuffrè, Milano, 1962.

[943] G. Miele, Delega (dir. amm.), cit., p. 907.

[944] F. Roversi Monaco, La delegazione amministrativa, cit., p. 21.

[945] E. Casetta, F. Fracchia (eds.), op. cit., p. 155.

[946] Since its judgment no. 39 of 9 March 1957, the Italian Constitutional Court has clarified that «l'ente delegato non esercita funzioni che siano diventate sue proprie, ma esercita funzioni dell'ente delegante e che quest' ultimo, appunto perché rimanendo titolare delle dette funzioni ha sempre il dovere di curare che con esse siano conseguiti i fini di interesse generale ai quali tendono» (along the same lines, see also Corte Cost., judgment no. 36 of 31 May 1960).

but rather a temporary attribution of the exercise of power to the delegate[947]. This interpretation justifies the delegating authority retaining specific powers, as it does not radically relinquish its competence but retains powers of direction, supervision and, in specific cases, replacement or revocation[948]. The relationship established between the delegator and the delegate is not necessarily hierarchical in the strict sense, although delegation presupposes a position of supremacy or at least functional superiority that justifies the power of direction. The power to issue binding directives allows the delegating party to direct the delegate's activities towards the pursuit of the public interests underlying the function, without, however, totally restricting the latter's decision-making autonomy[949].

An important aspect for understanding the normal operation of delegation lies in the regime of responsibility and attribution of acts. Unlike the legal concepts of representation (*rappresentanza*) or delegation of signature (*delega di firma*), in true administrative delegation, the delegate acts in his own name, albeit on behalf of and in the interest of the delegating party[950]. It follows that acts performed in the exercise of the delegation are attributed directly to the delegate, who bears sole responsibility for any unlawful acts or defects, with the effects of those acts arising in the delegate's legal sphere[951]. This characteristic clearly distinguishes the delegation of functions from the delegation of signature; in the latter, in fact, there is no delegation of powers, but the delegate merely signs an act that remains, both formally and substantively, attributable to the delegator, which is liable to third parties[952].

A fundamental distinction in the analysis of the delegation is that between internal delegation (*delega interorganica*) and external delegation (*delega intersoggettiva*). The former occurs within the same legal entity,

---

[947] P. Sacco, Il profilo della delega e subdelega di funzioni amministrative, p. 35; F. Roversi Monaco, La delegazione amministrativa, p. 73; G. Miele, Delega (dir. amm.), cit., p. 910.

[948] E. Casetta, F. Fracchia (eds.), ult. loc. cit.

[949] The Italian Constitutional Court stated that the formulation of directives by the delegating party «non può spingersi fino al punto di enunciare criteri tanto dettagliati da dar corpo a un vero e proprio svolgimento diretto delle funzioni delegate» by the delegating party itself (Corte Cost., judgment no. 559 of 19 May 1988).

[950] E. Casetta, F. Fracchia (eds.), ult. loc. cit.

[951] M. Cammelli, Delega amministrativa, cit., p. 12; P. Sacco, Il profilo della delega e subdelega di funzioni amministrative, cit., p. 48 ss.

[952] E. Casetta, F. Fracchia (eds.), ult. loc. cit.

transferring competence from one body to another[953]. The latter, on the other hand, operates between different legal entities, as in the case of the delegation of functions from the State to the Regions or from the Regions to local authorities, and has historically been conceived as a flexible tool to correct the rigidity of the division of legislative powers[954].

In conclusion, administrative delegation is a complex organisational tool that allows the separation of vesting from the exercise of power, enabling the administration to use other entities or bodies to perform its functions. It establishes a unique legal relationship characterised by the delegating authority's powers of direction and control and the delegate's operational autonomy, with the delegate bearing external responsibility for the acts performed.

From my point of view, under Italian administrative law, the use of Agentic AI by a public officer cannot legally constitute administrative delegation for several fundamental doctrinal reasons involving legal personhood, the attribution of liability, and the principle of legality.

The primary obstacle to classifying AI operations as administrative delegation is the requirement of legal personhood. As we have seen above, administrative delegation is an intersubjective mechanism in which an authorised entity (the delegator) confers the exercise of a function on another entity (the delegate). This process inherently presumes that the delegate is a distinct legal person capable of accepting this transfer. While the delegator retains the vesting of the function, the exercise is transferred to the delegate, who then acts in their own name. Since AI systems currently lack legal personhood – having been rejected as electronic persons by policy experts and remaining legally classified as products or tools – an AI cannot be the recipient of a delegation of powers. An entity lacking legal personality cannot lawfully possess or exercise a public power in its own right; thus, it remains an object within the legal relationship, not a partner in it.

---

[953] A typical example is the delegation of managerial functions provided for in Article 17 of Legislative Decree No. 165/2001, which allows managers of general management offices to delegate specific tasks to other managers.

[954] However, following the reform of Title V of the Constitution in 2001, the new Article 118 no longer explicitly mentions delegation, preferring the terminology of "conferral" of functions based on the principles of subsidiarity, differentiation and adequacy, which has led some legal scholars to question the very survival of the delegation as an autonomous category or its transformation into forms of allocation of functional ownership. For further information, see C. Bertolino, La delega di funzioni amministrative: alla ricerca delle ragioni di 'abbandono' dell'istituto, in Le Regioni, 4, 2019, pp. 979-1001.

Secondly, the specific liability regime inherent to administrative delegation creates a structural incompatibility with current AI frameworks. In a true administrative delegation, acts performed are attributed directly to the delegate, who bears sole responsibility for any unlawful acts or defects. The effects of the act are produced in the delegate's legal position, not the delegator's. If an AI were a true delegate, it would have to be individually liable for obligations and capable of being sued for damages. However, because AI lacks assets and the capacity to be a party to legal proceedings, it cannot bear this external responsibility. Consequently, the actions of an AI system remain attributable to the human public officer who employs it. This relationship aligns more closely with the concept of delegation of signature, where no delegation of powers occurs, and the act remains formally and substantively attributable to the original authority, rather than true administrative delegation.

Finally, the principle of legality serves as a formal barrier. Administrative delegation requires an express legislative provision authorising it, in accordance with Article 97 of the Italian Constitution, because it alters the general classification of public offices and competences established by law. There is no current legislative framework that authorises the delegation of administrative power to non-human entities. Without a specific law permitting the transfer of the exercise of power to an algorithm, any such transfer would violate the constitutional requirement that public offices be organised according to provisions of law. Therefore, legally speaking, the AI does not exercise delegated power; rather, the human officer utilises the AI as an internal instrument to fulfil their own retained function, maintaining both the vesting and the exercise of the power in the eyes of the law.

Conclusions

The profound integration of artificial intelligence into public administration represents an epochal transition that forces traditional administrative law to confront unprecedented technological and doctrinal challenges. The research conducted in this doctoral thesis has demonstrated that artificial intelligence is not merely a sophisticated upgrade of traditional IT systems, but a disruptive paradigm shift that alters the core fabric of public decision-making. The transition from deterministic algorithms, based on linear and predictable "if-then-else" rules, to probabilistic machine learning and deep learning models has introduced an intrinsic epistemological opacity into the administrative apparatus. This black box phenomenon clashes directly with the democratic imperatives of transparency, accountability, and the principle of open government (the so-called "glass house" principle) upon which modern administrative law is founded. As this thesis has sought to establish, the solution is not to reject technological progress, but to adapt existing legal categories to ensure that the fundamental rights of citizens are not sacrificed for the sake of computational efficiency.

A foundational step in this adaptation involves the correct legal qualification of artificial intelligence systems. Administrative case law has progressively abandoned the initial thesis that viewed the algorithm as an autonomous digital administrative act or a regulatory source, consolidating instead the approach that qualifies AI systems as organisational tools and procedural instruments of the fact-finding phase. This auxiliary nature has also been recently codified by the Italian lawmaker in Article 14 of Law no. 132/2025, which firmly states that AI operates in a supportive function, leaving the ultimate decision-making power and responsibility to the human officer. Recognising AI as a fact-finding tool ensures that automated administrative actions remain subject to the traditional guarantees of the Italian Administrative Procedure Act. Furthermore, this classification as a mere tool allows the public administration to utilise AI even within the scope of discretionary activities, provided that the administration rigorously observes the so-called "triptych of algorithmic legality" established by the Italian Council of State: the principles of knowability and comprehensibility, the principle of human oversight, and the principle of algorithmic non-discrimination.

Within this framework, the principle of administrative transparency assumes a renewed and reinforced significance. The opacity of complex neural networks cannot be invoked by the administration as an alibi to evade its

obligation to provide a statement of reasons under Article 3 of Law no. 241/1990. It is conceptually unacceptable for an administrative decision affecting a citizen's legal position to be justified by the mere uncritical ratification of a machine's output. Instead, the administration bears the burden of translating the computational logic into an understandable legal rule. To fulfil this duty in the algorithmic age, this research proposes the mandatory integration of Explainable AI (XAI) techniques into the decision-making process. By utilising global explanations to clarify the system's overarching logic, local explanations to identify the specific variables that determined the individual outcome, and counterfactual explanations to show the applicant how a different input would have altered the result, the public administration can effectively bridge the gap between mathematical inference and legal justification. This enhanced transparency must also prevail in the context of documentary access; the legitimate defence needs of the applicant must take precedence over the intellectual property rights and trade secrets of the private companies supplying the proprietary AI software.

To ensure effective participation and an opportunity to be heard in administrative proceedings, the mechanisms of procedural participation must be legislatively updated. The current mechanisms governing the communication of the procedure's commencement (Article 7 of Law no. 241/1990) and the advance notice of rejection (Article 10-bis) were designed for human-to-human interactions and are structurally inadequate for automated proceedings. This thesis advocates for a legislative reform that obliges the administration to explicitly disclose the use of AI systems and the precise methods of human supervision from the very beginning of the proceedings. Furthermore, when a citizen submits a written response to a preliminary algorithmic rejection, the human officer must autonomously renew the evaluation, specifically stating the reasons for accepting or rejecting the machine's initial output, thereby preventing the rubber-stamping of automated decisions.

In the realm of judicial protection, the advent of algorithmic administrative acts necessitates a careful recalibration of the defects of administrative power. The thesis rejects the notion that automated acts lacking human oversight are legally non-existent or null *ab initio*. Instead, these defects must be framed within the category of voidability. If an AI system relies on flawed training data, replicates discriminatory biases, or produces an illogical output that the official uncritically adopts, the resulting administrative act is vitiated by a misuse of power, manifesting in indicators such as the misrepresentation of facts, disparate treatment, or manifest unreasonableness. During administrative litigation, the burden of proof cannot

be rigidly placed on the private citizen, who suffers from a severe information asymmetry regarding the internal workings of the AI system. The administrative judge must actively employ the *ex officio* evidentiary powers principle and the principle of best access to evidence, shifting the burden onto the public administration to demonstrate the correct functioning of its technological tools. Crucially, the court-appointed expert opinion (CTU) becomes an indispensable procedural instrument, acting as a bridge between computer science and law to allow the judge to conduct a substantive review of the administration's technical discretion without unlawfully substituting their own judgment for that of the executive branch.

The final and most disruptive frontier analysed in this thesis is the emergence of Agentic AI, conceptualised here as "The New Artificial Bureaucrat." Unlike Generative AI, which operates reactively and merely generates content based on user prompts, Agentic AI marks a profound evolutionary leap: these autonomous agents are capable of goal-directed behaviour, complex multi-step planning, long-term memory retention, and the independent utilisation of external digital tools without constant human mediation. The research highlights a critical regulatory void: current legislative frameworks, including the European AI Act, were primarily tailored for the reactive paradigm of Generative AI and are structurally unequipped to govern the autonomous, persistent actions of Agentic AI. The traditional concept of human-in-the-loop supervision becomes practically impossible and counterproductive in the face of agents executing hundreds of micro-actions per minute.

Consequently, the legal framework governing the liability of the public administration must evolve. Given the intrinsic unpredictability and the high potential for harm associated with Agentic AI workflows, this thesis argues for the application of strict liability under Article 2050 of the Italian Civil Code, which governs dangerous activities. The administration, deriving substantial benefits and efficiencies from these autonomous systems, must bear the associated risks, being held liable for damages unless it can prove it adopted every possible measure to prevent the harm. To reconcile this advanced autonomy with the constitutional mandates of good administration and efficiency (Article 97 of the Constitution), an innovative operational architecture is proposed: public administration should move away from resource-intensive, monolithic Large Language Models (LLMs) and instead deploy specialised Small Language Models (SLMs) integrated with Retrieval-Augmented Generation (RAG). This synergy allows agents to base their actions on verified, up-to-date institutional databases rather than opaque

parametric memory, simultaneously reducing computational costs, energy consumption, and the severe risk of AI hallucinations.

Finally, despite their advanced capabilities, Agentic AI systems cannot be granted legal personhood or electronic personality, nor can they be the recipients of a true administrative delegation of power. Under Italian administrative law, delegation requires a transfer of powers to a person possessing a legal personality and an autonomous patrimony capable of bearing liability. Because an AI system lacks these characteristics, it remains an advanced internal tool of the administration. The vesting of public power, and the ultimate responsibility for its exercise, must remain unequivocally anchored to the human official. In conclusion, the integration of artificial intelligence into public administration holds the promise of unprecedented efficiency and modernised public services, but it must be meticulously governed by the enduring principles of administrative law. The "New Artificial Bureaucrat" must be designed and regulated not to replace human judgment, but to augment it, ensuring that the technological pursuit of efficiency never compromises the democratic accountability, transparency, and fundamental rights that form the bedrock of the modern State.

Bibliography

Scholarship

Aba Catoira A., Accuracy and Robustness of High-Risk Artificial Intelligence Systems in Article 15 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act. A Systematic Commentary, Editoriale Scientifica, Napoli, 2025, pp. 739-760.

Abbamonte O., L'eccesso di potere. Origine giurisdizionale del concetto nell'ordinamento italiano (1877-1892), in Diritto processuale amministrativo, 1, 1986, p. 68 ff.

Abiodun O.I., Jantan A., Omolara A.E., Dada K.V., Mohamed N.A., Arshad H., State-of-the-art in artificial neural network applications: A survey, in Heliyon, vol. 4(11), 2018, pp. 1-41.

Adabara I., Sadiq B.O., Shuaibu A.N., Danjuma Y.I., Maninti V., Trustworthy agentic AI systems: a cross-layer review of architectures, thereat models, and governance strategies for real-world deployment, in F1000Research, 11 September 2025, p. 14.

Adadi A., Berrada M., Peeking Inside the Black-Box: A Survey on Explainable Artificial Intelligence (XAI), in IEEE Access, vol. 6, 2018, pp. 52138-52160.

Adami P., L'accesso civico agli atti delle procedure di affidamento e di esecuzione dei contratti pubblici, in Rivista amministrativa della Repubblica italiana, 2018, p. 241 ff.

Adinolfi A., Processi decisionali automatizzati e diritto antidiscriminatorio dell'Unione europea, in A. Adinolfi, A. Simoncini (eds.), Protezione dei dati personali e nuove tecnologie. Ricerca interdisciplinare sulle tecniche di profilazione e sulle loro conseguenze giuridiche, Edizioni Scientifiche Italiane, Napoli, 2022, pp. 31-52.

Adorno M., La consulenza tecnica d'ufficio nel codice del processo amministrativo, in Diritto processuale amministrativo, 2, 2014, p. 486 ff.

Ahmed I., Kumara I., Reshadat V., Kayes A.S.M., van den Heuvel W.J., Tamburri D.A., Travel Time Prediction and Explanation with Spatio-Temporal Features: A Comparative Study, in Electronics, 11(106), 2022, p. 7.

Alberti I., L'istruttoria nel procedimento amministrativo, Giappichelli, Torino, 2024, p. 3.

Alberti P., I casi di esclusione del diritto di accesso, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 1318 ff.

Alessi R., La responsabilità della pubblica amministrazione, Giuffrè, Milano, 1939.

Alessi R., L'illecito e la responsabilità civile degli enti pubblici, Giuffrè, Milano, 1972.

Ali S., Abuhmed T., El-Sappagh S., Muhammad K., Alonso-Moral J.M., Confalonieri R., Guidotti R., Del Ser J., Díaz-Rodríguez N., Herrera F., Explainable Artificial Intelligence (XAI): What we know and what is left to attain Trustworthy Artificial Intelligence, in Information Fusion, 99, 2023, p. 2.

Almada M., Technical AI Transparency: A Legal View of the Black Box, available at SSRN, 16 January 2025, pp. 1-8.

Amorizzo M., Ricciulli F., L'accesso agli atti, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 346-347.

Amoroso D., Tamburrini G., La questione del controllo umano significativo sui sistemi robotici ad autonomia crescente, in A. D'Aloia (ed.), Intelligenza artificiale e diritto. Come regolare un mondo nuovo, Franco Angeli, Milano, 2021, pp. 31-58.

Andreani A., Idee per un saggio sulla motivazione obbligatoria dei provvedimenti amministrativi, in Diritto processuale amministrativo, 1, 1993, p. 1 ff.

Angwin J., Larson J., Mattu S., Kirchner L., Machine Bias, available at ProPublica, 23 May 2016.

Anscombe G.E.M., Intention, Basil Blackwell, Oxford, 1957.

Antonelli V., La trasparenza e il controllo dei requisiti negli affidamenti di importo inferiore alle soglie di rilevanza europea, in W. Giulietti, F. Caporale (eds.), I contratti sotto la soglia di rilevanza europea. Dopo il nuovo Codice dei contratti pubblici, Giuffrè, Milano, 2024, p. 281.

Antonioli M., Rapporto senza potere e tutela dell'affidamento. Le nuove frontiere della responsabilità civile della P.A., Giappichelli, Torino, 2022.

Aperio Bella F., La motivazione del provvedimento (art. 3 l. n. 241 del 1990 s.m.i.), in Sandulli A.M. (ed.), Princìpi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 453.

Aperio Bella F., Limiti alla convalida del vizio di motivazione in corso di giudizio (nota a Cons. Stato, sez. VI, n. 3385/2021), in Giustizia Insieme, 10 November 2021.

Appelman N., Fathaigh R.O., van Hoboken J., Social Welfare, Risk Profiling and Fundamental Rights: The Case of SyRI in the Netherlands, in Journal of Intellectual Property, Information Technology and Electronic Commerce Law, 12, 2021, pp. 257-271.

Arellano Toledo W., Merchán Murillo A., The Obligation to Keep Records of High-Risk Systems in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 649-663.

Arena G. (ed.), L'accesso ai documenti amministrativi, Il Mulino, Bologna, 1991.

Arena G., Trasparenza amministrativa (voce), in S. Cassese (directed by), Dizionario di diritto pubblico, Giuffrè, Milano, 2006, p. 5945.

Ariemma G., Le diverse forme di accesso nell'ordinamento italiano: il rapporto tra accesso ordinario e accesso civico generalizzato in materia di contratti pubblici, in Rivista giuridica europea, 2020, p. 89 ff.

Astone F., Le patologie procedimentali e provvedimentali, in Aa.Vv. (eds.), Istituzioni di diritto amministrativo, Giappichelli, Torino, 2017, p. 368.

Avanzini G., Decisioni amministrative e algoritmi informatici, Editoriale Scientifica, Napoli, 2018, p. 151.

Avila Negri S.M.C., Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence, in Frontiers in Robotics and AI, 8, December 2021, p. 3.

Bachelet V., L'attività tecnica della pubblica amministrazione, Giuffrè, Milano, 1967, p. 120.

Baeza-Yates R., Fayyad U.M., The Attention Economy and the Impact of Artificial Intelligence, in H. Werthner, E. Prem, E.A. Lee, C. Ghezzi (eds.), Perspectives on Digital Humanism, Springer, Cham, 2022, p. 130.

Balkin J.M., The Three Laws of Robotics in the Age of Big Data, in Ohio State Law Journal, 78, 2017, pp. 1217-1241.

Ballestrero M.V., Ancora sui rider. La cecità discriminatoria della piattaforma, in Labor, 1, 2021, p. 103 ff.

Banafa A., Introduction to Artificial Intelligence, River Publishers, Gistrup, 2024, pp. 3-52.

Bandi A., Kongari B., Naguru R., Pasnoor S., Vilipala S.V., The Rise of Agentic AI: A Review of Definitions, Frameworks, Architecture, Applications, Evaluation Metrics, and Challenges, in Future Internet, 17, 404, 2025, pp. 7-39.

Banteka N., Legal Personhood and AI. AI Personhood on a Sliding Scale, in E. Lim, P. Morgan (eds.), The Cambridge Handbook of Private Law and Artificial Intelligence, Cambridge University Press, Cambridge, 2024, p. 621, 629, 630, 635.

Barberá I., AI Privacy Risks & Mitigations. Large Language Models (LLMs), available at European Data Protection Board, 2025, p. 14.

Barbero D., Sistema istituzionale del diritto privato italiano, I, UTET, Torino, 1958, p. 484 ff.

Barbin E., Transparence administrative et documents numériques : un bilan, in La Semaine Juridique. Administrations et collectivités territoriales, 24, 2021, p. 2182.

Barenji R.V., Khoshgoftar S., Agentic AI for Autonomous Anomaly Management in Complex Systems, available at arXiv, 21 July 2025, p. 12.

Barredo Arrieta A., Díaz-Rodríguez N., Del Ser J., Bennetot A., Tabik S., Barbado A., Garcia S., Gil-Lopez S., Molina D., Benjamins R., Chatila R., Herrera F., Explainable Artificial Intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI, in Information Fusion, 58, 2020, p. 87.

Bartolini A., Invalidità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 740.

Bartolini A., La nullità del provvedimento nel rapporto amministrativo, Giappichelli, Torino, 2002.

Basilico A., Il principio di imparzialità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. I. Principi, Giuffrè, Milano, 2025, p. 83 ff.

Bassi F., Brevi note sull'eccesso di potere per difetto di motivazione, in Aa.Vv., Studi per Mario Nigro, Giuffrè, Milano, 1991, p. 68.

Bathaee Y., The Artificial Intelligence Black Box and the Failure of Intent and Causation, in Harvard Journal of Law & Technology, vol. 31, no. 2, 2018, pp. 889-938.

Bayern S., The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems, in European Journal of Risk Regulation, 2, 2016, p. 297, 302.

Beck J., Burri T., From 'human control' in international law to 'human oversight' in the new EU Act on artificial intelligence, in G. Mecacci, D. Amoroso, L. Cavalcante Siebert, D. Abbink, J. van den Hoven, F. Santoni de Sio (eds.), Research Handbook on Meaningful Human Control of Artificial Intelligence Systems, Edward Elgar Publishing, Cheltenham, 2024, pp. 104-130.

Bekker S., Fundamental Rights in Digital Welfare States: the Case of SyRI in the Netherlands, in O. Spijkers, W.G. Werner, R.A. Wessel (eds.), Netherlands yearbook of international law 2019, T.M.C. Asser Press, The Hague, 2021, pp. 289-307.

Belcak P., Heinrich G., Diao S., Fu Y., Dong X., Muralidharan S., Lin Y.C., Molchanov P., Small Language Models are the Future of Agentic AI, arXiv, 15 September 2025, pp. 3-4, 7.

Bellei A., L'accesso documentale, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, pp. 536-537, 541.

Bellisario E., Il pacchetto europeo sulla responsabilità per danni da prodotti e da intelligenza artificiale. Prime riflessioni sulle proposte della commissione, in Danno e Responsabilità, 2, 2023, pp. 153-166.

Bellogín A., Giudici P., Larsson S., Pang J., Schimpf G., Sengupta B., Solmaz G., Systemic Risks Associated with Agentic AI: A Policy Brief, in ACM Europe TPC – Autonomous Systems Subcommittee, 2025, pp. 4-5.

Bellomia S., Il diritto di accesso ai documenti amministrativi e i suoi limiti, Giuffrè, Milano, 2000.

Benanti P., Human in the loop. Human decisions and artificial intelligence, Mondadori, Milano, 2022.

Bensoussan A., Bensoussan J., Bensoussan-Brulé V., Le règlement européen sur l'intelligence artificielle, Larcier, Bruxelles, 2025.

Bent B., The Term 'Agent' Has Been Diluted Beyond Utility and Requires Redefinition, in E. Burton, N. Mattei, A. Páez (eds.), Proceedings of the Eighth AAAI/ACM Conference on AI, Ethics, and Society (AIES 2025), The AAAI Press, Washington, 2025, p. 404.

Benvenuti F., Eccesso di potere per vizio della funzione, in Rassegna di diritto pubblico, 1950, p. 1 ff.

Berg J., Of Elephants and Embryos: A Proposed Framework for Legal Personhood, in Hastings Law Journal, 59(2), 2007, pp. 369-406.

Bergonzini G., Difetto di motivazione del provvedimento amministrativo ed eccesso di potere (a dieci anni dalla legge n. 241 del 1990), in Diritto amministrativo, 2000, p. 292.

Bertonazzi L., Il trattamento processuale dell'incompetenza e dei vizi ad essa assimilati, in P.A. Persona e Amministrazione, 1, 2018, pp. 17-31.

Bertolino C., La delega di funzioni amministrative: alla ricerca delle ragioni di 'abbandono' dell'istituto, in Le Regioni, 2019.

Betti E., Teoria generale del negozio giuridico, UTET, Torino, 1952, p. 473 ff.

Bianca C.M., Diritto civile. La responsabilità, vol. 5, Giuffrè, Milano, 1994, p. 647.

Bianca C.M., Diritto civile. La responsabilità, vol. 5, Giuffrè, Milano, 2000, p. 149 ff.

Biasi M., L'algoritmo di Deliveroo sotto la lente del diritto antidiscriminatorio...e del relativo apparato rimediale, in Argomenti di diritto del lavoro, 3, 2021, pp. 780-791.

Bishop C., Pattern Recognition and Machine Learning, Springer, New York, 2006, p. 3, 241.

Black S., Biderman S., Hallahan E., Anthony Q., Gao K., Golding K., He H., Leahy C., McDonell K., Phang J., Pieler M., Sai Prashanth U.S.V.S.N., Purohit S., Reynolds L., Tow J., Wang B., Weinbach S., GPT -NeoX -20B: An Open - Source Autoregressive Language Model, available at arXiv, 14 April 2022.

Bocchini F., Azione amministrativa materiale e diritti dei cittadini, CEDAM, Padova, 2011.

Boden M.A., Artificial Intelligence: A Very Short Introduction, Oxford University Press, Oxford, 2018, p. 131.

Boix-Palop A., Algorithms as Regulations: Considering Algorithms, when Used by the Public Administration for Decision-making, as Legal Norms in order to Guarantee the proper adoption of Administrative Decisions, in European Review of Digital Administration & Law, 1-2, 2020, p. 83.

Bonetti T., Partecipazione, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 511.

Boonstra L., Prompt Engineering, available at Kaggle, February 2025.

Boos A.K., Conceptualizing Automated Decision-Making in Organisational Contexts, in Philosophy & Technology, 37:92, 2024, pp. 1-30.

Boscarato C., Who is responsible for a robot's actions? An initial examination of Italian law within a European perspective, in B. Van De Berg, L. Klaming, Technologies on the Stand: Legal and Ethical Questions in Neuroscience and Robotics, Wolf Legal Publishers, Nijmegen, 2011, pp. 393-395.

Bottari M., Procedimento amministrativo: evoluzione digitale e suoi sviluppi nell'era dell'Intelligenza artificiale, in Il Diritto Amministrativo, 20 February 2023, p. 25.

Botti V., Agentic AI and Multiagentic: Are We Reinventing the Wheel?, available at arXiv, 2 June 2025, p. 3.

Bottino G., Commento all'art. 10 bis, l. n. 241/1990, in V. Italia (ed.), L'azione amministrativa, Giuffrè, Milano, 2005, p. 394 ff.

Bottino G., Rischio e responsabilità amministrativa, Editoriale Scientifica, Napoli, 2017.

Botto G., Decisione algoritmica, discrezionalità e sindacato del giudice amministrativo, in federalismi.it, 17, 2024, p. 15.

Bourcier D., Modéliser la décision administrative, in J. Chevallier, G.J. Guglielmi, D. Lochak, Y. Poirmeur, E. Fayet, M.C. Kessler, F. Dubois, M. Enguéléguélé, G. Lefèvre, M. Loiselle, B. Mercuzot, D. Menna, N. Decoopman, M. Bachir-Benlahsen, D. Bourcier, Le droit administratif en mutation, PUF, Paris, 1993, p. 272.

Bousetouane F., Agentic Systems: A guide to Transforming Industries with Vertical AI Agents, available at arXiv, 1 January 2025, p. 10 ff.

Bovens M., The Quest for Responsibility: Accountability and Moral Agency in Organizations, Cambridge University Press, Cambridge, 1998.

Bracci E., The loopholes of algorithmic public services: an "intelligent" accountability research agenda, in Accounting, Auditing & Accountability Journal, 36(2), 2023, pp. 746-748.

Bravo F., Access to Source Code of Proprietary Software Used by Public Administrations for Automated Decision-making. What Proportional Balancing of Interests?, in A. Barone, A.G. Orofino, J.V. Torrijos (eds.), The

Use of Artificial Intelligence by Public Administration (ERDAL), Aracne, Roma, 2020, p. 160, 164, 165.

Bravo F., Trasparenza del codice sorgente e decisioni automatizzate, in Diritto dell'informazione e dell'informatica, 4-5, 2020, p. 723.

Briani R., L'istruzione probatoria nel processo amministrativo. Una lettura alla luce dell'art. 111 della Costituzione, Giuffrè, Milano, 2013.

Briccarello M., Chat GPT vince la gara e il giudizio, in italiAppalti, 20 May 2025.

Brkan M., Palčič Vilfan H., Article 86 – Right to explanation of individual decision-making, in C.N. Pehlivan, N. Forgó, P. Valcke (eds.), The EU Artificial Intelligence (AI) Act: A Commentary, Wolters Kluwer Law International, Alphen aan den Rijn, 2024, pp. 1195-1215.

Brożek B., Furman M., Jakubiec M., Kucharzyk B., The black box problem revisited. Real and imaginary challenges for automated legal decision making, in Artificial Intelligence and Law, 4 April 2023, pp. 1-14.

Bryson J.J., Diamantis M.E., Grant T.D., Of, for, and by the people: the legal lacuna of synthetic persons, in Artificial Intelligence and Law, 25(3), 2017, p. 289.

Buchanan B.G., Shortliffe E.H. (eds.), Rule-Based Expert Systems: The MYCIN Experiments of the Stanford Heuristic Programming Project, Addison-Wesley, Boston, 1984.

Buijsman S., Klenk M., van den Hoven J., Ethics of AI, in N.A. Smuha (ed.), The Cambridge Handbook of The Law, Ethics and Policy of Artificial Intelligence, Cambridge University Press, Cambridge, 2025, p. 61.

Bullock J., Artificial Intelligence, Discretion, and Bureaucracy, in American Review of Public Administration, 2019, p. 6.

Bullock J., Young M.M., Wang Y.F., Artificial intelligence, bureaucratic form, and discretion in public service, in Information Polity, 25(4), 2020, pp. 4-5.

Burelli C., Il gold plating e l'armonizzazione "spontanea", due tecniche legislative a confronto, in Riv. Ital. Dir. Pubbl. Comunitario, 5-6, 2022, pp. 617-689.

Burkov A., The Hundred-page Machine Learning Book, Andriy Burkov, Quebec, 2019, p. 19.

Burrell J., How the machine 'thinks': Understanding opacity in machine learning algorithms, in Big Data & Society, January-June 2016, p. 10.

Bussani M., Colpa e responsabilità della P.A. nella lesione di interessi legittimi, in Eur. dir. priv., 2002, p. 452.

Cacciavillani C., La risoluzione delle questioni di giurisdizione, in F.G. Scoca (ed.), Giustizia amministrativa, Giappichelli, Torino, 2023, pp. 510-530.

Cafagno M., La tutela risarcitoria degli interessi legittimi. Fini pubblici e reazioni di mercato, Giuffrè, Milano, 1996.

Calderaro M.R., Il preavviso di rigetto ai tempi della semplificazione amministrativa, in federalismi.it, 11, 2022, pp. 126-157.

Cammeo F., Gli atti amministrativi e l'obbligo di motivazione, in Giurisprudenza Italiana, 1908, III, p. 253 ff.

Cammelli M., Delega amministrativa, in Enciclopedia giuridica, vol. X, Roma, 1988, p. 1 ff.

Campbell C., Smith D., Distinguishing Between Direct and Indirect Discrimination, in The Modern Law Review, 86(2), 2023, pp. 307-330.

Canale A., Centrone D., Freni F., Smiroldo M. (eds.), La Corte dei Conti, Giuffrè, Milano, 2022, *passim*.

Canale A., L'elemento soggettivo della responsabilità amministrativa, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), La Corte dei Conti, Giuffrè, Milano, 2022, p. 137.

Canalini V., L'algoritmo come "atto amministrativo informatico" e il sindacato del giudice, in Giornale di diritto amministrativo, 6, 2019, pp. 781-787.

Canbek G., Gaining insights in datasets in the shade of "garbage in, garbage out" rationale: Feature space distribution fitting, in WIREs Data Mining and Knowledge Discovery, 3, 2022, pp. 1-18.

Cannada Bartoli E., A proposito di tutela della riservatezza e trasparenza amministrativa, in Diritto processuale amministrativo, 1999, p. 725 ff.

Capaccioli E., Interessi legittimi e risarcimento dei danni, in Diritto e processo. Scritti vari di diritto pubblico, Cedam, Padova, 1978, p. 111 ff.

Capaccioli E., Manuale di diritto amministrativo, CEDAM, Padova, 1980.

Caponigro R., Il principio di effettività della tutela nel codice del processo amministrativo, in www.giustizia-amministrativa.it, 2010.

Cappellazzo N., Algoritmi, automazione e macchinismi di intelligenza artificiale: la classificazione proposta dal Consiglio di Stato, in federalismi.it, 23 March 2022.

Caputi G., Art. 100. Requisiti di ordine speciale, in A. Botto, S. Castrovinci Zenna (eds.), Commentario alla normativa sui contratti pubblici, Giappichelli, Torino, 2024, pp. 913-921.

Caputo O.M., Preavviso di diniego, osservazioni e difetto di specifica confutazione. Natura del vizio, in Urbanistica e appalti, 2009, p. 357 ff.

Caracciolo La Grotteria E., La consulenza tecnica d'ufficio e il sindacato del giudice amministrativo, Edizioni Scientifiche Italiane, Napoli, 2008.

Caracciolo La Grotteria E., Osservazioni sull'applicazione della consulenza tecnica di ufficio nel processo amministrativo, in Il Foro amministrativo – C.d.S., 2004.

Caranta R., L'inesistenza dell'atto amministrativo, Giuffrè, Milano, 1990.

Caranta R., La responsabilità extracontrattuale delle pubbliche amministrazioni, Giuffrè, Milano, 1993.

Carbone A., Poteri e situazioni giuridiche soggettive nel diritto amministrativo, vol. 1, Giappichelli, Torino, 2020, p. 361.

Carbone A., Bellesini C., Riparto di giurisdizione e controversie di diritto pubblico, in V. Cerulli Irelli (ed.), La giustizia amministrativa in Italia e in Germania. Contributi per un confronto, Giuffrè, Milano, 2017, pp. 31-75.

Cardarelli F., La motivazione del provvedimento, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 397.

Cardi E., Cognetti S., Eccesso di potere (atto amministrativo), in Digesto delle discipline pubblicistiche, Utet, Torino, 1990, p. 341 ff.

Caringella F., Garofoli R., Sempreviva M.T., L'accesso ai documenti amministrativi, Giuffrè, Milano, 2007.

Carlini N., Tramèr F., Wallace E., Jagielski M., Herbert-Voss A., Lee K., Roberts A., Brown T., Song D., Erlingsson U., Oprea A., Raffel C., Extracting Training Data from Large Language Models, in USENIX Security Symposium, USENIX Association, 2021, pp. 2633-2650.

Carloni E., Il paradigma trasparenza. Amministrazioni, informazione, democrazia, Il Mulino, Bologna, 2022.

Carloni E., L'amministrazione aperta. Regole strumenti limiti dell'open government, Rimini, Maggioli, 2014.

Carloni E., Verso il paradigma fiduciario? Il principio della fiducia nel nuovo codice dei contratti e le sue implicazioni, in Diritto Pubblico, 1, 2024, pp. 131-162.

Carlotti G., Domanda, principio dispositivo e istruzione, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 69, 89-91.

Carnat I., Intelligenza artificiale e responsabilità civile, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, pp. 680-681.

Carullo G., Decisione amministrativa e intelligenza artificiale, in Diritto dell'informazione e dell'informatica, 3, 2021, pp. 435-436, 446.

Carullo G., Large Language Models for Transparent and Intelligible AI-Assisted Public Decision-Making, in CERIDAP, 3, 2023, p. 16.

Casetta E., L'illecito degli enti pubblici, Giappichelli, Torino, 1953 (reprint version 2023).

Casetta E., Fracchia F. (eds.), Manuale di diritto amministrativo, Giuffrè, Milano, 2024, *passim*.

Casper S., Bailey L., Hunter R., Ezell C., Cabalé E., Gerovitch M., Slocum S., Wei K., Jurkovic N., Khan A., Christoffersen P., Pinar Ozisik A., Trivedi R., Hadfield-Menell D., Kolt N., The AI Agent Index, available at arXiv, 3 February 2025, p. 3.

Cassano G., Tripodi E.M. (eds.), Il Regolamento Europeo sull'Intelligenza Artificiale. Commento al Reg. UE n. 1689/2024, Maggioli, Rimini, 2024.

Cassatella A., Il dovere di motivazione discorsiva degli atti amministrativi, in Giornale di diritto amministrativo, 4, 2011, pp. 401-411.

Cassatella A., Il dovere di motivazione nell'attività amministrativa, Wolters Kluwer, Milano, 2013, *passim*.

Castellano P.S., Risk Management Systems as a Specific Obligation for High-Risk Artificial Intelligence Systems in Article 9 of the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act. A Systematic Commentary, Editoriale Scientifica, Napoli, 2025, pp. 567-594.

Castillo Parrilla J.A., General-Purpose Artificial Intelligence, Foundational Models (and "GPT-Chat") in the Artificial Intelligence Act, in L. Cotino Hueso, D.U.

Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 801-824.

Castronovo C., L'interesse legittimo varca la frontiera della responsabilità civile, in Eur. dir. priv., 1999, p. 1264 ff.

Cauduro A., Gli obblighi dell'amministrazione pubblica per la partecipazione procedimentale, Jovene, Napoli, 2023, p. 111 ff.

Cauduro A., Il diritto di accesso a dati e documenti amministrativi come promozione della partecipazione: un'innovazione limitata, in Diritto amministrativo, 2017, p. 601 ff.

Cavalieri G., La nullità nel diritto amministrativo, Giappichelli, Torino, 2022.

Cavallaro M.C., Atto amministrativo illegittimo: un caso di responsabilità contrattuale?, in Riv. Giur. Ed., 2002, p. 909 ff.

Cavallaro M.C., Gli elementi essenziali del provvedimento amministrativo. Il problema della nullità, Giappichelli, Torino, 2012.

Cavallaro M.C., Potere amministrativo e responsabilità civile, Giappichelli, Torino, 2004.

Cavallaro M.C., Smorto G., Decisione pubblica e responsabilità dell'amministrazione nella società dell'algoritmo, in federalismi.it, 16, 2019, pp. 11-12.

Cavallo Perin R., La responsabilità della pubblica amministrazione al tempo dell'intelligenza artificiale, in Diritto amministrativo, 4, 2024, p. 1076.

Cavallo Perin R., Violazione di legge (atto amministrativo), in Digesto delle discipline pubblicistiche, UTET, Torino, 1999, p. 657 ff.

Cereda S., Il concetto di algoritmo in una recente sentenza del Consiglio di Stato, in MediaLaws, 3, 2022, pp. 296-300.

Cerrato S.A., Grossi L., Elementi fondamentali di responsabilità amministrativo-contabile e danno erariale, Giappichelli, Torino, 2021.

Cerrillo i Martínez A., Article 50 of the AI Act and the transparency obligations for providers and deployers of certain Artificial Intelligence systems, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 841-863.

Cerulli Irelli V., Il problema del riparto delle giurisdizioni. Premesse allo studio del sistema vigente, Italica, Pescara, 1979.

Cerulli Irelli V., Invalidità ed inesistenza degli atti amministrativi e delle leggi (prime osservazioni), in Diritto pubblico, 1, 2015, p. 203 ff.

Cerulli Irelli V., La nuova legge sul procedimento amministrativo, in G. Sciullo (ed.), Le nuove regole dell'azione amministrativa, Bononia University Press, Bologna, 2007, p. 12.

Cerulli Irelli V., Luciani F., Invalidità e inesistenza degli atti amministrativi e delle leggi, in Aa.Vv. (eds.), Studi in memoria di Antonio Romano Tassone, vol. I, Editoriale Scientifica, Napoli, 2018, p. 577 ff.

Chan A., Ezell C., Kaufmann M., Wei K., Hammond L., Bradley H., Bluemke E., Rajkumar N., Krueger D., Kolt N., Heim L., Anderljung M., Visibility into AI Agents, in FAccT '24: Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency, 2024, p. 958 ff.

Chan C.M., Xu C., Yuan R., Luo H., Xue W., Guo Y., Fu J., RQ-RAG: Learning to Refine Queries for Retrieval Augmented Generation, available at arXiv, 21 March 2024, pp. 1-18.

Chandra R., Sanjaya K., Aravind A.R., Abbas A.R., Gulrukh R., Senthil Kumar T.S., Algorithmic Fairness and Bias in Machine Learning Systems, in E3S Web of Conference, 399, 2023, p. 2.

Chatzikyriakidis S., Reasoning with RAGged events: RAG-Enchanced Evenet Knowledge Base Construction and reasoning with proof-assistants, available at arXiv, 23 August 2025, p. 3.

Chaveli Donet E., The Fundamental Rights Impact Assessment by Deployers of Artificial Intelligence Systems in the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 523-566.

Chen Q., Wang B., Valuable Hallucinations: Realizable Non-Realistic Propositions, available at arXiv, 18 February 2025, p. 6.

Chen Y., Zhao J., Han H.H., A Survey on Collaborative Mechanisms Between Large and Small Language Models, available at arXiv, 12 May 2025, p. 4.

Cheong B.G., The Rise of AI Avatars: Legal Personhood, Rights and Liabilities in an Evolving Metaverse, in Journal of Digital Technologies and Law, 2(4), 2024, pp. 867-870.

Chiappiniello V., I vizi del provvedimento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 233-235.

Chiappiniello V., La nullità del provvedimento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 246-247.

Chiarella C., Corbinelli F., Algoritmo non trasparente e mobilità illegittima: condannata l'Amministrazione scolastica, in Altalex, 20 August 2025.

Chieppa R., L'evoluzione della responsabilità della pubblica amministrazione nell'ordinamento italiano, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 44 ff.

Chieppa R., La trasparenza come regola della pubblica amministrazione, in Diritto dell'economia, 1994, p. 613 ff.

Chikofsky E.J., Cross II J.H., Reverse Engineering and Design Recovery: A Taxonomy, in IEEE Software, 7, 1, 1990, p. 15.

Chiovenda G., Principii di diritto processuale civile, Jovene, Napoli, 1912 (1923), p. 81.

Chirulli P., La comunicazione dei motivi ostativi all'accoglimento dell'istanza dopo i "decreti semplificazioni", in Rivista giuridica di urbanistica, 2022, pp. 104-115.

Chirulli P., La partecipazione al procedimento (artt. 7 e 8 l. n. 241 del 1990 s.m.i.), in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, pp. 399-411.

Chirulli P., Tuccillo S., Il preavviso di rigetto (art. 10-bis l. n. 241 del 1990 s.m.i), in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, pp. 413-442.

Chiti M.P., Palma G. (eds.), I principi generali dell'azione amministrativa, Napoli, 2006.

Chopra S., White L.F., A Legal Theory for Autonomous Artificial Agents, The University Michigan Press, Ann Arbor, 2011, p. 154.

Cimini S., La colpa nella responsabilità civile delle Amministrazioni pubbliche, Giappichelli, Torino, 2008.

Cirillo G.P., La giurisdizione sull'azione risarcitoria autonoma a tutela dell'affidamento sul provvedimento favorevole annullato e l'interesse alla stabilità dell'atto amministrativo, in Il Foro amministrativo, 7/8, 2016, pp. 1991-2011.

Citraro T., Nullità dell'atto amministrativo, in Digesto delle Discipline Pubblicistiche, 2008, § 3.

Civitarese Matteucci S., La forma presa sul serio. Formalismo pratico, azione amministrativa ed illegalità utile, Giappichelli, Torino, 2024, p. 162.

Civitarese Matteucci S., Modalità e contenuti della comunicazione di avvio del procedimento, in N. Paolantonio, A. Police, A. Zito (eds.), La pubblica amministrazione e la sua azione, Giappichelli, Torino, 2005, pp. 201-211.

Civitarese Matteucci S., Umano troppo umano. Decisioni amministrative automatizzate e principio di legalità, in Diritto pubblico, 1, 2019, p. 28.

Clarich M., Diritto di accesso e tutela della riservatezza: regole sostanziali e tutela processuale, in Diritto processuale amministrativo, 1996, p. 444 ff.

Clarich M., Il preavviso di provvedimento negativo, in G. Sciullo (ed.), Le nuove regole dell'azione amministrativa, BUP, Bologna, 2006, p. 49 ff.

Clarich M., Manuale di diritto amministrativo, Il Mulino, Bologna, 2017, p. 174.

Clarizia P., La nozione di algoritmo "tecnologico" secondo una recente decisione del Consiglio di Stato, in IRPA, 13 January 2022.

Cluzel-Métayer L., Le contrôle juridictionnel embryonnaire des processus décisionnels algorithmiques, in Collectif L'action publique et le numérique, 47, 2021, p. 75.

Cluzel-Métayer L., le droit de l'intelligence artificielle, Dalloz, Paris, 2025, pp. 119-120.

Cluzel-Métayer L., Hammoudi S., Le contrôle de l'administration sur l'intelligence artificielle, in Revue Française de Droit Administratif, March-April, 2025, p. 208.

Cobbe J., Administrative law and the machines of government: judicial review of automated public-sector decision-making, in Legal Studies, 39, 2019, pp. 638-639.

Cobbe J., Lee M.S.A., Singh J., Reviewable Automated Decision-Making: A Framework for Accountable Algorithmic Systems, in FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, 2021, p. 600.

Cocconi M., Atti amministrativi generali, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 818.

Coeckelbergh M., AI Ethics, MIT Press, Cambridge, Massachusetts, 2020, p. 12, 72, 116-117.

Cognetti S., Principio di proporzionalità. Profili di teoria generale e di analisi sistematica, Giappichelli, Torino, 2011, p. 125.

Coiante A., Il Giudice amministrativo delinea le regole del (nuovo) procedimento algoritmico? Riflessioni a margine di Cons. Stato, Sez. VI, n. 8472/2019, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori del laboratorio di diritto amministrativo 2019, Roma Tre Press, Roma, 2020, pp. 129-154.

Colapietro C., Gli algoritmi tra trasparenza e protezione dei dati personali, in federalismi.it, 5, 2023, pp. 151-174.

Colavecchio A., Pignataro S., L'obbligo di provvedere e i termini per la conclusione del procedimento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, p. 83.

Collingridge D., The Social Control of Technology, Frances Pinter (Publishers) Ltd., London, 1980, p. 19.

Collobert R., Bengio S., Mariéthoz J., Torch: A Modular Machine Learning Software Library, 30 October 2022, IDIAP Research Report 02-46.

Comporti G.D., Il cittadino viandante tra insidie e trabocchetti: viaggio alla ricerca di una tutela risarcitoria praticabile, in Diritto amministrativo, 2009, p. 663 ff.

Comporti G.D., La responsabilità relazionale a tutela degli affidamenti dei cittadini, in Giur. it., 2020, p. 2538.

Consiglio di Stato, Ufficio Studi, Autorità indipendenti e sindacato giurisdizionale, in www.giustizia-amministrativa.it, 2017.

Contaldo A., Cenni sulla funzionalità dell'atto amministrativo con l'ausilio dei Sistemi Esperti, in Rivista italiana di informatica e diritto, 1, 2025, pp. 665-667.

Conte G., Di Marzio F. (directed by), Codice dei contratti, Giuffrè, Milano, 2019, pp. 2223-2224.

Corletto D., Vizi «formali» e poteri del giudice amministrativo, in Diritto processuale amministrativo, 2006, p. 33 ff.

Cormen T.H., Leiserson C.E., Rivest R.L., Stein C., Introduction to Algorithms, The MIT Press, Cambridge, Massachusetts, 2009, p. 5 ff.

Corradino M. (ed.), La riforma dei contratti pubblici, Giuffrè, Milano, 2023, p. 42.

Corrado A., Conoscere per partecipare: la strada tracciata dalla trasparenza amministrativa, Edizioni Scientifiche Italiane, Napoli, 2018.

Corrado A., Il principio di trasparenza, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. I. Principi, Giuffrè, Milano, 2025, p. 288 ff.

Corrado A., Il principio di trasparenza e i suoi strumenti di attuazione, in M.A. Sandulli (ed.), Princìpi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 188, 191, 195-196.

Corrado A., Il regime della trasparenza e dell'accesso digitale ai documenti nei contratti pubblici: vantaggi e criticità alla vigilia dell'applicazione delle nuove norme del Codice, in federalismi.it, 31, 2023, pp. 80-109.

Corrado A., L'accesso civico generalizzato, diritto fondamentale del cittadino, trova applicazione anche per i contratti pubblici: l'Adunanza plenaria del Consiglio di Stato pone fine ai dubbi interpretativi, in federalismi.it, 16, 2020, pp. 48-78.

Corrado A., La trasparenza necessaria per infondere fiducia in una amministrazione algoritmica e antropocentrica, in federalismi.it, 5, 2023, p. 212.

Corso G., L'efficacia del provvedimento amministrativo, Giuffrè, Milano, 1969, p. 65.

Corso G., Manuale di diritto amministrativo, Giappichelli, Torino, 2017, p. 349.

Corso G., Motivazione dell'atto amministrativo, *ad vocem*, in Enciclopedia del Diritto, vol. XXVII, Giuffrè, Milano, 2001, p. 774.

Costanza M., Impresa robotizzata e responsabilità, in U. Ruffolo (ed.), Intelligenza artificiale e responsabilità, Giuffrè, Milano, 2017, p. 112 ff.

Costanza M., L'Intelligenza Artificiale e gli stilemi della responsabilità civile, in Giurisprudenza Italiana, 2019, pp. 1687-1689.

Cotino Hueso L., SyRI, ¿A quién sanciono? Garantías frente al uso de la inteligencia artificial y decisions automatizadas en el sector público y la sentencia holandesa de febrero de 2020, in La Ley Privacidad, 4, 2020.

Cotino Hueso L., Galetta D.U. (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, *passim*.

Cozzio M., La trasparenza nei contratti pubblici tra significati consolidati e nuove prospettive, in Rivista italiana di diritto pubblico comunitario, 2022, p. 545 ff.

Crepaldi G., L'elemento soggettivo della responsabilità amministrativa prima e dopo il decreto semplificazioni, in Responsabilità civile e previdenza, 21, 2021, pp. 23-36.

Cudia C., Funzione amministrativa e soggettività della tutela. Dall'eccesso di potere alle regole del rapporto, Giuffrè, Milano, 2008.

D'Acquisto G., Intelligenza artificiale, Giappichelli, Torino, 2021, pp. 198-199.

D'Adda A., Risarcimento del danno (pluralità di responsabili), in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, p. 1340, 1353-1354.

Dagostino R., I mezzi di prova, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 254, 264-267.

Dalfino D., Decisione amministrativa robotica ed effetto performativo. Un beffardo algoritmo per una "buona scuola", in Questione Giustizia, 13 January 2020.

Dalli Cardillo E., I requisiti di ordine speciale (Art. 100), in G.F. Cartei, D. Iaria (eds.), Commentario al Codice dei Contratti pubblici. Dopo il correttivo, Editoriale Scientifica, Napoli, pp. 1026-1039.

D'Ambrosio F., L'elemento soggettivo dell'illecito della P.A., in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 211.

Damonte R., Bersi M., L'intelligenza artificiale e gli appalti pubblici, in italiAppalti, 30 April 2025, p. 4.

D'Angelo G., La cognizione del fatto nel processo amministrativo fra Costituzione, codice e ideologia del giudice, in C. Cudia (ed.), L'oggetto del giudizio amministrativo visto dal basso. Gli istituti processuali in evoluzione, Giappichelli, Torino, 2020, p. 265 ff.

D'Angelo G., La consulenza tecnica nel processo amministrativo fra prassi consolidate e spunti innovativi, in Il Foro amministrativo - T.A.R., 2, 2005, p. 579 ff.

Danks D., Governance Via Explainability, in J.B. Bullock, Y.C. Chen, J. Himmelreich, V.M. Hudson, A. Korinek, M.M. Young, B. Zhang (eds.), The Oxford Handbook of AI Governance, Oxford University Press, New York, 2025, p. 185.

Danks D., London A.J., Algorithmic Bias in Autonomous Systems, in C. Sierra (ed.), Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI-17), 2017, pp. 4691-4967.

D'Arienzo M., Brevi note sull'applicabilità dell'art. 21-octies, comma 2, l. 241/1990 al preavviso di rigetto alla luce della recente giurisprudenza amministrativa, in giustamm.it, 2021.

Davidson D., Actions, reasons, and causes, in The Journal of Philosophy, 60, 23, 1963, pp. 685-700.

De Acutis M., La solidarietà nella responsabilità civile, in Rivista di diritto civile, 1977, p. 525 ff.

De Bruyne J., Dheu O., Ducuing C., The European Commission's approach to extra-contractual liability and AI – An evaluation of the AI liability directive and the revised product liability directive, in Computer Law & Security Review, 51, 2023, pp. 1-20.

de Caria R., Generative AI and Non-discrimination Law in the EU, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, Cambridge University Press, Cambridge, 2025, pp. 221-236.

De Carolis D., La "forma" e la "sostanza" della comunicazione dell'avvio del procedimento, in S. Civitarese Matteucci, G. Gardini (eds.), Dal procedimento amministrativo all'azione amministrativa, Bologna, 2004, p. 110 ff.

Deck L., Müller J.L., Braun C., Zipperling D., Kühl N., Implications of the AI for Non-Discrimination Law and Algorithmic Fairness, in EWAF'24: European Workshop on Algorithmic Fairness, July 01-03, 2024, Mainz, Germany.

De Cupis A., Il danno. Teoria generale della responsabilità civile, Giuffrè, Milano, 1979, p. 277 ff.

Della Scala M.G., Diritto di accesso agli atti di un soggetto privato. Profili sostanziali e processuali. Osservazioni a margine dell'adunanza plenaria n. 5 del 2005, in Foro amministrativo – CdS, 5, 2006, p. 769 ff.

Della Scala M.G., Onere della prova e poteri acquisitivi nel processo amministrativo. Il divieto di nova in appello e il requisito della "indispensabilità", in Il processo, 3, 2021, p. 521 ff.

Della Torre J., Le decisioni algoritmiche all'esame del Consiglio di Stato, in Rivista di diritto processuale, 2, 2021, pp. 713-733.

Delle Cave G., I desiderata "privatistici" della P.A.: sulla nozione di algoritmo e I.A. nelle forniture di dispositivi medici ad alto tasso di automazione, in italiAppalti, 15 January 2022.

De Mari Casareto dal Verme T., La nuova direttiva sulla responsabilità da prodotto difettoso: riflessioni sulla distribuzione del rischio nella filiera digitale, in Accademia, 9, 2025, pp. 933-957.

De Petris P., Il potenziale discriminatorio multifattoriale dell'algoritmo di Glovo: il diritto antidiscriminatorio impone un ripensamento dei modelli organizzativi delle piattaforme digitali?, in Rivista di Diritto Antidiscriminatorio, 3-4, 2024, pp. 366-378.

de Streel A., Bibal A., Frenay B., Lognoul M., Explaining the Black Box: When Law Controls AI, in cerre.eu, 2020.

de Vincenzi R., Sul principio di non contestazione nel processo amministrativo, in Rivista di diritto processuale, 6, 2017, p. 1492 ff.

Diaco D., Amministrazione umana vs Amministrazione algoritmica: prolegomeni su un modello procedimentale a partecipazione successiva, in Judicium, 10 November 2023, p. 8.

Diaco D., Brevi riflessioni sulla natura giuridica del software (a partire da TAR Lazio, sez. III-bis, n. 8384/2023), in Giustizia Insieme, 26 July 2023.

Di Capua V., Danno da lesione dell'affidamento incolpevole e riparto di giurisdizione: l'Adunanza plenaria aggiunge un altro capitolo alla saga, Diritto processuale amministrativo, 2022, pp. 679-705.

Di Ciommo I.P., La prospettiva del controllo nell'era dell'Intelligenza Artificiale: alcune osservazioni sul modello Human In The Loop, in federalismi.it, 19 April 2023, pp. 68-90.

Di Giacomo L., L'intelligenza artificiale negli appalti pubblici: la sentenza TAR Lazio n. 4546/2025, in Diritto.it, 2 May 2025.

Di Martino A., Intelligenza artificiale, garanzie dei privati e decisioni amministrative: l'apporto umano è ancora necessario? Riflessioni a margine di Cons. Stato 8 aprile 2019, n. 2270, in Rivista giuridica europea, 2, 2019, pp. 47-73.

Di Martino A., L'amministrazione per algoritmi ed i pericoli del cambiamento in atto, in Il diritto dell'economia, 3, 2020, p. 625 ff.

Di Martino A., Tecnica e potere nell'amministrazione per algoritmi, Editoriale Scientifica, Napoli, 2023, *passim*.

Dimichina F., Brevi considerazioni sul tema del sindacato del giudice amministrativo sugli atti della Banca d'Italia, in P.A. Persona E Amministrazione, 8(1), 2021, pp. 471-493.

Di Stefano G., Sessa A.A., ChatGPT nelle gare pubbliche: il TAR Lazio legittima l'impiego dell'IA generativa [sentenza n. 4546/2025], in Diritto di Internet, 15 May 2025.

Domingos P., A few useful things to know about machine learning, in Communications of the ACM, 55(10), 2012, pp. 78-87.

D'Orsogna M., Il problema della nullità in diritto amministrativo, Giuffrè, Milano, 2004.

Drozdowski P., Rathgeb C., Dantcheva A., Damer N., Busch C., Demographic Bias in Biometrics: A Survey on an Emerging Challenge, in IEEE Transactions on Technology and Society, 1(2), 2020, p. 90.

Duan Y., Edwards J.S., Dwivedi Y.K., Artificial intelligence for decision making in the era of big data – Evolution, challenges and research agenda, International Journal of Information Management, 48, 2019, pp. 63-71.

Duan Y., Edwards J.S., Xu M.X., Web-based expert systems: benefits and challenges, in Information & Management, vol. 42, n. 6, 2005, pp. 799-811.

Duclercq J.B., L'automatisation algorithmique des decisions administratives individuelles, in Revue du Droit Public, 2, 2019, p. 311.

Duni G., L'utilizzabilità delle tecniche elettroniche nell'emanazione degli atti e nei procedimenti amministrativi. Spunto per una teoria dell'atto emanato nella forma elettronica, in Rivista amministrativa della Repubblica Italiana, 1978, VI, p. 407 ff.

Duni G., Lo Stato e la responsabilità patrimoniale, Giuffrè, Milano, 1968.

Durante N., I vizi formali del procedimento, alla luce del decreto-legge "Semplificazioni" e delle recenti pronunce dell'Adunanza Plenaria, Rivista della Corte dei conti, 6, 2020, p. 62 ff.

Durante N., Intelligenza artificiale e "lavoro" del giudice amministrativo, in www.giustizia-amministrativa.it, 2024, p. 3, 8.

Durante N., La discrezionalità amministrativa ed i vizi del procedimento amministrativo, nell'epoca dell'intelligenza artificiale, in www.giustizia-amministrativa.it, 2024, p. 8.

Duranti F.S., I "poteri acquisitivi" del consulente tecnico: l'istruttoria processuale tra onere probatorio delle parti ed evoluzioni giurisprudenziali: nota a Cons. Stato, n. 448 del 13 gennaio 2023, in Diritto processuale amministrativo, 1, 2024, pp. 194-212.

Ebers M., Krõõt Tupay P., Artificial Intelligence and Machine Learning Powered Public Service Delivery in Estonia, Springer, Cham, 2023, pp. 104-105, 171.

Eleuther AI, Announcing GPT-NeoX-20B, 2 February 2022, https://blog.eleuther.ai/announcing-20b/.

Elish M.C., Moral Crumple Zones: Cautionary Tales in Human-Robot Interaction, in Engaging Science, Technology, and Society, 5, 2019, pp. 40-60.

Ellis G., So, What Are Cognitive Biases?, in G. Ellis (ed.), Cognitive Biases in Visualizations, Springer, Cham, 2018, p. 2.

Enarsson T., Enqvist L., Naarttijärvi M., Approaching the human in the loop - legal perspectives on hybrid human/algorithmic decision-making in three contexts, in Information & Communications Technology Law, 31, 1, 2022, pp. 123-153.

Engelfriet A., The Annotated AI Act. 2025/26 Edition, ICTRecht, Amsterdam, 2025.

Enqvist L., 'Human oversight' in the EU artificial intelligence act: what, when and by whom?, in Law, Innovation and Technology, 2(15), 2023, pp. 508-535.

Estrella Gutiérrez David M., Transparency and Provision of Information to Deployers in Article 13 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, p. 674, 686, 690.

Etscheid J., Artificial Intelligence in Public Administration. A Possible Framework for Partial and Full Automation, in I. Lindgren, M. Janssen, H. Lee, A. Polini, M.P. Rodríguez Bolívar, H. Jochen Scholl, E. Tambouris (eds.), Electronic Government. 18th IFIP WG 8.5 International Conference, EGOV 2019, Springer, Cham, 2019, p. 250.

Ettinger A., Bertsch A., Kuehl B., Graham D., Heineman D., Groeneveld D., Brahman F., Timbers F., Ivison H., Morrison J., Poznanski J., Lo K., Soldaini L., Jordan M., Chen M., Noukhovitch M., Lambert N., Walsh P., Dasigi P., Berry R., Malik S., Shah S., Geng S., Arora S., Gupta S., Anderson T., Xiao T., Murray T., Romero T., Graf V., Asai A., Bhagia A., Wettig A., Liu A., Rangapur A., Anastasiades C., Huang C., Schwenk D., Trivedi H., Magnusson I., Lochner J., Liu J., Miranda L. J. V., Sap M., Morgan M., Schmitz M., Guerquin M., Wilson M., Huff R., Le Bras R., Xin R., Shao R., Skjonsberg S., Shen S. Z., Li S. S., Wilde T., Pyatkin V., Merrill W., Chang Y., Gu Y., Zeng Z., Sabharwal A., Zettlemoyer L., Koh P. W., Farhadi A., Smith N. A., Hajishirzi H., Olmo 3, available at arXiv, 15 December 2025.

Fabri A., Alcune questioni sul c.d. preavviso di rigetto, in Diritto e processo amministrativo, 2014, p. 661 ff.

Fagbohun O., Harrison R.M., Dereventsov A., An Empirical Categorization of Prompting Techniques for Large Language Models: A Practitioner's Guide, available at arXiv, 18 February 2024.

Faioli M., Discriminazioni digitali e tutela giudiziaria su iniziativa delle organizzazioni sindacali, in Diritto delle relazioni industriali, 1, 2021, pp. 204-214.

Falcon G., Lezioni di diritto amministrativo, CEDAM, Padova, 2024, p. 42.

Falcon G., Lezioni di diritto amministrativo, I, L'attività, CEDAM, Padova, 2005, p. 156.

Fanti V., La «nuova» comunicazione nel procedimento amministrativo, in Urbanistica e appalti, 2005, pp. 1252-1261.

Fantigrossi U., Automazione e pubblica amministrazione. Profili giuridici, Il Mulino, Bologna, 1993.

Fantini S., Il preavviso di rigetto come garanzia "essenziale" del cittadino e come norma sul procedimento, in Urbanistica e appalti, 2007, p. 1388 ff.

Fasano G., Le decisioni automatizzate nella pubblica amministrazione: tra esigenze di semplificazione e trasparenza algoritmica, in MediaLaws, 3, 2019, pp. 234-241.

Fazio G., La delega amministrativa e i rapporti di delegazione, Giuffrè, Milano, 1964.

Feigenbaum E.A., Buchanan B.G., Lederberg J., On Generality and Problem Solving: A Case Study Using the DENDRAL Program, in Machine Intelligence, vol. 6, 1971, pp. 165-190.

Ferrara E., The Butterfly Effect in artificial intelligence systems: Implications for AI bias and fairness, in Machine Learning with Applications, 15, 2024, p. 3.

Ferrara F., La teoria del negozio illecito nel diritto civile italiano, Edizioni Scientifiche Italiane, Napoli, 1914, p. 17 ff.

Ferrara L., Attualità del giudice amministrativo e unificazione delle giurisdizioni: annotazioni brevi, in Diritto pubblico, 2, 2014, pp. 561-582.

Ferrara L., Diritti soggettivi ad accertamento amministrativo, CEDAM, Padova, 1996.

Ferrara L., La comunicazione dei motivi ostativi all'accoglimento dell'istanza nel riformato quadro delle garanzie procedimentali, in A. Romano, E. Casetta,

F.G. Scoca (eds.), Studi in onore di Leopoldo Mazzarolli. Attività, organizzazione, servizi, vol. II, CEDAM, Padova, 2007, p. 83 ff.

Ferrara L., La preclusione procedimentale dopo la novella del preavviso di diniego: alla ricerca di un modello di rapporto e di giustizia, in Diritto amministrativo, 3, 2021, pp. 573-585.

Ferrara R., Il giudice amministrativo e gli algoritmi. Note estemporanee a margine di un recente dibattito giurisprudenziale, in Diritto Amministrativo, 4, 2019, pp. 773-792.

Ferrari G., Madeo E., Manuale di contabilità pubblica, Giuffrè, Milano, 2019, p. 230.

Ferrer X., van Nuenen T., Such J.M., Coté M., Criado N., Bias and Discrimination in AI: A Cross-Disciplinary Perspective, in IEEE Technology and Society Magazine, 40(2), 2021, pp. 72-73.

Ferri F. (ed.), L'Unione europea e la nuova disciplina sull'intelligenza artificiale: questioni e prospettive, Editoriale Scientifica, Napoli, 2024.

Fichera F., Funzioni amministrative e altre funzioni pubbliche, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, pp. 33-34.

Fichera F., La motivazione, in F. Caringella, R. Chieppa, B.G. Mattarella (eds.), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 664, 670, 688.

Filicetti C., Sulla definizione di algoritmo (nota a Consiglio di Stato, Sezione Terza, 25 novembre 2021, n. 7891), in Giustizia insieme, 8 February 2023.

Filippi M., Il principio dell'affidamento nei confronti della pubblica amministrazione: riflessi sul riparto tra le giurisdizioni alla luce degli orientamenti della giurisprudenza, in Giustizia Insieme, 11 February 2021.

Finck M., Automated Decision-Making and Administrative Law, in P. Cane, H.C.H. Hofmann, E.C. Ip, P.L. Lindseth (eds.), The Oxford Handbook of Comparative Administrative Law, Oxford University Press, Oxford, 2021, p. 664.

Fink M., Finck M., Reasoned A(I)dministration: Explanation Requirements in EU Law and the Automation of Public Administration, in European Law Review, 47(3), 2022, pp. 383-386.

Fink M., Human Oversight under Article 14 ot the EU AI Act, available at SSRN, 14 February 2025.

Finocchiaro G., Intelligenza Artificiale e protezione dei dati personali, in Giurisprudenza Italiana, July 2019, p. 1676.

Floridi L., The Ethics of Artificial Intelligence. Principles, Challenges, and Opportunities, Oxford University Press, Oxford, 2023, p. 63, 98.

Flórez L., Haitsma L., Ibrahim Y.A., Ardenghi L., Berardi G., Onaie A., Organisational implementation/embedding, in A. Colombi Ciacchi, M.L. Flórez Rojas, L. Lane, T. Nowak (eds.) AI and Public Administration: The (legal) limits of algorithmic governance, 2022, p. 77.

Foà S., Giustizia amministrativa, atipicità delle azioni ed effettività della tutela. Il nuovo diritto giurisprudenziale, Jovene, Napoli, 2012.

Foà S., Intelligenza artificiale e cultura della trasparenza amministrativa. Dalle "scatole nere" alla "casa di vetro"?, in Diritto amministrativo, 3, 2023, p. 540.

Foà S., La nuova trasparenza amministrativa, in Diritto amministrativo, 1, 2017, pp. 65-99.

Follieri E., Due passi avanti e uno indietro nell'affermazione della giurisdizione soggettiva (nota a Cons. Stato, Ad. Plen. 27 April 2015, no. 5), in Giurisprudenza italiana, 10, 2015, pp. 2192-2203.

Follieri E., Il modello per lesione di interessi legittimi nella giurisdizione di legittimità del giudice amministrativo: la responsabilità amministrativa di diritto pubblico, in Diritto processuale amministrativo, 1, 2006, p. 18 ff.

Follieri E., Il risarcimento del danno per lesione di interessi legittimi alla luce del d.lgs. n. 80/1998, in Rivista di diritto privato, 3, 1998, p. 453 ff.

Follieri E., Risarcimento dei danni per lesione di interessi legittimi, Marino Solfanelli, Chieti, 1984.

Follieri F., Il principio di non contestazione nel processo amministrativo, in Diritto processuale amministrativo, 3, 2012, p. 1012 ff.

Follieri F., Il sindacato del giudice amministrativo sulla discrezionalità pura o amministrativa. Le figure sintomatiche sono norme giuridiche, non sintomi, in Diritto processuale amministrativo, 1, 2008, p. 68 ff.

Fonderico G., La comunicazione dei motivi ostativi, la tutela processuale e la semplificazione, in Giornale di diritto amministrativo, 5, 2009, pp. 621-625.

Forgione I., Il caso dell'accesso al software MIUR per l'assegnazione dei docenti, in Giornale di diritto amministrativo, 5, 2018, pp. 647-662.

Forgione I., La prospettiva dell'intelligenza artificiale nel procedimento e nell'attività amministrativa, in Rivista italiana di informatica e diritto, 2, 2024, pp. 510-511.

Forte P., Diritto amministrativo e data science. Appunti di Intelligenza Amministrativa Artificiale (AAI), in PA Persona e Amministrazione, 1, 2020, p. 270.

Foster D., Generative Deep Learning. Teaching Machines to Paint, Write, Compose, and Play, O'Reilly Media, Sebastapol, 2019, pp. 33-34.

Fox J., The scope and limitations of first generation expert systems, in Future Generation Computer Systems, vol. 3, n. 1, 1987, pp. 1-10.

Fracchia F., Vizi formali, semplificazione procedimentale, silenzio-assenso e irregolarità, in Il diritto dell'economia, 3-4, 2002, p. 429 ff.

Fragasso B., Intelligenza artificiale e crisi del diritto penale d'evento: profili di responsabilità penale del produttore di sistemi di I.A., in F. Basile, M. Biasi, L. Camaldo, G. Caneschi, B. Fragasso, D. Milani (eds.), Intelligenza artificiale. Diritto, giustizia, economia ed etica, Giappichelli, Torino, 2025, p. 56, 58.

Francario F., Interesse legittimo e giurisdizione amministrativa: la trappola della tutela risarcitoria, in Questione Giustizia, 1, 2021, pp. 133-142.

Franklin S., Graesser A., Is It an Agent, or Just a Program?: A Taxonomy for Autonomous Agents, in J.P. Müller, M.J. Wooldridge, N.R. Jennings (eds.), Intelligent Agents III. Agents Theories, Architectures, and Languages, ATAL 1996, Lecture Notes in Computer Science, vol. 1993, Springer, Berlin, Heidelberg, 1997, p. 26.

Franzoni M., Dei fatti illeciti. Art. 2043-2059, in F. Galgano (ed.), Commentario del Codice civile Scialoja-Branca, Zanichelli – Il Foro italiano, Bologna-Roma, 1993, p. 734 ff.

Frediani E., Partecipazione procedimentale, contraddittorio e comunicazione: dal deposito di memorie scritte e documenti al "preavviso di rigetto", in Diritto amministrativo, 4, 2005, pp. 1004-1041.

Frenda D.M., Responsabilità del datore di lavoro, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, p. 1165 ff.

Friedman B., Nissenbaum H., Bias in Computer Systems, in ACM Transactions on Information Systems, vol. 14, n. 3, 1996, pp. 330-347.

Friedman J.H., Greedy Function Approximation: A Gradient Boosting Machine, in The Annals of Statistics, 29(5), 2001, pp. 1189-1232.

Fu Y., Peng H., Ou L., Sabharwal A., Khot T., Specializing Smaller Language Models towards Multi-Step Reasoning, in Proceedings of the 40th International Conference on Machine Learning, Honolulu, Hawaii, USA, PMLR 202, 2023, p. 1.

Fusco R., Il necessario contraddittorio col privato nell'esercizio dei poteri discrezionali: l'efficacia invalidante del preavviso di rigetto (nota a Cons. St., Sez. II, 14 marzo 2022, n. 1790), in Giustizia Insieme, 6 July 2022.

Gabison G.A., Xian R.P., Inherent and emergent liability issues in LLM-based agentic systems: a principal-agent perspective, in Proceedings of the 1st Workshop for Research on Agent Language Models (REALM 2025), 31 July 2025, p. 114.

Gaffuri F., Il principio di non contestazione nel processo amministrativo, Giuffrè, Milano, 2018.

Galetta D.U., Digitalizzazione, Intelligenza Artificiale e Pubbliche Amministrazioni: il nuovo Codice dei contratti pubblici e le sfide che ci attendono, in federalismi.it, 12, 2023, p. xi.

Galetta D.U., La pubblica amministrazione oggi, fra intelligenza artificiale e intelligenza umana, in J.B. Auby, G. De Minico, G. Orsoni (eds.), L'amministrazione digitale, Editoriale Scientifica, Napoli, 2023, p. 128.

Galetta D.U., La trasparenza, per un nuovo rapporto tra cittadino e Pubblica Amministrazione: un'analisi storico-evolutiva in una prospettiva di diritto comparato ed europeo, in Atti del 62° convegno di Studi Amministrativi di Varenna (22-24 settembre 2016, Villa Monastero, Varenna), Giuffrè, Milano, 2017, pp. 465-518.

Galetta D.U., Trasparenza e governance amministrativa nel diritto europeo, in M.P. Chiti, G. Palma (eds.), I principi generali dell'azione amministrativa, Napoli, 2006.

Galetta D.U., Violazione di norme sul procedimento amministrativo e annullabilità del provvedimento, Giuffrè, Milano, 2003.

Gallo C.E., La giurisdizione amministrativa, Giappichelli, Torino, 2024.

Gallone G., Il Consiglio di Stato marca la distinzione tra algoritmo, automazione ed intelligenza artificiale, in Diritto di Internet, 2022.

Gallone G., L'improcrastinabile esigenza di tracciare una via "italiana" per l'intelligenza artificiale nel procedimento amministrativo. Opportunità e legittimità di un intervento regolatorio nazionale a corredo dell'AI Act, in Giustizia Insieme, 26 June 2025.

Gallone G., Riserva di umanità e funzioni amministrative, CEDAM, Padova, 2023, *passim*.

Gallone G., Technical Documentation (Article 11), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 207-211.

Gao Y., Xiong Y., Gao X., Jia K., Pan J., Bi Y., Dai Y., Sun J., Wang M., Wang H., Retrieval-Augmented Generation for Large Language Models: A Survey, available at arXiv, 27 March 2024, pp. 1-21.

García Luengo J., Obligations of Providers and Deployers of High-Risk AI Systems and Other Parties (Chapter III, Section 3), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 312-320.

García Luengo J., Transparency Obligations for Providers and Deployers of Certain AI Systems, in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 361-371.

Gardini G., Comunicazione di avvio e partecipazione procedimentale: costi e benefici di una regola di democrazia, in Giornale di diritto amministrativo, 2001, p. 484 ff.

Gardini G., Il paradosso della trasparenza in Italia: l'arte di rendere oscure le cose semplici, in federalismi.it, 1, 2017, pp. 1-18.

Gardini G., L'uso preparatorio dell'AI come limite agli eccessi regolativi. Per una valutazione "in concreto" dell'intelligenza artificiale applicata all'agire pubblico, in Istituzioni del Federalismo, 2, 2025, p. 281.

Gardini G., La comunicazione degli atti amministrativi. Uno studio alla luce della legge 7 agosto 1990, n. 241, Giuffrè, Milano, 1996.

Garofoli P., Le garanzie partecipative: un inquadramento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, p. 108, 115.

Gasparri P., Incompetenza (diritto amministrativo), in Enciclopedia del diritto, XXI, Giuffrè, Milano, 1971, p. 68 ff.

Gasparri W., Violazione delle regole formali tra invalidità degli atti e responsabilità risarcitoria. Una comparazione, in Diritto pubblico, 3, 2007, p. 721 ff.

Gasparrini Pianesi D., La responsabilità amministrativa per danno all'erario, Giuffrè, Milano, 2017.

Gastaldo V., Il diritto di accesso nel settore degli appalti pubblici e gli obblighi di trasparenza delle stazioni appaltanti, in Urbanistica e appalti, 10, 2014, p. 1005 ff.

Gaudio G., La CGIL fa breccia nel cuore dell'algoritmo di Deliveroo: è discriminatrorio e antisindacale il ranking reputazionale che non distingue le assenze giustificate, in Rivista Italiana di Diritto del Lavoro, II, 2021, p. 175 ff.

Ghasemi M., AI and Corporate Personhood. A Comparative Analysis, in www.convergenceanalysis.org, 2025, p. 3.

Ghodratnama S., Zakershahrak M., Adapting LLMs for Efficient, Personalized Information Retrieval: Methods and Implications, available at arXiv, 21 November 2023, p. 5.

Giacchetti S., Fontanazzi giuridici: l'integrazione in corso del giudizio del provvedimento impugnato, in Diritto processuale amministrativo, 1, 1995, p. 18 ff.

Giani L., La fase istruttoria, in F.G. Scoca (ed.), Giustizia amministrativa, Giappichelli, Torino, 2023, p. 418 ff.

Giannini M.S., Diritto amministrativo, Giuffrè, Milano, 1970, p. 489.

Giannini M.S., Diritto amministrativo, vol. II, Giuffrè, Milano, 1993, p. 49.

Giannini M.S., Il potere discrezionale della pubblica amministrazione, Giuffrè, Milano, 1939, p. 77.

Giannini M.S., Istituzioni di diritto amministrativo, Giuffrè, Milano, 1981, p. 956.

Giannini M.S., Motivazione dell'atto amministrativo, in Enciclopedia del Diritto, XXVII, Giuffrè, Milano, 1977, p. 265.

Giannini M.S., Piras A., Giurisdizione amministrativa e giurisdizione ordinaria nei confronti della pubblica amministrazione, in Enciclopedia del diritto, XIX, Giuffrè, Milano, 1970, p. 229 ff.

Giavazzi M., Anatomia del processo amministrativo, Editoriale Scientifica, Napoli, 2021, p. 34.

Gilles W., Droit d'accès à l'information publique et codes sources : de l'importance de l'étendue de la notion de document communicable, in International Journal of Open Governments, 10, 2021, pp. 1-12.

Gils T., A Detailed Analysis of Article 50 of the EU's Artificial Intelligence Act, in C.N. Pehlivan, N. Forgó, P. Valcke (eds.), The EU Artificial Intelligence (AI) Act: A Commentary, Wolters Kluwer Law International, Alphen aan den Rijn, 2024, pp. 776-823.

Gils T., Heymans F., Ooms W., From Policy to Practice: Prototyping The EU AI Act's Transparency Requirements, Knowledge Centre Data & Society, 2024.

Giordano A., La responsabilità amministrativo-contabile, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 679-691.

Giovagnoli R., I vizi formali e procedimentali, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 1168.

Giulietti W., La comunicazione dei motivi di non accoglimento dell'istanza, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 143-160.

Giurdanella C., Guarnaccia C.E., Elementi di diritto amministrativo elettronico, Halley Editore, Matelica, 2005.

Goisis F., Il concetto di full jurisdiction e il sindacato giurisdizionale sulle sanzioni amministrative nella giurisprudenza della Corte EDU e della Corte Europea di giustizia. Recenti conferme e sviluppi, in Giustizia Insieme, 14 July 2023.

Goldenits G., König P., Raubitzek S., Ekelhart A., Small Language Models for Phishing Website Detection: Cost, Performance, and Privacy Trade-Offs, available at arXiv, 19 November 2025, pp. 1-2.

Goldman A., A Theory of Human Action, Prentice-Hall, Englewood Cliffs, NJ, 1970.

González-Sendino R., Serrano E., Bajo J., Novais P., A Review of Bias and Fairness in Artificial Intelligence, in International Journal of Interactive Multimedia and Artificial Intelligence, 10 November 2023, p. 9.

Goodfellow I., Bengio Y., Courville A., Deep Learning, MIT Press, Cambridge, Massachusetts, 2016, p. 5, 13, 160.

Gorenc N., AI embedded bias on social platforms, in International Review of Sociology, 35(2), 2025, p. 325.

Grasso A.G., GDPR Feasibility and Algorithmic Non-Statutory Discrimination, Edizioni Scientifiche Italiane, Napoli, 2023.

Graux H., Garstka K., Murali N., Cave J., Botterman M., Interplay between the AI Act and the EU digital legislative framework, European Parliament, Brussels, 2025.

Greco G., Interesse legittimo ed effettività della tutela (a proposito della sentenza 1321/19 del Consiglio di Stato), in www.giustizia-amministrativa.it, 2020.

Greco G., Processo amministrativo e principio di effettività della tutela (brevi note), in Aa.Vv., Scritti in onore di Eugenio Picozza, vol. 1, Editoriale Scientifica, Napoli, 2019, p. 793 ff.

Green B., The flaws of policies requiring human oversight of government algorithms, in Computer Law & Security Review, 45, 2022.

Greene P., Smith S.F., Automated Knowledge Acquisition: Overcoming the Expert System Bottleneck, in Proceedings of the Eighth International Conference on Information Systems (ICIS 1987), Pittsburgh, 1987, pp. 107-121.

Gridach M., Nanavati J., El Abidine K.Z., Mendes L., Mack C., Agentic AI for Scientific Discovery: A Survey of Progress, Challenges, and Future Directions, available at arXiv, 12 March 2025, p. 2.

Grolinger K., Hayes M., Higashino W.A., L'Heureux A., Allison D.S., Challenges for MapReduce in Big Data, in Proceedings of the 2014 IEEE World Congress on Services (SERVICES), June 2014, p. 184.

Gsell B., Mayrhofer A.K., The New Product Liability Directive 2024: Missed Updates or Upgrades for the Interplay with National Liability Rules and for Service Liability, in Journal of European Consumer and Market Law, 5, 2025, pp. 205-216.

Guacci C., Il diritto di accesso, in E. Romano, C. Guacci (eds.), Argomenti di diritto amministrativo, Giappichelli, Torino, 2023, p. 125 ff.

Guacci C., La competenza nel processo amministrativo, Giappichelli, Torino, 2018.

Guacci C., La valutazione di compatibilità paesaggistica, Giappichelli, Torino, 2023, p. 121.

Gualdani A., Le novità in tema di preavviso di rigetto, in PA Persona e Amministrazione, 2022, pp. 533-560.

Guicciardi E., Studi di giustizia amministrativa, UTET, Torino, 1967, p. 55 ff.

Hacker P., The European AI liability directives – Critique of a half-hearted approach and lessons for the future, in Computer Law & Security Review, 51, 2023, pp. 1-17.

Hadad B., Froim S., Yosef E., Giryes R., Bahabad A., Deep learning in optics—a tutorial, in Journal of Optics, 25, 2023, p. 11.

Haitsma L., Ardenghi L., Ancuceanu B., Varošanec I., Flórez L., Algorithmic Design, in A. Colombi Ciacchi, M.L. Flórez Rojas, L. Lane, T. Nowak (eds.), AI and Public Administration: The (legal) limits of algorithmic governance, 2022, p. 46.

Hand D.J., AI, big data, and quest for truth: the role of theoretical insight, in Data & Policy, 6, 2024, e44, pp. 1-10.

Hellstrom T., Dignum V., Bensch S., Bias in Machine Learning – What is it Good for?, in A. Saffiotti, L. Serafini, P. Lukowicz (eds.), Proceedings of the First International Workshop on New Foundations for Human-Centered AI (NeHuAI) co-located with 24th European Conference on Artificial Intelligence (ECAI 2020), in CEUR-WS.org, 2020, pp. 3-10.

Hendrycks D., Introduction to AI Safety, Ethics, and Society, Taylor & Francis, Boca Raton, 2024, p. 41.

Herbosch M., Liability for AI Agents, in North Carolina Journal of Law & Technology, 26(3), 2025, p. 440.

Hewitt C., Bishop P., Steiger R., A universal modular ACTOR formalism for artificial intelligence, in Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 1973, pp. 235-245.

Hinton G.E., McClelland J.L., Rumelhart D.E., Distributed Representations, in D.E. Rumelhart, J.L. McClelland (eds.), Parallel Distributed Processing: Explorations in the Microstructure of Cognition, Vol. 1: Foundations, MIT Press, Cambridge (MA), 1986, pp. 77-109.

Hofmann H.C.H., Automated Decision-Making (ADM) in EU Public Law, in H.C.H. Hofmann, F. Pflücke (eds.), Governance of Automated Decision-Making and EU Law, Oxford University Press, Oxford, 2024, pp. 20-21.

Huang G.L., Zaslavsky A., Contextual knowledge graph approach to bias-reduced decision support systems, in Journal of Decision Systems, 33(1), 2024, p. 36.

Huang Z., Ma N., Wang S., Peng Y., GPU computing performance analysis on matrix multiplication, in The Journal of Engineering, 23, 2019, p. 9043.

Huergo Lora A., Classification of AI Systems as High-Risk (Chapter III, Section 1), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, p. 119.

Huergo Lora A. (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, *passim*.

Huergo Lora A., Una aproximación a los algoritmos desde el Derecho Administrativo, in A. Huergo Lora (ed.), La regulación de los algoritmos, Aranzadi, Cizur Menor, 2020, p. 86.

Hughes L., Dwivedi Y.K., Malik T., Shawosh M., Albashrawi M.A., Jeon I., Dutot V., Appanderanda M., Crick T., De R., Fenwick M., Gunaratnege S.M., Jurcys P., Kar A.K., Kshetri N., Li K., Mutasa S., Samothrakis S., Wade M., Walton P., AI Agents and Agentic Systems: A Multi-Expert Analysis, in Journal of Computer Information Systems, 24 April 2025, p. 5.

Huq A.Z., A Right to a Human Decision, in Virginia Law Review, 106, 3, 2020, pp. 611-688.

Iaccarino C.M., Studi sulla motivazione (con speciale riguardo agli atti amministrativi), Roma, Società Editrice del Foro Italiano, 1933.

Iadecola A., Il nesso causale, in Canale A., Centrone D., Freni F., Smiroldo M. (eds.), La Corte dei Conti, Giuffrè, Milano, 2022, p. 124.

Iaselli M. (ed.), AI Act. Principi, regole ed applicazioni pratiche del Reg. UE 1689/2024, Maggioli, Santarcangelo di Romagna, 2024.

Iaselli M., L'intelligenza artificiale nella pubblica amministrazione: efficienza e garanzie secondo la legge italiana, in Le Autonomie, 7 October 2025.

IBM, What is overfitting?, in https://www.ibm.com/think/topics/overfitting.

Ilves L., Kilian M., Parazzoli S.M., Peixoto T.C., Velsberg O., The Agentic State. Rethinking Government for the Era of Agentic AI, 2025, in www.agenticstate.org, p. 50.

Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, A definition of Artificial Intelligence: main capabilities and scientific disciplines, available at European Commission, 8 April 2019, Brussels, p. 6.

Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, Ethics Guidelines for Trustworthy AI, available at European Commission, 8 April 2019, p. 16.

Ingegnatti S., Diritto di accesso – Accesso civico generalizzato e appalti pubblici: il punto della Plenaria, Giurisprudenza italiana, 1, 2021, p. 157 ff.

Interlandi M., La responsabilità per danni da comportamenti materiali, in F. Caringella, R. Chieppa. B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 115, 119.

Interlandi M., Tomassi L., La decisione amministrativa algoritmica, in A. Contieri (ed.), Approfondimenti di diritto amministrativo, Editoriale Scientifica, Napoli, 2021, p. 454.

Ippolito M., La 'cultura' della trasparenza nell'accesso agli atti della fase esecutiva di un procedimento ad evidenza pubblica, in giustamm.it, 7, 2020.

Izzo F., La responsabilità erariale e la giurisdizione della Corte dei Conti, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 580.

Izzo U., Danno cagionato da animali, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, p. 1165 ff.

Jia B., Brandt J., Mech R., Kim B., Manocha D., LPaintB: Learning to Paint from Self-Supervision, in Pacific Graphics, available at arXiv, 21 September 2019, p. 3.

Jin C., Zhang Z., Jiang X., Liu F., Liu S., Liu X., Jin X., RAGCache: Efficient Knowledge Caching for Retrieval-Augmented Generation, in ACM Trans. Comput. Systm., 44(1), Article 2, November 2025, p. 4.

Jing L., Tian Y., Self-Supervised Visual Feature Learning With Deep Neural Networks: A Survey, in IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 43, no. 11, 2021, p. 4038.

Jing M., Zhu Y., Zang T., Wang K., Contrastive Self-supervised Learning in Recommender Systems: A Survey, in ACM Transactions on Information Systems, vol. 42, no. 2, article 59, November 2023, p. 3.

Joshi S., Framework for Government Policy on Agentic and Generative AI: Governance, Regulation, and Risk Management, available at SSRN, 23 September 2025, pp. 1-2.

Jouppi N., Quantifying the performance of the TPU, our first machine learning chip, https://cloud.google.com/blog/products/gcp/quantifying-the-performance-of-the-tpu-our-first-machine-learning-chip/.

Jurafsky D., Martin J.H., Speech and Language Processing. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition with Language Models, Online manuscript released on 12 January 2025, p. 57, 132.

Kaddour J., Lynch A., Liu Q., Kusner M.J., Silva R., Causal Machine Learning: A Survey and Open Problems, available at arXiv, 21 July 2022, pp. 1-191.

Kalantry S., Legal Personhood of Potential People: AI and Embryos, in California Law Review, 16, 2025, p. 98, 100-102.

Kaminski M.E., Malgieri G., The Right to Explanation in the AI Act, U of Colorado Law Legal Studies Research Paper No. 25-9, available at SSRN, 2 April 2025, *passim*.

Kapoor S., AI Agents That Matter, available at arXiv, 1 July 2024, p. 2.

Karanikić Mirić M., From Burden to Balance: Causation in the New EU Product Liability Directive, in Journal of European Consumer and Market Law, 5, 2025, pp. 217-225.

Karpathy A., Software 2.0, in https://karpathy.medium.com/software-2-0-a64152b37c35.

Kelsen H., General Theory of Law and State, Transaction Publishers, Piscataway, 2006, pp. 93-96.

Kerrigan C. (ed.), AI, Machine Learning & Big Data 2024, Global Legal Insights, London, 2024.

Kerrigan C., Vercoe O., Explainable AI and Responsible AI, in C. Kerrigan (ed.), Artificial Intelligence. Law and Regulation, Edward Elgar Publishing, Cheltenham, 2022, p. 530.

Khan S.M., Mann A., AI Chips: What They Are and Why They Matter. An AI Chips Reference, in Center for Security and Emerging Technology, available at Center for Security and Emerging Technology (CSET), April 2020, p. 23.

Kissinger H.A., Schmidt E., Huttenlocher D., The Age of AI and Our Human Future, John Murray Press, London, 2021, p. 4.

Knight W., The Dark Secret at the Heart of AI, in MIT Technology Review, 11 April 2017, available at www.technologyreview.com/2017/04/11/5113/the-dark-secret-at-the-heart-of-ai.

Koch B.A., Borghetti J.B., Machnikowski P., Pichonnaz P., Rodríguez de las Heras Ballell T., Twigg-Flesner C., Wendehorst C., Response of the European Law

Institute to the Public Consultation on Civil Liability. Adapting liability rules to the digital age and artificial intelligence, in European Law Institute, 2022, pp. 1-32.

Kolt N., Governing AI Agents, available at arXiv, 11 February 2025, p. 15.

Korzynski P., Mazurek G., Krzypkowska P., Kurasinski A., Artificial intelligence prompt engineering as a new digital competence: Analysis of generative AI technologies such as ChatGPT, in Entrepreneurial Business and Economics Review, 3, 2023, pp. 25-38.

Koulu R., Human control over automation: EU policy and AI ethics, in European Journal of Legal Studies, 1, 2020, pp. 9-46.

Kovač M., Generative Artificial Intelligence. A Law and Economics Approach to Optimal Regulation and Governance, Palgrave Macmillan, Cham, 2024, p. 128 ff.

Kraprayoon J., Williams Z., Fayyaz R., AI Agent Governance: A Field Guide, available at Institute for AI Policy and Strategy, April 2025, p. 13.

Krishnan N., AI Agents: Evolution, Architecture, and Real-World Applications, available at arXiv, 16 March 2025, p. 7.

Krizhevsky A., Sutskever I., Hinton G.E., ImageNet Classification with Deep Convolutional Neural Networks, in F. Pereira, C.J. Burges, L. Bottou, K.Q. Weinberger, Advances in Neural Information Processing Systems 25 (NIPS 2012), pp. 1-9.

Kumar A., Kim H., Nathani J.S., Roy N., Improving the Reliability of LLMs: Combining Chain-of-Thought Reasoning and Retrieval-Augmented Generation, available at arXiv, 13 May 2025, p. 1.

Kurki V.A.J., A Theory of Legal Personhood, Oxford University Press, Oxford, 2019, p. 94.

Labriola R., Discrezionalità tecnica e poteri del giudice amministrativo, Giuffrè, Milano, 2020, p. 9.

Lagioia F., Rovatti R., Sartor G., Algorithmic fairness through group parities? The case of COMPAS-SAPMOC, AI & Society, 38, 2023, pp. 459-478.

Lamorgese A., La giurisdizione contesa. Cittadini e pubblica amministrazione, Giappichelli, Torino, 2014.

Lampis M., Nullità, invalidità e inesistenza dal diritto civile al diritto amministrativo, Editoriale Scientifica, Napoli, 2022.

Larson J., Mattu S., Kirchner L., Angwin J., How We Analyzed the COMPAS Recidivism Algorithm, 23 May 2016, available at ProPublica.

Lasbleiz N., Obrecht L., Le droit d'accès aux codes sources des systèmes algorithmiques utilisés par l'administration publique, in sui generis, 3 March 2025.

Laux J., Institutionalised distrust and human oversight of artificial intelligence: towards a democratic design of AI governance under the European Union AI Act, in AI & Society, 39, 2024, pp. 2853-2866.

Lazcoz Moratinos G., Human Oversight (Article 14), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 252-274.

Lazcoz Moratinos G., Human Oversight or Monitoring in Article 14 of the Artificial Intelligence Act: A Mere Mandatory Requirement for High-Risk Systems?, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 717-737.

LeCun Y., Bengio Y., Hinton G., Deep learning, in Nature, 521, 2015, p. 438.

Ledda F., Potere, tecnica e sindacato giudiziario sull'amministrazione pubblica, in Aa.Vv., Studi in memoria di V. Bachelet, vol. II, Giuffrè, Milano, 1987, p. 245.

Ledda F., Variazioni sul tema dell'eccesso di potere, in Diritto pubblico, 2000, p. 433 ff.

Lee K.F., AI Superpowers: China, Silicon Valley, and the New World Order, Harper Business, New York, 2018, p. 9.

Leeuw F.L., Bamberger M., Artificial Intelligence and Big Data: Lessons from Evaluations of the Rule of Law and Development, Edward Elgar Publishing, Cheltenham, 2025.

Lewis P., Perez E., Piktus A., Petroni F., Karpukhin V., Goyal N., Küttler H., Lewis M., Yih W.T., Rocktäschel T., Riedel S., Kiela D., Retrieval-Augmented Generation for Knowledge-Intensive NLP Tasks, in NIPS'20: 34th International Conference on Neural Information Processing Systems, December 2020, pp. 1-16.

Li S., Schütte B., The Proposed EU Artificial Intelligence Liability Directive: Does/Will Its Content Reflect Its Ambition?, in Technology and Regulation, 2024, pp. 143-151.

Liepina R., Lagioia F., Lippi M., Palka P., Micklitz H.W., Sartor G., Automating Legal Tasks. LLMs, Legal Documents, and the AI Act, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, Cambridge University Press, Cambridge, 2025, p. 410.

Liesenfeld A., Dingermanse M., Rethinking open source generative AI: open-washing and the EU AI Act, in FAccT' 24: Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency, Association for Computing Machinery, New York, 2024, pp. 1774-1787.

Liga D., The Interplay Between Lawfulness and Explainability in the Automated Decision-Making of EU Administration, in H.C.H. Hofmann, F. Pflücke (eds.), Governance of Automated Decision-Making and EU Law, Oxford University Press, Oxford, 2024, p. 247.

Lior A., AI Entities as AI Agents: Artificial Intelligence Liability and the AI Respondeat Superior Analogy, in Mitchell Hamline Law Review, 46(5), 2020, pp. 1061-1062.

Lipari M., Effettività della tutela giurisdizionale e innovazioni tecnologiche nel nuovo codice n. 36/2023, in R. Cavallo Perin, M. Lipari, G.M. Racca (eds.), Contratti pubblici e innovazioni nel nuovo codice, Jovene, Napoli, 2024, p. 133.

Lipari M., Il diritto di accesso e la sua frammentazione dalla legge n. 241/1990 all'accesso civico: il problema delle esclusioni e delle limitazioni oggettive, in federalismi.it, 17, 2019, pp. 1-36.

Lipari M., Il sindacato pieno del giudice amministrativo secondo i principi della CEDU e del diritto UE. Il recepimento della direttiva n. 2014/10/EU sul private enforcement (Legislative Decree no. 3/2017): le valutazioni tecniche opinabili riservate all'AGCM, in federalismi.it, 8, 2018, pp. 2-31.

Lipari M., Informazione dei candidati e degli offerenti e accesso agli atti di gara, in M.A. Sandulli, R. De Nictolis (directed by), in Trattato sui contratti pubblici, vol. III, Giuffrè, Milano, 2019, p. 341 ff.

Loffredo J.R., Yun S., Agent-Enhanced Large Language Models for Researching Political Institutions, available at arXiv, 14 March 2025, p. 4.

Longo E., Paolucci F., The Article 50 of the AI Act and the Transparency Obligations: The Model and Its Limitations, in O. Pollicino, F Donati, G. Finocchiaro, F. Paolucci (eds.), La disciplina dell'intelligenza artificiale, Giuffrè, Milano, 2025, pp. 275-303.

Longo M., La motivazione nei provvedimenti di sospensione dell'attività imprenditoriale: un obbligo generale dal fondamento costituzionale, in Il Foro amministrativo (C.d.S.), 6, 2011, pp. 1797-1813.

Lopez-Tarruella Martinez A., Right to lodge a complaint and right to an explanation. Means of redress for individuals in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 967-980.

Loza Corera M., Data and Data Governance and Connections to Data Protection Principles in Article 10 of the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 595-627.

Lu Z., Li X., Cai D., Yi R., Liu F., Zhang X., Lane N.D., Xu M., Small Language Models: Survey, Measurements, and Insights, available at arXiv, 26 February 2025, p. 2.

Lubrano E., Effettività della tutela giurisdizionale e limiti del potere di riedizione, Editoriale Scientifica, Napoli, 2025.

Lucarelli C.S., L'accesso al fatto nel processo amministrativo, Giuffrè, Milano, 2024.

Lucchini Guastalla E., Il contratto e il fatto illecito, Giuffrè, Milano, 2020, p. 427, 433.

Luciani F., Contributo allo studio del provvedimento amministrativo nullo. Rilevanza ed efficacia, Giappichelli, Torino, 2010.

Lütz F., The AI Act, gender equality and non-discrimination: what role for the AI office?, in ERA Forum, 25, 2024, pp. 79-95.

Macchia M., Efficacia ed esecuzione del provvedimento, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 722.

Maddalena P., La colpa nella responsabilità amministrativa, in Rivista della Corte dei Conti, 2, 1997, pp. 272-286.

Maddalena P., La nuova conformazione della responsabilità amministrativa alla luce della recente giurisprudenza della Corte costituzionale, in Amministrazione e contabilità dello Stato e degli enti pubblici, 5, 1999, pp. 399-421.

Madhiarasan M., Louzazni M., Analysis of Artificial Neural Network: Architecture, Types, and Forecasting Applications, in Journal of Electrical and Computer Engineering, 2022, pp. 1-23.

Maffulli S., Welcome to Deep Dive AI, 5 August 2022, https://opensource.org/blog/welcome-to-deep-dive-ai.

Malandrino A., Il diritto di accesso ai documenti nelle gare d'appalto e la tutela di interessi commerciali legittimi e della concorrenza, in Foro amministrativo – CdS, 7-8, 2013, p. 1803 ff.

Malgieri G., Santos C., Assessing the (severity of) impacts on fundamental rights, in Computer Law & Security Review, 56, 2025.

Mancosu G., Les algorithmes publics déterministes au prisme du cas italien de la mobilité des enseignants, in Rivista italiana di informatica e diritto, 1, 2019, pp. 75-85.

Mandolfo G., L'atto amministrativo elettronico, in G. Cassano (ed.), Diritto delle nuove tecnologie informatiche e dell'Internet, IPSOA, Milano, 2002, p. 1299 ff.

Mantelero A., The Fundamental Rights Impact Assessment (FRIA) in the AI Act: Roots, legal obligations and key elements for a model template, in Computer Law & Security, 54, 2024.

Manzo E., Il riparto di giurisdizione, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, pp. 75-106.

Mao H.H., A Survey on Self-supervised Pre-training for Sequential Transfer Learning in Neural Networks, available at arXiv, 1 July 2020, pp. 4-5.

Marchetti B., Intelligenza artificiale, poteri pubblici e rule of law, in Rivista italiana di diritto pubblico comunitario, 1, 2024, p. 54.

Marchetti B., La discrezionalità, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 148.

Marchianò G., La legalità algoritmica nella giurisprudenza amministrativa, in Il diritto dell'economia, 3, 2020, pp. 255-256.

Marconi F., Alcune questioni in tema di decisioni robotizzate: note a margine della sentenza n. 2270/2019, del Consiglio di Stato, in giustamm.it, 8, 2020.

Marongiu D., L'attività amministrativa automatizzata, Maggioli, Rimini, 2005.

Marongiu D., L'automazione delle decisioni amministrative: teorie, esperienze e sentenze, in Aa.Vv., Scritti per Franco Gaetano Scoca, Editoriale Scientifica, Napoli, 2020, p. 3378.

Marongiu D., L'intelligenza artificiale "istituzionale": limiti (attuali) e potenzialità, in European Review of Digital Administration & Law,vol. 1, iss. 1-2, 2020, p. 47.

Marrama D., Brevi riflessioni sul tema dell'irregolarità e dell'invalidità dei provvedimenti amministrativo, in Diritto processuale amministrativo, 2, 2005, p. 359 ff.

Marrama R., La pubblica amministrazione tra trasparenza e riservatezza nell'organizzazione e nel procedimento amministrativo, in Diritto processuale amministrativo, 1989, p. 416 ff.

Martín Delgado I., Automation, Artificial Intelligence and Sound Administration, in European Review of Digital Administration & Law, 3(1), 2022, p. 22.

Martín Delgado I., La riforma dell'amministrazione digitale: un'opportunità per ripensare la pubblica amministrazione, in S. Civitarese Matteucci, L. Torchia (eds.), La tecnificazione, Firenze University Press, Firenze, 2016, p. 150.

Martini M., Ruschemeier H., Hain J., Staatshaftung für automatisierte Verwaltungsentscheidungen: Künstliche Intelligenz als Herausforderung für das Recht der staatlichen Ersatzleistungen,Typoskript, in VerwArch, 112, 2021, p. 1 ff.

Maruotti L., La giurisdizione amministrativa: effettività e pienezza della tutela, in www.giustizia-amministrativa.it, 2010.

Marzaro P., I principi generali del nuovo codice dei contratti pubblici: la funzione nomopoietica del consiglio di stato per un 'nuovo paradigma' di amministrazione, in Il diritto dell'economia, 3, 2024, pp. 441-460.

Mascolo A., Gli algoritmi amministrativi: la sfida della comprensibilità, in Giornale di diritto amministrativo, 3, 2020, pp. 366-375.

Mastroianni S., L'integrazione tra la disciplina del diritto di accesso ordinario e quella dell'accesso civico generalizzato nel settore degli appalti: l'Adunanza Plenaria dice no a buchi neri nel principio di trasparenza, in giustamm.it, 4, 2020.

Masucci A., L'atto amministrativo informatico. Primi lineamenti di una ricostruzione, Jovene, Napoli, 1993.

Mathison T.W., Recognizing Right: The Status of Artificial Intelligence, in Journal of Business & Technology Law, 19(1), 2023, pp. 158-159.

Mattarella B.G., Il provvedimento, in S. Cassese (directed by), Trattato di diritto amministrativo. Diritto amministrativo generale, Giuffrè, Milano, 2003, p. 877.

Mattarella B.G., Lezioni di diritto amministrativo, Giappichelli, Torino, 2018, *passim*.

Mattarella B.G., L'imperatività del provvedimento amministrativo. Saggio critico, CEDAM, Padova, 2000, p. 436.

Mattera R., Decisioni algoritmiche. Il Consiglio di Stato fissa i limiti, in La nuova giurisprudenza civile commentata, 4, 2020, pp. 809-820.

Matthias A., The responsibility gap: Ascribing responsibility for the actions of learning automata, in Ethics and Information Technology, 6, 2004, pp. 175-183.

Mayer-Schönberger V., Cukier K., Big Data: A Revolution That Will Change How We Live, Work, and Think, Houghton Mifflin Harcourt, Boston, 2013.

Mayson S.G., Bias in, Bias Out, in Yale Law Journal, 128, 2019, pp. 2218-2300.

Mazzacuva F., Poteri sanzionatori delle Authorities e principi del giusto processo: punti fermi e prospettive nella giurisprudenza di Strasburgo, in Sistema Penale, 29 April 2021.

Mazzamuto M., Il riparto di giurisdizione. Apologia del diritto amministrativo e del suo giudice, Editoriale Scientifica, Napoli, 2008.

Mazzamuto M., L'allegato E e l'infausto mito della giurisdizione unica tra ideologia ed effettività della tutela nei confronti della pubblica amministrazione, in Diritto processuale amministrativo, 2, 2017, pp. 740-748.

Mazzamuto M., Liti tra pubbliche amministrazioni e vicende della giustizia amministrativa nel secolo decimonono, in Diritto processuale amministrativo, 2, 2019, pp. 344-417.

Mazzariol R., Fatti costitutivi e vicinanza della prova, in Actualidad Juridica Iberoamericana, 18, 2023, pp. 578-613.

Mazzarolli L.A., L'accesso ai documenti della pubblica amministrazione. Profili sostanziali, CEDAM, Padova, 1998.

Mele E., Preavviso di diniego e garanzie partecipative, in Foro amministrativo – TAR, 2006, p. 3983 ff.

Mento S., Sulla differenza tra algoritmo di supporto e algoritmo decisionale: i riflessi nel Codice dei contratti, in Appalti&Contratti, 31 July 2025.

Merloni F. (ed.), La trasparenza amministrativa, Giuffrè, Milano, 2008.

Merola C., Singh J., Reconstructing Context. Evaluating Advanced Chunking Strategies for Retrieval-Augmented Generation, available at arXiv, 28 April 2025, pp. 1-15.

Merusi F., Dal 1865 ... e ritorno ... al 1864. Una devoluzione al giudice ordinario della giurisdizione nei confronti della pubblica amministrazione a rischio di estinzione, in Diritto processuale amministrativo, 3, 2016, pp. 671-695.

Messineo F., Dottrina generale del contratto, Giuffrè, Milano, 1946, p. 433.

Meuwese A., Regulating algorithmic decision-making one case at the time: a note on the Dutch 'SyRI' judgement, in European Review of Digital Administration & Law, 1-2, 2020, pp. 209-211.

Miele G., Delega (dir. amm.), in Enciclopedia del diritto, Giuffrè, Milano, 1962, p. 907, 910.

Miele G., L'obbligo di motivazione negli atti amministrativi, in Il Foro Italiano, 1941, IV, p. 125 ff.

Miele G., Risarcibilità dei danni derivanti da ingiusta lesione di interessi legittimi ad opera della pubblica Amministrazione, in Il Foro Italiano, 1963, IV, p. 26.

Miele P., Intelligenza artificiale e pubblica amministrazione, in Rivista della Corte dei Conti, Quaderni, 2, 2024, p. 146.

Mihai Pop A., Ferraris E., IA: lo human first e il processo amministrativo, in Sinappsi, XV, 2, 2025, p. 94, 97.

Mims C., Huang's Law Is the New Moore's Law, and Explains Why Nvidia Wants Arm, in The Wall Street Journal, 19 September 2020.

Minerva M., L'attività amministrativa in forma elettronica, in Foro amministrativo, 4, 1997, p. 1300 ff.

Minervini L., Accesso agli atti e procedure di affidamento ed esecuzione di contratti pubblici, in Foro amministrativo, 5, 2019, p. 949 ff.

Mir O., Algorithms, Automation, and Administrative Procedure at EU Level, in H.C.H. Hofmann, F. Pflücke (eds.), Governance of Automated Decision-Making and EU Law, Oxford University Press, Oxford, 2024, pp. 59-61.

Mitchell M., Artificial Intelligence. A Guide for Thinking Humans, Penguin Random House, London, 2020, p. 128.

Mitchell M., Debates on the nature of artificial general intelligence, in Science, vol. 383, iss. 6689, 21 March 2024.

Mitchell M., Fully Autonomous AI Agents Should Not be Developed, available at arXiv, 20 October 2025, p. 3.

Mocanu D.M., Gradient Legal Personhood for AI Systems—Painting Continental Legal Shapes Made to Fit Analytical Molds, in Frontiers in Robotics and AI, 8, 2022, p. 9.

Modugno F., Manetti M., Eccesso di potere amministrativo, in Enciclopedia giuridica, Treccani, Roma, 1989, p. 1 ff.

Moliterni A., La natura giuridica dell'accesso civico generalizzato nel sistema di trasparenza nei confronti dei pubblici poteri, in Diritto amministrativo, 3, 2019, pp. 577-615.

Moliterni A., Pluralità di accessi, finalità della trasparenza e disciplina dei contratti pubblici, in Giornale di diritto amministrativo, 4, 2020, p. 505 ff.

Monaco T., Intelligenza artificiale e procedimento amministrativo, principi e responsabilità della nuova era digitale, in ApertaContrada, 30 October 2024, p. 3.

Morbidelli G., Invalidità e irregolarità, in Aa.Vv., Atti del Convegno su Innovazione del diritto amministrativo e riforma dell'amministrazione, Giuffrè, Milano, 2002, p. 79 ff.

Morondo Taramundi D., Discrimination by Machine-Based Decisions: Inputs and Limits of Anti-discrimination Law, in B. Custers, E. Fosch-Villaronga (eds.), Law and Artificial Intelligence, Springer, Berlin, 2022, pp. 77-78.

Mortati C., Obbligo di motivazione e sufficienza della motivazione degli atti amministrativi, in Giurisprudenza Italiana, 1943, III, p. 1 ff.

Mouriesse E., L'opacité des algorithmes et la transparence administrative, in Revue Française de Droit Administratif, 1, 2019, pp. 45-54.

Mozaffari S., Al-Jarrah O.Y., Dianati M., Jennings P., Mouzakitis Al., Deep Learning-Based Vehicle Behavior Prediction for Autonomous Driving Applications: A Review, in IEEE Transactions on Intelligent Transportation Systems, vol. 23, no. 1, 2022, pp. 33-47.

Muciaccia N., Algoritmi e procedimento decisionale: alcuni recenti arresti della giustizia amministrativa, in federalismi.it, 10, 2020, pp. 344-368.

Mühlhoff R., Updating purpose limitation for AI: a normative approach from law and philosophy, in International Journal of Law and Information Technology, 33, 2025, pp. 1-23.

Murugesan S., Considerations in Development of Expert Systems for Real-Time Process Control Applications, in NASA Technical Memorandum 100581, 1988.

Murugesan S., The Rise of Agentic AI: Implications, Concerns, and the Path Forward, in IEEE Intelligent Systems, vol. 40, 2025, p. 8, 9, 13.

Nardo D., La comunicazione di avvio del procedimento, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, pp. 121-134.

Nassuato F., Legalità algoritmica nell'azione amministrativa e regime dei vizi procedimentali, in CERIDAP, 1, 2022, pp. 166-167.

Neitz M.B., Ready or Not: How Congressional Dysfunction and Loper Bright Enterprises v. Raimondo will Shift U.S. Regulation of Emerging Technologies to the Federal Bench, in SMU Law Review, 78(1), 2024, p. 155.

Neri V., Diritto amministrativo e intelligenza artificiale, un amore possibile, in Urbanistica e appalti, 5, 2021, pp. 592-593.

Ng Y.F., Combatting the Code. Regulating Automated Government Decision-Making in Comparative Context, Cambridge University Press, Cambridge, 2025, p. 83.

Nguyen T.T., Huynh T.T., Ren Z., Le Nguyen P., Wee-Chung Liew A., Yin H., Nguyen Q.V.H., A Survey of Machine Unlearning, in ACM Transactions on Intelligent Systems and Technology, vol. 16, n. 5, Article 108, September 2025, pp. 1-46.

Nicotra I.A., Varone V., L'algoritmo, intelligente ma non troppo, in Rivista AIC, 4, 2019, pp. 86-106.

Niklas J., Human Rights-Based Approach to AI and Algorithms, in W. Barfield (ed.), The Cambridge Handbook of the Law of Algorithms, Cambridge University Press, Cambridge, 2021, p. 521.

Nilsson N.J., The Quest for Artificial Intelligence: A History of Ideas and Achievements, Cambridge University Press, Cambridge, 2010, p. 398.

Nissenbaum H., Accountability in a Computerized Society, in Science and Engineering Ethics, 2, 1996, pp. 25-42.

Nocelli F.M., L'accessibilità totale nel quadro della trasparenza amministrativa: dinamiche evolutive, in Il Foro amministrativo, 10, 2020, pp. 1979-2014.

Novelli C., L'Artificial Intelligence Act Europeo: alcune questioni di implementazione, in federalismi.it, 2, 2024, pp. 95-113.

Novelli C., Floridi L., Sartor G., Teubner G., AI as legal persons: past, patterns, and prospects, in Journal of Law and Society, 52, 2025, p. 552.

Occhiena M., I diritti di accesso dopo la riforma della l. n. 241 del 1990, in Foro amministrativo – TAR, 3, 2005, p. 905 ff.

Oche A.J., Folashade A.G., Ghosal T., Biswas A., A Systematic Review of Key Retrieval-Augmented Generation (RAG) Systems: Progress, Gaps, and Future Directions, available at arXiv, 25 July 2025, p. 24.

O'Keefe C., Ramakrishnan K., Tay J., Winter C., Law-Following AI: Designing AI Agents to Obey Human Laws, in Fordham Law Review, 94(1), 2025, p. 57, 83-86.

Oliverio F., La motivazione del provvedimento amministrativo, in A. Giordano (ed.), Il procedimento amministrativo tra regole e responsabilità, Giuffrè, Milano, 2025, p. 191.

Olsen H.P., Slosser J.L., Hildebrandt T.T., The Legal Requirement of Explainability in Computationally Aided Decision-Making in Public Administration, in H.W. Micklitz, O. Pollicino, A. Reichman, A. Simoncini, G. Sartor, G. De Gregorio (eds.), Constitutional Challenges in the Algorithmic Society, Cambridge University Press, Cambridge, 2022, p. 223.

O'Malley P.J., Generative AI Systems and Corporate Governance, in M. Zou, C. Poncibò, M. Ebers, R. Calò (eds.), The Cambridge Handbook of Generative AI and the Law, Cambridge University Press, Cambridge, 2025, p. 379.

O'Neil C., Weapons of Math Destruction. How Big Data Increased Inequality and Threatens Democracy, Crown, New York, 2016, p. 21.

Orlandi M., La responsabilità solidale. Profili delle obbligazioni solidali risarcitorie, Giuffrè, Milano, 1993, p. 127 ff., 271 ff.

Orofino A.G., Forme elettroniche e procedimenti amministrativi, Cacucci, Bari, 2008.

Orofino A.G., L'attuazione del principio di trasparenza nello svolgimento dell'amministrazione elettronica, in Judicium, 19 October 2020, pp. 22-23.

Orofino A.G., Profili giuridici della trasparenza amministrativa, Cacucci, Bari, 2013.

Orofino A.G., Record-keeping (Article 12), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 213-216, 223.

Orofino A.G., Gallone G., L'intelligenza artificiale al servizio delle funzioni amministrative: profili problematici e spunti di riflessione, in Giurisprudenza Italiana, July 2020, pp. 1738-1748.

Orphanou K., Otterbacher J., Kleanthous S., Batsuren K., Giunchiglia F., Bogina V., Shulner A., Hartman A., Kuflik T., Mitigating Bias in Algorithmic Systems—A Fish-eye View, in ACM Computing Surveys, 55(5), Article 87, December 2022, pp. 87:1-87:37.

Orsi Battaglini A., Attività vincolata e situazioni soggettive, in Aa.Vv., Studi in ricordo di E. Capaccioli, Giuffrè, Milano, 1988.

Ossmann-Magiera L., Markschies L., Data Governance under the AI Act, in B. Raue, A. von Ungern-Sternberg, L.K. Kumkar, T. Rüfner (eds.), Artificial Intelligence and Fundamental Rights. The AI Act of the European Union and its implications for global technology regulation, Institute for Digital Law Trier (IRDT), Trier, 2025, pp. 75-89.

Otranto P., Decisione amministrativa e digitalizzazione della p.a., in federalismi.it, 2, 2018, p. 17 ff.

Pagallo U., The Laws of Robots. Crimes, Contracts, and Torts, Springer, Dordrecht, 2013, *passim*.

Pagallo U., Vital, Sophia, and Co.—The Quest for the Legal Personhood of Robots, in Information, 9, 2018, p. 5.

Pagano T.P., Loureiro R.B., Lisboa F.V.N., Peixoto R.M., Guimarães G.A.S., Cruz G.O.R., Araujo M.M., Santos L.L., Cruz M.A.S., Oliveira E.L.S., Winkler I., Nascimento E.G.S., Bias and Unfairness in Machine Learning Models: A Systematic Review on Datasets, Tools, Fairness Metrics, and Identification and Mitigation Methods, in Big Data Cognitive Computing, 7(1), 15, 2023, pp. 1-31.

Pajno A., Bassini M., De Gregorio G., Macchia M., Patti F.P., Pollicino O., Quattrocolo S., Simeoli D., Sirena P., AI: profili giuridici. Intelligenza artificiale: criticità emergenti e sfide per il giurista, in Rivista di BioDiritto, 3, 2019, p. 220.

Palazzo D., Intelligenza artificiale e scelte amministrative. La discrezionalità alla prova degli algoritmi, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori del laboratorio di diritto amministrativo 2022-2023, Roma 3 Press, Roma, 2024, p. 117.

Palma Ortigosa A., Data and Data Governance (Article 10), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 183-205.

Palma Ortigosa A., General regime of obligations for providers and deployers in the Artificial Intelligence Act, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 474-481.

Palma Ortigosa A., Remedies (Chapter IX, Section 4), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 507-518.

Palma Ortigosa A., Transparency and Provision of Information to Deployers (Article 13), in A. Huergo Lora (ed.), The EU Regulation on Artificial Intelligence: A Commentary, Wolters Kluwer, Milano, 2025, pp. 217-242.

Pampanin V., Commento all'Art. 100. Requisiti di ordine speciale, in R. Villata, M. Ramajoli (eds.), Commentario al Codice dei contratti, Pacini Editore, Pisa, 2024, pp. 570-579.

Panda M., Agentic AI: A Paradigm for Autonomous Decision-Making, in International Journal of Innovative Research of Science, Engineering and Technology (IJIRSET), vol. 14, issue 1, January 2025, p. 569.

Panucci G., Legge 132/2025 sull'intelligenza artificiale: un punto di svolta per la PA italiana, in ilPersonale, 24 October 2025.

Panzarola A., Onere della prova, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 159 ff.

Paolucci F., Algoritmi e intelligenza artificiale alla ricerca di una definizione: l'esegesi del Consiglio di Stato alla luce dell'AI Act, in Giustizia Insieme, 8 April 2022.

Papadouli V., Transparency in Artificial Intelligence: A Legal Perspective, in Journal of Ethics and Legal Technologies, 4(1), 2022, pp. 31-32.

Paprunia D., Kharidia V., Doshi P., Advancing SLM Tool-Use Capability using Reinforcement Learning, in 2025 International Conference on Artificial Intelligence and Computing (AIC), 2025, p. 93.

Pareo C., I modelli organizzativi fondati su meccanismi premiali indifferenti alla presenza di fattori protetti sono discriminatori, in Argomenti di diritto del lavoro, 3, 2024, pp. 649-658.

Paris T., Moon A., Guo J.L.C., Opening the Scope of Openness in AI, in FAccT 2025, ACM Conference on Fairness, Accountability, and Transparency. Proceedings, ACM, 2025, pp. 1293-1294.

Park D., An G.T., Kamyod C., Kim C.G., A Study on Performance Improvement of Prompt Engineering for Generative AI with a Large Language Model, in Journal of Web Engineering, 22(8), 2024, p. 1188, 1201.

Pasceri G., Intelligenza artificiale, algoritmo e machine learning, Giuffrè, Milano, 2021, p. 68.

Pasquale F., The Black Box Society. The Secret Algorithms That Control Money and Information, Harvard University Press, Cambridge (Massachusetts), 2015, p. 3.

Paszke A., Gross S., Massa F., Lerer A., Bradbury J., Chanan G., Killeen T., Lin Z., Gimelshein N., Antiga L., Desmaison A., Köpf A., Yang E., DeVito Z., Raison M., Tejani A., Chilamkurthy S., Steiner B., Fang L., Bai J., Chintala S., PyTorch: An Imperative Style, High-Performance Deep Learning Library, in Advances in Neural Information Processing Systems, 32, 2019, pp. 8024-8035.

Patroni Griffi F., L'eterno dibattito sulle giurisdizioni tra diritti incomprimibili e lesione dell'affidamento, in federalismi.it, 24, 2011, pp. 1-10.

Patroni Griffi F., La trasparenza della pubblica amministrazione tra accessibilità totale e riservatezza, in federalismi.it, 8, 2013, pp. 1-12.

Pedregosa F., Varoquaux G., Gramfort A., Michel V., Thirion B., Grisel O., Blondel M., Prettenhofer P., Weiss R., Dubourg V., Vanderplas J., Passos A., Cournapeau D., Brucher M., Perrot M., Duchesnay E., Scikit-learn: Machine Learning in Python, in Journal of Machine Learning Research, 12, 2011, pp. 2825-2830.

Pehlivan C.N., Forgó N., Valcke P. (eds.), The EU Artificial Intelligence (AI) Act: A Commentary, Wolters Kluwer Law International, Alphen aan den Rijn, 2024.

Pellegrino A., Dal procedimento digitale all'amministrazione algoritmica responsabile: la nuova disciplina dell'intelligenza artificiale nella pubblica amministrazione dopo la Legge n. 132/2025, in Contabilità Pubblica, 16 October 2025.

Pellizzari S., L'art. 10 bis della legge 241 del 1990: le potenzialità del "dialogo procedimentale" nel contesto della semplificazione amministrativa, in A. Sandulli, G. Piperata (eds.), La legge sul procedimento amministrativo. Vent'anni dopo, Editoriale Scientifica, Napoli, 2011, pp. 133-148.

Perfetti L.R., Discrezionalità amministrativa e principio del risultato, in P.A. Persona e Amministrazione, 14(1), 2024, pp. 69-96.

Perfetti L.R., Pesce G. (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, *passim*.

Perfetti L.R., Problemi del dispiegarsi del principio dispositivo nel processo amministrativo, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 49.

Perin M., Niente più responsabilità amministrativa per colpa grave?, Le modifiche (o soppressione) della responsabilità per colpa grave. Saranno utili? Probabilmente no., in lexitalia.it, 8, 2020, p. 4.

Perongini S., Giudizio amministrativo e sindacato del giudice penale, in AIPDA, Discrezionalità e amministrazione, Editoriale Scientifica, Napoli, 2023, p. 276.

Perongini S., La struttura del provvedimento amministrativo: a) profili statici, in Aa.Vv., Istituzioni di diritto amministrativo, Giappichelli, Torino, 2017, pp. 297-311.

Perongini S., Teoria e dogmatica del provvedimento amministrativo, Giappichelli, Torino, 2016, *passim*.

Perrone F., Discrimination by algorithm: the role of courts in AI regulation on grounds of union activity, in M. Artigot i Golobardes, G. Grasso, P. Iamiceli, M.R. Maugeri (eds.), Artificial Intelligence, Judicial Decision-Making and Fundamental Rights, JuLIA Project, 2024, p. 202.

Perulli A., La discriminazione algoritmica: brevi note introduttive a margine dell'Ordinanza del Tribunale di Bologna, in Lavoro Diritti Europa, 1, 2021, pp. 1-7.

Perulli G., La consulenza tecnica d'ufficio nel processo amministrativo, CEDAM, Padova, 2002.

Pesch P.J., Potentials and Challenges of Large Language Models (LLMs) in the Context of Administrative Decision-Making, in European Journal of Risk Regulation, 16(1), 2025, p. 6, 7, 15.

Pesce G., Il Consiglio di Stato ed il vizio della opacità dell'algoritmo tra diritto interno e diritto sovranazionale, in www.giustizia-amministrativa.it, 2020.

Pesce G., Poteri istruttori del giudice amministrativo e piattaforme intelligenti. Questioni vecchie e nuove sul principio "dispositivo con metodo acquisitivo",

in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, pp. 105-106.

Phillips P.J., Hahn C.A, Fontana P.C., Yates A.N., Greene K., Broniatowski D.A., Przybocki M.A., Four Principles of Explainable Artificial Intelligence, available at NIST, September 2021.

Picozza E., Politica, diritto amministrativo and Artificial Intelligence, in Giurisprudenza Italiana, 7, 2019, pp. 1761-1771.

Pietrogiovanni V., Deliveroo and Riders' Strikes: Discriminations in the Age of Algorithms, in International Labour Rights Case Law, 7, 2021, pp. 317-321.

Pinotti C., La responsabilità amministrativa: problematiche attuali e prospettive future, in Rivista della Corte dei conti – Quaderni, 2, 2022, pp. 95-105.

Pintauro J., I pareri e le valutazioni tecniche, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 584, 588-589.

Pioggia A., La competenza amministrativa, Giappichelli, Torino, 2001.

Piraino F., Dolo e colpa (responsabilità civile), in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, p. 581.

Pistilli G., Trevelin B., Can AI be Consentful?, available at arXiv, 8 July 2025.

Police A., I mezzi di prova e l'attività istruttoria, in G.P. Cirillo (directed by), Diritto processuale amministrativo, UTET Giuridica, Milano, 2017, pp. 419-420.

Police A., L'illegittimità dei provvedimenti amministrativi alla luce della distinzione tra vizi c.d. formali e vizi sostanziali, in Diritto amministrativo, 4, 2003, p. 735 ff.

Police A., La legge, il potere amministrativo e le situazioni giuridiche soggettive, in G. della Cananea, M. Dugato, B. Marchetti, A. Police, M. Ramajoli (eds.), Manuale di diritto amministrativo, Giappichelli, Torino, 2022, p. 140 ff.

Polidori C., Procedimento amministrativo e algoritmi, in www.giustizia-amministrativa.it, 2025, p. 21, 27.

Pollicino O., Regolare l'intelligenza artificiale: la lunga vita dei diritti fondamentali, in O. Pollicino, F Donati, G. Finocchiaro, F. Paolucci (eds.), La disciplina dell'intelligenza artificiale, Giuffrè, Milano, 2025, pp. 15-16.

Ponte D., La nullità del provvedimento amministrativo. Profili sostanziali e processuali, Giuffrè, Milano, 2007.

Ponti B. (ed.), Nuova trasparenza amministrativa e libertà di accesso alle informazioni, Maggioli, Rimini, 2016.

Previti L., La decisione amministrativa robotica, Editoriale Scientifica, Napoli, 2022, p. 256.

Previti L., La difficile regolazione delle decisioni amministrative algoritmiche: alla ricerca di un modello italiano, in Ius Publicum, 29 April 2021, p. 45.

Proietti G., Intelligenza artificiale e responsabilità nel settore sanitario, in U. Ruffolo (ed.), Intelligenza artificiale. Il diritto, i diritti, l'etica, Giuffrè, Milano, 2020, p. 613.

Proietti G., La responsabilità nell'intelligenza artificiale e nella robotica, Giuffrè, Milano, 2020, pp. 34-35, 177.

Prosperetti E., Accesso al software e al relativo algoritmo nei procedimenti amministrativi e giudiziali. un'analisi a partire da due pronunce del TAR Lazio, in Il diritto dell'informazione e dell'informatica, 4/5, 2019, pp. 979-1010.

Protto M., I profili costituzionali della responsabilità della P.A. e del pubblico dipendente, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, p. 20, 27.

Protto M., La responsabilità della p.a. per lesione di interessi legittimi come responsabilità da contatto amministrativo, Resp. civ. prev., 2001, p. 235 ff.

Provenzano P., L'accesso agli atti senza istanza. Riflessioni a prima lettura sulla nuova disciplina (sostanziale e processuale) in materia di accesso agli atti gara, in F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, Giappichelli, Torino, 2024, p. 611 ff.

Pubusa A., Forma e sostanza nel procedimento. Considerazioni sull'art. 21octies della legge n. 241 del 1990, in Diritto pubblico, 2, 2006, p. 512 ff.

Pugliatti S., Abuso di rappresentanza e conflitto di interessi, in Rivista di diritto commerciale, I, 1936, p. 22 ff.

Puzzanghera A., The Impact of Artificial Intelligence on Administrative Law, in M. Belov (ed.). The IT Revolution and its Impact on State, Constitutionalism and Public Law, Hart Publishing, Oxford, 2021, p. 223.

Quadri E., Il principio della fiducia alla luce del nuovo Codice dei contratti pubblici e delle prime applicazioni della giurisprudenza, in Rivista Trimestrale di Scienza dell'Amministrazione, 4, 2024, pp. 1-15.

Qwen Team, Qwen2.5 Technical Report, available at arXiv, 3 January 2025.

Racca G.M., La buona fede "digitale" nei contratti pubblici, in F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, Giappichelli, Torino, 2024, pp. 636-637.

Racca G.M., La responsabilità delle organizzazioni pubbliche nella trasformazione digitale e i principi di collaborazione e buonafede, in Diritto amministrativo, 3, 2022, p. 601 ff.

Racca G.M., La responsabilità precontrattuale della pubblica amministrazione tra autonomia e correttezza, Jovene, Napoli, 2000.

Rachovitsa A., Johann N., The Human Rights Implications of the Use of AI in the Digital Welfare State: Lessons Learned from the Dutch SyRI Case, in Human Rights Law Review, 22, 2022, pp. 1-15.

Rademacher T., Artificial Intelligence and Law Enforcement, in T. Wischmeyer, T. Rademacher (eds.), Regulating Artificial Intelligence, Springer, Cham, 2020, p. 246.

Radtke T., Human Oversight under the AI Act and its interplay with Art. 22 GDPR, in B. Raue, A. von Ungern-Sternberg, L.K. Kumkar, T. Rüfner (eds.), Artificial Intelligence and Fundamental Rights. The AI Act of the European Union and its implications for global technology regulation, Institute for Digital Law Trier (IRDT), Trier, 2025, p. 103.

Ragusa M., L'obbligo di motivazione del provvedimento a vent'anni dall'emanazione della legge generale sul procedimento amministrativo, in A. Sandulli, G. Piperata (eds.), La legge sul procedimento amministrativo. Vent'anni dopo, Editoriale Scientifica, Napoli, 2011, p. 321 ff.

Rai A.K., Sharma I., Silcox C., Accountability, secrecy, and innovation in AI-enabled clinical decision software, in Journal of Law and the Biosciences, 7(1), 2020, pp. 1-26.

Raimo T., Il tempo dell'accesso agli atti di gara, in Urbanistica e appalti, 5, 2022, p. 705 ff.

Raiola I., L'onere della prova nel processo amministrativo ed il polimorfismo delle tutele azionabili dinanzi al giudice amministrativo, in www.giustizia-amministrativa.it, 2023.

Rallo A., Contributo allo studio della comunicazione dell'atto amministrativo, Editoriale Scientifica, Napoli, 2008.

Ramachandranpillai R., Baeza-Yates R.A., Heintz F., FairXAI – A Taxonomy and Framework for Fairness and Explainability Synergy in Machine Learning, in IEEE Transactions on Neural Networks and Learning Systems, 36(6), 2025, p. 9820.

Ramajoli M., Il declino della decisione motivata, in Diritto processuale amministrativo, 3, 2017, p. 894 ff.

Ramajoli M., Preavviso di rigetto, preclusioni, giusto procedimento e giusto processo, in Diritto processuale amministrativo, 3, 2022, pp. 595-616.

Ramón Fernández F., Quality Management Systems, Technical Documentation and Documentation Keeping in the Regulation, in L. Cotino Hueso, D.U. Galetta (eds.), The European Union Artificial Intelligence Act, Editoriale Scientifica, Napoli, 2025, pp. 629-647.

Ranelletti O., Principi di diritto amministrativo, Luigi Pierro, Napoli, 1912, p. 365 ff.

Rao Kosireddy T., Wall J.D., Lucas E., Exploring the Readiness of Prominent Small Language Models for the Democratization of Financial Literacy, in Proceedings of the 1st Workshop on Customizable NLP: Progress and Challenges in Customizing NLP for a Domain, Application, Group, or Individual (CustomNLP4U), 2024, p. 125.

Rashed A., Kallich A., Eltayeb M., Analyzing Fairness of Computer Vision and Natural Language Processing Models, in Information, 16(3), 182, 2025, p. 4.

Rathee M., V. V., MacAvaney S., Anand A., Test-time Corpus Feedback: From Retrieval to RAG, available at arXiv, 24 August 2025, p. 2.

Raue B., von Ungern-Sternberg A., Kumkar L.K., Rüfner T. (eds.), Artificial Intelligence and Fundamental Rights. The AI Act of the European Union and its implications for global technology regulation, Institute for Digital Law Trier (IRDT), Trier, 2025.

Raul G., Lin Y.Z., Patel K., Shih B.P.J., Redondo M.W., Latibari B.S., Salehi S., Satam P., RAG-PRISM: A Personalized, Rapid, and Immersive Skill Mastery Framework with Adaptive Retrieval-Augmented Tutoring, in 2025 IEEE Frontiers in Education Conference (FIE), Nashville, TN, USA, 2025, p. 3.

Ravuru C., Sakhinana S.S., Runkana V., Agentic Retrieval-Augmented Generation for Time Series Analysis, available at arXiv, 18 August 2024.

Raza S., Rahman M., Kamawal S., Toroghi A., Raval A., Navah F., Kazemeini A., A comprehensive review of recommender systems: Transitioning from theory to practice, in Computer Science Review, 59, 2026, pp. 1-42.

Raza S., Sapkota R., Karkee M., Emmanouilidis C., TRiSM for Agentic AI: A Review of Trust, Risk, and Security Management in LLM-based Agentic Multi-Agent Systems, available at arXiv, 15 September 2025, p. 8.

Raza S., Shaban-Nejad A., Dolatabadi E., Mamiya H., Exploring Bias and Prediction Metrics to Characterise the Fairness of Machine Learning for Equity-Centered Public Health Decision-Making: A Narrative Review, in IEEE Access, 12, 2024, p. 180818.

Ren Y., Lin Y., Ji T., Xu X., AI Agents and Agentic AI–navigating a plethora of concepts for future manufacturing, in Journal of Manufacturing Systems, 83, 2025, p. 128.

Renna M., Obblighi procedimentali e responsabilità dell'amministrazione, in Diritto amministrativo, 3, 2005, p. 557 ff.

Renna M., Responsabilità della pubblica amministrazione: A) Profili sostanziali, in Enciclopedia del diritto, Annali, IX, Giuffrè, Milano, 2016, p. 801 ff.

Ribeiro M.T., Singh S., Guestrin C., Why Should I Trust You? Explaining the Predictions of Any Classifier, in KDD '16: Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2016, pp. 1135-1144.

Richards N.M., Smart W.D., How Should the Law Think About Robots?, in R. Calo, A.M. Froomkin, I. Kerr (eds.), Robot Law, Edward Elgar Publishing Limited, Cheltenham, 2016, p. 4, 19-20.

Risso F., I singoli mezzi di prova, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, 290, 299, 301-304.

Risso F., L'istruttoria come garanzia per un autentico sindacato della discrezionalità tecnica: problemi applicativi con particolare riferimento alla verificazione e alla consulenza tecnica, in F. Francario, M.A. Sandulli (eds.), Sindacato sulla discrezionalità e ambito del giudizio di cognizione, Editoriale Scientifica, Napoli, 2023, p. 353 ff.

Rivellini G., L'errore dell'algoritmo obbliga la pubblica amministrazione a risarcire il danno, in IRPA, 14 June 2023.

Rocher L., Hendrickx J.M., de Montjoye Y.A., Estimating the success of re-identifications in incomplete datasets using generative models, in Nature Communications, vol. 10, 3069, 2019, pp. 1-9.

Rodotà S., Antropologia dell'*homo dignus*, in www.civilistica.com, 2(1), 2013, pp. 1-13.

Rodotà S., Il problema della responsabilità civile, Giuffrè, Milano, 1964.

Rodríguez de las Heras Ballell T., Generative AI Liability Cases in the EU, in M. Zou, C. Poncibò, M. Ebers, R. Calo (eds.), The Cambridge Handbook of Generative AI and the Law, Cambridge University Press, Cambridge, 2025, p. 112.

Rodríguez de las Heras Ballell T., The revision of the product liability directive: a key piece in the artificial intelligence liability puzzle, in ERA Forum, 24, 2023, pp. 247-259.

Roehrssen G., Note sulla motivazione degli atti amministrativi, in Rivista di Diritto Pubblico, 1941, II, p. 110 ff.

Romano A., Giurisdizione amministrativa e limiti della giurisdizione ordinaria, Giuffrè, Milano, 1975.

Romano E., La "non contestazione" nel processo amministrativo, Giappichelli, Torino, 2016.

Romano M.C., La comunicazione di avvio del procedimento, in A. Romano (ed.), L'azione amministrativa, Giappichelli, Torino, 2016, p. 293 ff.

Romano M.C., Lazzara P., Art. 10-bis. Comunicazione dei motivi ostativi all'accoglimento dell'istanza, in A. Romano (ed.), L'azione amministrativa, Giappichelli, Torino, 2016, p. 382 ff.

Romano Tassone A., A chi serve il diritto d'accesso? (Riflessioni su legittimazione e modalità di esercizio del diritto di accesso nella legge n. 241/1990), in Diritto amministrativo, 3, 1995, p. 315 ff.

Romano Tassone A., Contributo sul tema dell'irregolarità degli atti amministrativi, Giappichelli, Torino, 1993.

Romano Tassone A., La responsabilità della p.a. tra provvedimento e comportamento, in Diritto amministrativo, 2004, p. 224.

Romano Tassone A., Legge sul procedimento amministrativo e motivazione del provvedimento amministrativo. Prime osservazioni, in Aa.Vv., Scritti in onore di Pietro Virga, Giuffrè, Milano, 1994, p. 1589 ff.

Romeo G., L'effettività della giustizia amministrativa: principio o mito?, in Diritto processuale amministrativo, 3, 2004, p. 653 ff.

Rordorf R., Onere della prova e vicinanza della prova, in Jus Civile, 1, 2023, pp. 11-18.

Roversi Monaco F., La delegazione amministrativa nel quadro dell'ordinamento regionale, Giuffrè, Milano, 1970, p. 21, 73.

Rubechini P., Appalti pubblici e diritto di accesso, in Giornale di diritto amministrativo, 2020, p. 232 ff.

Ruffolo U., Artificial Intelligence e responsabilità. «Persona elettronica» e teoria dell'illecito, in A. Pajno, F. Donati, A. Perrucci (eds.), Intelligenza artificiale e diritto: una rivoluzione?, vol. II, Il Mulino, Bologna, 2022, p. 248 ff.

Ruffolo U., Intelligenza Artificiale, machine learning e responsabilità da algoritmo, in Giurisprudenza Italiana, July 2019, p. 1692.

Ruffolo U., Le responsabilità da artificial intelligence, algoritmo e smart product: per i fondamenti di un diritto dell'intelligenza artificiale self-learning, in U. Ruffolo (ed.), Intelligenza artificiale. Il diritto, i diritti, l'etica, Giuffrè, Milano, 2020, pp. 115-116.

Ruggeri A., La Corte costituzionale, la "logica" del caso e la motivazione insufficiente (dialogando con alcuni matematici sulla sent. n. 310 del 2010), in www.giurcost.org, 26 June 2012.

Russell S.J., Human compatible. Artificial Intelligence and the Problem of Control, Penguin Random House, New York, 2019, p. 285.

Russell S.J., Norvig P., Artificial Intelligence. A Modern Approach, Pearson, London, 2022, p. 669.

Sacchetto G.M., L'onere della "vicinanza" della prova, in Diritto Processuale Civile e ADR, 8-9, 2023, pp. 1852-1857.

Sacco P., Il profilo della delega e subdelega di funzioni amministrative, Giuffrè, Milano, 1984, p. 35, 48 ss.

Sacco R., Nullità e annullabilità (dir. civ.), in Novissimo Digesto Italiano, IX, 1965, p. 456.

Saitta F., Il vizio dell'eccesso di potere: una prospettiva storica, in Nuove autonomie, 3, 2021, pp. 583-631.

Saitta F., La distribuzione dell'onere della prova nel processo amministrativo, tra principi e regole, in Il Processo, 1, 2025, pp. 105-132.

Saitta F., Onere della prova e poteri istruttori del giudice amministrativo dopo la codificazione, in Diritto e processo amministrativo, 1, 2013, p. 93 ff.

Saitta F., Vicinanza della prova e codice del processo amministrativo: l'esperienza del primo lustro, in Judicium, 15 June 2015, pp. 5-6.

Sala G., L'eccesso di potere amministrativo dopo la legge n. 241/1990: un'ipotesi di ridefinizione, in Diritto amministrativo, 1993, p. 173 ff.

Sancilio L., Le ricadute del Next Generation EU sul procedimento amministrativo digitale e il problematico uso dell'intelligenza artificiale nell'esercizio della discrezionalità amministrativa, in S. Franca, A. Porcari, S. Sulmicelli (eds.), Le transizioni e il diritto: atti delle giornate di studio, 21-22 settembre 2023, Università degli Studi di Trento, Trento, 2024, pp. 535-559.

Sandulli A., Eccesso di potere e controllo di proporzionalità. Profili comparati, in Rivista trimestrale di diritto pubblico, 2, 1995, p. 329 ff.

Sandulli A., Il procedimento amministrativo e la trasparenza, in S. Cassese, C. Franchini (eds.), L'amministrazione pubblica italiana, Il Mulino, Bologna, 1994, p. 101 ff.

Sandulli A., L'accesso ai documenti amministrativi, in Giornale di diritto amministrativo, 5, 2005, p. 494 ff.

Sandulli A., La casa dai vetri oscurati: i nuovi ostacoli all'accesso ai documenti, in Giornale di diritto amministrativo, 6, 2007, p. 669 ff.

Sandulli A.M., I limiti di esistenza dell'atto amministrativo, in Rassegna di diritto pubblico, I, 1949, p. 125 ff.

Sandulli A.M., Il procedimento amministrativo, Giuffrè, Milano, 1964, p. 330.

Sandulli A.M., In tema di investitura illegittima dell'autorità e di incompetenza, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, Jovene, Napoli, 1990, p. 141.

Sandulli A.M., Interferenze tra incompetenza ed eccesso di potere, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, Jovene, Napoli, 1990, p. 35 ff.

Sandulli A.M., Lesione di interessi legittimi e obbligazione risarcitoria della pubblica Amministrazione, in Rivista trimestrale di diritto e procedura civile, 1963, p. 1279.

Sandulli A.M., Per la delimitazione dei vizi di incompetenza degli atti amministrativi, in Rassegna di diritto pubblico, 1948, p. 25 ff.

Sandulli A.M., Per la delimitazione del vizio di incompetenza degli atti amministrativi, in A.M. Sandulli, Scritti giuridici. III. Diritto amministrativo, Jovene, Napoli, 1990, p. 55 ff.

Sandulli M.A., Accesso alle notizie e ai documenti amministrativi, in Enciclopedia del diritto, Agg. vol. IV, Giuffrè, Milano, 2000.

Sandulli M.A., La comunicazione di avvio del procedimento tra forma e sostanza (spunti dai recenti progetti di riforma), in Foro amministrativo – TAR, 5, 2004, p. 1595 ff.

Sandulli M.A., La consulenza tecnica d'ufficio, in Il Foro amministrativo – T.A.R., 12, 2008, p. 3533 ff.

Santangeli F., Riflessioni sul controllo giudiziale del potere. L'amministrazione digitale. Intelligenza artificiale e controllo giudiziale, in Judicium, 20 December 2024, p. 12.

Santise M., La natura della responsabilità della P.A. per danni derivanti dall'illegittimo esercizio del potere, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, pp. 129-144.

Santoro E.M., I vizi non invalidanti del provvedimento, in M.A. Sandulli (ed.), Principi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 717 ff.

Santoro P., L'illecito contabile e la responsabilità amministrativa, Maggioli, Rimini, 2011.

Santosuosso A., Boscarato C., Caroleo F., Robot e diritto: una prima ricognizione, in La nuova giurisprudenza civile commentata, 7-8, 2012, p. 511 ff.

Santosuosso A., Tomasi M., Diritto, scienza, nuove tecnologie, CEDAM, Padova, 2016, p. 336 ff.

Sapienza S., Decisioni algoritmiche e diritto, Giuffrè, Milano, 2025, pp. 23-25.

Sapkota R., Roumeliotis K.I., Karkee M., AI Agents vs. Agentic AI: A Conceptual taxonomy, applications and challenges, in Information Fusion, 2026, pp. 8-9, 20.

Sapkota R., Roumeliotis K.I., Karkee M., Vibe Coding vs. Agentic Coding: Fundamentals and Practical Implications of Agentic AI, available at arXiv, 26 May 2025, p. 24.

Sato K., Young C., An in-depth look at Google's first Tensor Processing Unit (TPU), available at Google Cloud, 13 May 2017.

Savino M., Il FOIA italiano e i suoi critici: per un dibattito scientifico meno platonico, in Diritto amministrativo, 3, 2019, pp. 453-495.

Savino M., La nuova disciplina della trasparenza amministrativa, in Giornale di diritto amministrativo, 8-9, 2013, pp. 795-805.

Schinaia M.E., Consulente tecnico (diritto processuale amministrativo), in Enciclopedia giuridica, VIII, Treccani, Roma, 2003, p. 1 ff.

Schneider J., Generative to Agentic AI: Survey, Conceptualization, and Challenges, available at arXiv, 26 April 2025, p. 8, 15-16.

Schuett J., Risk Management in the Artificial Intelligence Act, in European Journal of Risk Regulation, 15, 2024, pp. 367-385.

Sciascia S., La responsabilità erariale è ancora compatibile con le esigenze dell'attuale amministrazione o svolge un insostenibile impatto disfunzionale?, in Rivista della Corte dei conti, 1, 2024, pp. 51-62.

Scoca F.G., Contributo sulla figura dell'interesse legittimo, Giuffrè, Milano, 1990.

Scoca F.G., Il processo amministrativo ieri, oggi, domani (brevi considerazioni), in Diritto processuale amministrativo, 2020, pp. 1099-1100.

Scoca F.G., L'interesse legittimo. Storia e teoria, Giappichelli, Torino, 2017.

Scoca F.G., La teoria del provvedimento dalla sua formulazione alla legge sul procedimento, in Diritto amministrativo, 1995, p. 34.

Scoca F.G., Le disarmonie del sistema giurisdizionale, in F.G. Scoca, M.P. Chiti, D.U. Galetta (eds.), Liber amicorum per Guido Greco, Giappichelli, Torino, 2024, pp. 762-763.

Scoca F.G., Riflessioni sui criteri di riparto delle giurisdizioni (ordinaria e amministrativa), in Diritto processuale amministrativo, 1989, p. 549 ff.

Scoca F.G., Risarcibilità e interesse legittimo, in Diritto pubblico, 2000, p. 13 ff.

Scoca F.G., Scossoni e problemi in tema di giurisdizione del giudice amministrativo, in Il Processo, 2021, p. 1 ff.

Scoca F.G. (ed.), La responsabilità amministrativa ed il suo processo, CEDAM, Padova, 1997.

Sclafani F., Il sindacato giurisdizionale sui provvedimenti sanzionatori delle autorità indipendenti: l'attendibilità delle scelte tecniche tra legittimità e merito, in Rivista della Regolazione dei Mercati, 1, 2021, pp. 148-169.

Scognamiglio C., Responsabilità civile ed intelligenza artificiale: quali soluzioni per quali problemi?, in Responsabilità civile, 4, 2023, pp. 1073-1089.

Scognamiglio C., Sulla natura della responsabilità della pubblica amministrazione da lesione dell'affidamento del privato sorto a seguito di un comportamento della medesima, in Corriere giuridico, 2020, p. 1025.

Scognamiglio R., Contratto in generale, in G. Grosso, F. Santoro Passarelli (directed by), Trattato di diritto civile, Vallardi, Milano, 1977, p. 231 ff.

Selleri B., Gli atti amministrativi "in forma elettronica", in Diritto e Società, 1, 1982, p. 133 ff.

Sergio S., Il diritto d'accesso procedimentale e il diritto d'accesso civico, fra differenze e analogie. In particolare, la legittimazione ad esercitare il diritto di accesso, in federalismi.it, 20, 2020, pp. 313-358.

Serra G., Brevi note in merito alla riforma dell'art. 10-bis della L. 241/90 ad opera del c.d. Decreto Semplificazioni (D.L. n. 76/2020), in lexitalia.it, 6, 2020.

Serra G., L'onere della prova nel processo amministrativo, in L.R. Perfetti, G. Pesce (eds.), L'istruzione nel processo amministrativo, Giuffrè, Milano, 2024, p. 211 ff.

Sethi R., Vatsa V.R., Chhaparwal P., Identification and Mitigation of Algorithmic Bias Through Policy Instruments, in International Journal of Advanced Research (IJAR), 8(07), 2020, p. 1519.

Sharma R., Mehta M., Small Language Models for Agentic Systems: A Survey of Architectures, Capabilities, and Deployment Trade-offs, available at arXiv, 4 October 2025, p. 1.

Shavit Y., Agarwal S., Brundage M., Adler S., O'Keefe C., Campbell R., Lee T., Mishkin P., Eloundou T., Hickey A., Slama K., Ahmad L., McMillan P., Beutel A., Passos A., Robinson D.G., Practices for Governing Agentic AI Systems, available at OpenAI, 14 December 2023, p. 4.

Sica M., L'istruzione probatoria nel processo amministrativo tra principio dispositivo e poteri ufficiosi, in AIPDA, Annuario 2012. Principio della domanda e poteri d'ufficio del giudice amministrativo, Editoriale Scientifica, Napoli, 2013, p. 111 ff.

Sigismondi G., Eccesso di potere e clausole generali. Modelli di sindacato sul potere pubblico e sui poteri privati a confronto, Jovene, Napoli, 2012.

Silva N.S., The Artificial Intelligence Act: Critical Overview, in Journal of Intellectual Property, Information Technology, and Electronic Commerce Law, 16(1), 2025, pp. 1-23.

Silva S., Kenney M., Algorithms, Platforms, and Ethnic Bias, in Communications of the ACM, 62, 11, 2019, p. 38.

Simonati A., I principi in materia d'accesso, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 1208 ff.

Simonati A., Calabrò M., Le modalità di esercizio del diritto di accesso e la relativa tutela, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, p. 1318 ff.

Simonetti H., A proposito di comportamenti della P.A. e del loro giudice, in Urbanistica e appalti, 10, 2016, pp. 1104-1108.

Singh A., Ehtesham A., Kumar S., Agentic Retrieval-Augmented Generation: A Survey on Agentic RAG, available at arXiv, 4 February 2025, p. 2.

Sinisi M., I diritti di accesso e la discrezionalità amministrativa, Cacucci, Bari, 2022.

Sinisi M., Il giusto processo amministrativo tra esigenze di celerità e garanzie di effettività della tutela, Giappichelli, Torino, 2017.

Siracusano P., Considerazioni in tema di obbligo di motivazione degli atti vincolati, in Foro amministrativo (II) C.d.S., 10, 2003, p. 3012 ff.

Söderlund K., Hight-risk AI transparency? On qualified transparency mandates for oversight bodies under the EU AI Act, in Technology and Regulation, 2025, pp. 96-113.

Sola A., Inquadramento giuridico degli algoritmi nell'attività amministrativa, in federalismi.it, 16, 2020, pp. 361-363.

Solum L.B., Legal Personhood for Artificial Intelligences, in North Carolina Law Review, 70(4), 1992, pp. 1262-1272.

Sorace D., Diritto delle amministrazioni pubbliche, Il Mulino, Bologna, 2016, pp. 70-72, 386.

Sorace D., Il principio di legalità e i vizi formali dell'atto amministrativo, in Diritto pubblico, 2, 2007, p. 385 ff.

Sordo Z., Chagnon E., Ushizima D., A Review on Generative AI For Text-To-Image and Image-To-Image Generation and Implications To Scientific Images, available at arXiv, 10 March 2025, pp. 1-16.

Soriano A., Data Protection for Prevention of Algorithmic Discrimination, Aranzadi, Cizur Menor, 2021.

Sorrentino G., Vizio di incompetenza e processo amministrativo di risultato, in Diritto processuale amministrativo, 1, 2000, pp. 62-120.

South T., Marro S., Hardjono T., Mahari R., Whitney C.D., Greenwood D., Chan A., Pentland A., Authenticated Delegation and Authorized AI Agents, available at arXiv, 16 January 2025, p. 1.

Spampinato B., Per un primo inquadramento teorico della decisione amministrativa algoritmica, in AmbienteDiritto, 3, 2021, pp. 15-18.

Spasiano M.R., Il principio di buon andamento, in M.A. Sandulli (ed.), Princìpi e regole dell'azione amministrativa, Giuffrè, Milano, 2023, p. 128.

Spasiano M.R., La codificazione dei principi del Codice dei contratti pubblici e, in particolare, del risultato, alla prova del correttivo, in federalismi.it, 10, 2025, pp. 191-234.

Spasiano M.R., Nuovi approdi della partecipazione procedimentale nel prisma del novellato preavviso di rigetto, in Il diritto dell'economia, 2, 2021, pp. 25-54.

Spasiano M.R., Principi e discrezionalità nel nuovo codice dei contratti pubblici: primi tentativi di parametrazione del sindacato, in federalismi.it, 24, 2023, pp. 222-239.

Spasiano M.R., Trasparenza e qualità dell'azione amministrativa, in M.P. Chiti, G. Palma (eds.), I principi generali dell'azione amministrativa, Napoli, 2006.

Spindler G., Different approaches for liability of Artificial Intelligence – Pros and Cons, in S. Lohsse, R. Schulze, D. Staudenmayer (eds.), Liability for AI, Nomos, Baden-Baden, 2023, pp. 41-96.

Stepanov A., L'acte administratif algorithmique, in Revue Française de Droit Administratif, January-February, 2025, pp. 26-27.

Stryker C., What is agentic AI?, in A. Gutowska, C. Stryker (eds.), The 2025 Guide to AI Agents, available at IBM, 2025.

Suksi M., Formal, Procedural, and Material Requirements of the Rule of Law in the Context of Automated Decision-Making, in M. Suksi (ed.), The Rule of Law and Automated Decision-Making, Springer, Cham, 2023, p. 72.

Susanti Y., Färber M., Knowledge Graph Structure as Prompt: Improving Small Language Models Capabilities for Knowledge-Based Causal Discovery, in G. De Martini, K. Hose, M. Acosta, M. Palmonari, G. Cheng, H. Skaf-Molli, N. Ferranti, D. Hernández, A. Hogan (eds.), The Semantic Web – ISWC 2024, Springer, Cham, 2024, p. 98.

Tanzarella G., Nuovi profili di riservatezza nelle procedure di aggiudicazione degli appalti pubblici comunitari: all'indomani della pubblicazione delle direttive 17 e 18 CEE, qualche spunto di riflessione alla luce dell'esperienza statunitense in tema di tutela delle informazioni commerciali riservate, in Servizi pubblici e appalti, 3, 2004, p. 771 ff.

Tarullo S., Commento all'art. 10-bis, in N. Paolantonio, A. Police, A. Zito (eds.), La pubblica amministrazione e la sua azione, Giappichelli, Torino, 2005, p. 213 ff.

Tarullo S., Il giusto processo amministrativo. Studio sull'effettività della tutela giurisdizionale nella prospettiva europea, Giuffrè, Milano, 2004.

Tegmark M., Life 3.0: Being Human in the Age of Artificial Intelligence, Penguin Random House, New York, 2017, p. 52.

Tenore V., Napoli A., Studio sulla responsabilità amministrativo-contabile davanti alla Corte dei Conti, Edizioni Scientifiche Italiane, Napoli, 2019.

Tenore V., Una riflessione sistematica: l'intelligenza artificiale può sostituire un giudice o trasformarlo da *homo sapiens* in *homo numericus*?, in Rivista della Corte dei conti, 2, 2024, p. 78.

Teresi F., Procedimento amministrativo e accesso ai documenti. Commento alla legge 7 agosto 1990, n. 241, Maggioli, Rimini, 1991.

Testi F., Le varie interpretazioni del potere amministrativo, Aracne, Roma, 2016, p. 72 ff.

Teubner G., Digital Personhood? The Status of Autonomous Software Agents in Private Law, in Ancilla Iuris, 2018, p. 58.

Teubner G., Rights of Non-humans? Electronic Agents and Animals as New Actors in Politics and Law, in Journal of Law and Society, 33(4), 2006, p. 500.

Teubner G., Soggetti giuridici digitali? Sullo status privatistico degli agenti software autonomi, Edizioni Scientifiche Italiane, Napoli, 2019, pp. 82-86.

Thompson D.F., Moral Responsibility of Public Officials: The Problem of Many Hands, in American Political Science Review, 74, 1980, pp. 905-916.

Tiberii M., La nullità e l'illecito. Contributo di diritto amministrativo, Edizioni Scientifiche Italiane, Napoli, 2002.

Timo M., Il procedimento di assunzione del personale scolastico al vaglio del Consiglio di Stato, in Giurisprudenza Italiana, May 2020, pp. 1190-1197.

Tomcza J.M., Deep Generative Modeling, Springer, Cham, 2024, p. ix.

Torchia L., La responsabilità amministrativa, in Giornale di diritto amministrativo, 6, 2020, pp. 763-768.

Torregrossa G., Il problema della responsabilità da atto lecito, Giuffrè, Milano, 1964, p. 168.

Torricelli S. (ed.), Eccesso di potere e altre tecniche di sindacato sulla discrezionalità. Sistemi giuridici a confronto, Giappichelli, Torino, 2018.

Torricelli S., Autorità indipendenti e (governo della) discrezionalità, in Amministrativamente, 3, 2023, pp. 1388-1404.

Torricelli S., Per un modello generale di sindacato sulle valutazioni tecniche: il curioso caso degli atti delle autorità indipendenti, in Diritto Amministrativo, 2020, pp. 97-126.

Toscano N.A., Il provvedimento di aggiudicazione tra pubblicità e accesso agli atti, in Urbanistica e appalti, 3, 2021, p. 293 ff.

Touvron H., Lavril T., Izacard G., Martinet X., Lachaux M.A., Lacroix T., Rozière B., Goyal N., Hambro E., Azhar F., Rodriguez A., Joulin A., Grave E., Lample G., LLaMA: Open and Efficient Foundation Language Models, available at arXiv, 27 February 2023.

Touvron H., Martin L., Stone K., Albert P., Almahairi A., Babei Y., Bashlykov N., Batra S., Bhargava P., Bhosale S., Bikel D., Blecher L., Canton Ferrer C., Chen M., Cucurull G., Esiobu D., Fernandes J., Fu J., Fu W., Fuller B., Gao C., Goswami V., Goyal N., Hartshorn A., Hosseini S., Hou R., Inan H., Kardas M., Kerkez V., Khabsa M., Kloumann I., Korenev A., Singh Koura P., Lachaux M.A., Lavril T., Lee J., Liskovich D., Lu Y., Mao Y., Martinet X., Mihaylov T., Mishra P., Molybog I., Nie Y., Poulton A., Reizenstein J., Rungta R., Saladi K., Schelten A., Silva R., Smith E.M., Subramanian R., Tan X.E., Tang B., Taylor R., Williams A., Kuan J.X., Xu P., Yan Z., Zarov I., Zhang Y., Fan A., Kambadur M., Narang S., Rodriguez A., Stojnic R., Edunov S., Scialom T., LLaMA2: Open Foundation and Fine-Tuned Chat Models, 18 July 2023, in https://ai.meta.com/research/publications/llama-2-open-foundation-and-fine-tuned-chat-models/.

Tranquilli S., Rapporto pubblico-privato nell'adozione e nel controllo della decisione amministrativa "robotica", in Diritto e Società, 2, 2020, pp. 296-297.

Travi A., Annullamento del provvedimento favorevole e responsabilità dell'amministrazione, in Il Foro Italiano, I, 2011, p. 2398.

Travi A., Giurisdizione ed amministrazione, in F. Manganaro, A. Romano Tassone, F. Saitta (eds.), Sindacato giurisdizionale e «sostituzione» della Pubblica Amministrazione, Giuffrè, Milano, 2013, pp. 3-10.

Travi A., L'effettività della giustizia amministrativa, in L. Benvenuti, M. Clarich, (eds.), Il diritto amministrativo alle soglie del nuovo secolo. L'opera scientifica di Fabio Merusi, Edizioni ETS, Pisa, 2010, p. 51 ff.

Tricarico A., I principi processuali, in F. Caringella, R. Chieppa, B.G. Mattarella, Diritto amministrativo. I. Principi, Giuffrè, Milano, 2025, p. 722.

Trimarchi M., Il provvedimento amministrativo: nozione e caratteri, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 653.

Trimarchi M., Il riparto della giurisdizione nelle controversie per il risarcimento dei danni arrecati nell'esercizio della funzione amministrativa, in Diritto processuale amministrativo, 4, 2024, pp. 821-878.

Trimarchi M., La validità del provvedimento amministrativo. Profili di teoria generale, ETS, Pisa, 2013, p. 155 ff.

Trimarchi M., Note sul preavviso di rigetto dopo la legge n. 120 del 2020, in Diritto e processo amministrativo, 2, 2022, p. 415 ff.

Trimarchi M., Sulla responsabilità precontrattuale della pubblica amministrazione, in Diritto amministrativo, 3, 2022, p. 705 ff.

Trimarchi P., La responsabilità civile: atti illeciti, rischio danno, Giuffrè, Milano, 2021, pp. 315-317, 454-455.

Trimarchi Banfi F., In tema di trasparenza amministrativa e di diritto alla riservatezza, in Aa.Vv., Studi in onore di E. Casetta, vol. I, Jovene, Napoli, 2001, p. 343 ff.

Trimarchi Banfi F., La funzione amministrativa dopo la riforma del preavviso di diniego, in Diritto processuale amministrativo, 4, 2023, pp. 809-831.

Trimarchi Banfi F., La responsabilità civile per l'esercizio della funzione amministrativa. Questioni attuali, Giappichelli, Torino, 2009.

Troiano P., La c.d. responsabilità della P.A. per atti leciti, in Potere amministrativo e responsabilità civile, Quaderni del Consiglio di Stato, Giappichelli, Torino, 2004, p. 177.

Tronci A., Le nuove frontiere della trasparenza nell'amministrazione algoritmica, in federalismi.it, 9, 2025, p. 158.

Tropea G., Considerazioni sul principio di non contestazione nel processo amministrativo, anche alla luce delle sue prime applicazioni giurisprudenziali, in Diritto processuale amministrativo, 3, 2012, p. 1142 ff.

Tropea G., La c.d. motivazione "successiva" tra attività di sanatoria e giudizio amministrativo, in Diritto amministrativo, 3, 2003, p. 531 ff.

Tropea G., Lo svolgimento del processo in primo grado: fase istruttoria. I principi dell'attività istruttoria, in G.P. Cirillo, S. Perongini (eds.), Diritto processuale amministrativo, Giappichelli, Torino, 2020, p. 239 ff.

Tropea G., Giannelli A., Comportamento procedimentale, lesione dell'affidamento e giurisdizione del g.o., in Giustizia insieme, 15 May 2020.

Usai A., Le prospettive di automazione delle decisioni amministrative in un sistema di teleamministrazione, in Diritto dell'informazione e dell'informatica, 1, 1993, p. 164 ff.

Vacca S., Comunicazione dei motivi ostativi all'accoglimento dell'istanza under Art. 10 bis, l. n. 241 del 1990 e modalità di esercizio del potere amministrativo: prima ricostruzione di un complesso fenomeno di alterazioni procedimentali, in Foro amministrativo – TAR, 2006, p. 1824 ff.

Vacchelli G., La responsabilità civile della pubblica amministrazione ed il diritto comune, Hoepli, Milano, 1892.

Vaiano D., Il preavviso di rigetto, in M.A. Sandulli (ed.), Codice dell'azione amministrativa, Giuffrè, Milano, 2017, pp. 640-654.

Vaiano D., Preavviso di rigetto e principio del contraddittorio nel procedimento amministrativo, in A. Romano, E. Casetta, F.G. Scoca (eds.), Studi in onore di Leopoldo Mazzarolli. Diritto processuale amministrativo, vol. IV, CEDAM, Padova, 2007, p. 447 ff.

Valsecchi A., Algoritmo, discrezionalità amministrativa e discrezionalità del giudice (nota a Cons. Stato, sez. VI, sent. del 4 febbraio 2020, n. 881), in IUS in Itinere, 14 September 2020.

van Bekkum M., Using sensitive data to de-bias AI systems: Article 10(5) of the EU AI act, in Computer Law & Security Review, 56, 2025, p. 1-11.

van Bekkum M., Zuiderveen Borgesius F., Digital Welfare Fraud Detection and the Dutch SyRI Judgement, in European Journal of Social Security, 23(4), 2021, pp. 323-340.

Varano V., È ancora fervido il dibattito in materia di accesso agli atti nelle procedure ad evidenza pubblica, in Rivista trimestrale degli appalti, 2020, p. 386 ff.

Veale M., Edwards L., Druschel P., Algorithms that remember: model inversion attacks and data protection law, in Philosophical Transactions of the Royal Society A, 376, 2018, pp. 1-15.

Veltri G., Gli ordini istruttori del giudice amministrativo e le conseguenze del loro inadempimento, in www.giustizia-amministrativa.it, 2013.

Veneziano V., La trasparenza dell'azione amministrativa tra tutela del diritto di accesso e tutela del diritto alla riservatezza: alla ricerca di un equilibrio, in M.P. Chiti, G. Palma (eds.), I principi generali dell'azione amministrativa, Napoli, 2006.

Venturi A., Il procedimento algoritmico nelle gare per l'affidamento dei contratti pubblici: problemi e proposte, in AmbienteDiritto.it, 4, 2020, p. 21.

Venturino D., La responsabilità da atto lecito fonte di pregiudizio, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. III. Responsabilità, Giuffrè, Milano, 2025, pp. 328-329.

Vernile S., L'adozione delle decisioni amministrative tramite formule algoritmiche, in F. Aperio Bella, A. Carbone, E. Zampetti (eds.), Dialoghi di diritto amministrativo. Lavori di diritto amministrativo 2019, Roma Tre Press, Roma, 2020.

Vernile S., La relatività del tempo (amministrativo): la validità del provvedimento tardivo e la tutela risarcitoria (e indennitaria) tra esigenze di tutela del privato e perseguimento dell'interesse pubblico, in Il diritto dell'economia, 2, 2015, p. 403 ff.

Verrienti L., Giurisdizione ordinaria e pubblica amministrazione, in Digesto delle discipline pubblicistiche, UTET, Torino, 1991, p. 453 ff.

Verzaro S., In tema di comunicazione del procedimento amministrativo; l'art. 7 e la normativa previgente, in Giurisprudenza italiana, III, 1997, p. 225 ff.

Vetrò F., L'azione di nullità dinanzi al giudice amministrativo, Editoriale Scientifica, Napoli, 2012.

Vetrò F., La giurisdizione della Corte dei Conti, in A. Canale, D. Centrone, F. Freni, M. Smiroldo (eds.), La Corte dei Conti, Giuffrè, Milano, 2022, p. 45, 61.

Videtta C., Note a margine del nuovo art. 10 bis della l. n. 241 del 1990, in Foro amministrativo – TAR, 2006, pp. 655-671.

Vigliotti G., L'attività materiale, in F. Caringella, R. Chieppa, B.G. Mattarella (directed by), Diritto amministrativo. II. Attività, Giuffrè, Milano, 2025, p. 285.

Villata R., Giustizia amministrativa e giurisdizione unica, in Rivista di diritto processuale, 2, 2014, p. 285 ff.

Villata R., L'atto amministrativo, in L. Mazzarolli, G. Pericu, A. Romano, F.A. Roveresi Monaco, G. Morbidelli (eds.), Diritto amministrativo, Monduzzi, Bologna, 2005, p. 771.

Villata R., La trasparenza dell'azione amministrativa, in Diritto processuale amministrativo, 1987, p. 528 ff.

Villata R., Processo amministrativo, pluralità delle azioni, effettività della tutela, in Diritto processuale amministrativo, 2, 2021, p. 369 ff.

Villata R., Scritti in tema di questioni di giurisdizione, CEDAM, Padova, 2025.

Villata R., Ramajoli M., Il provvedimento amministrativo, Giappichelli, Torino, 2006, *passim*.

Villata R., Ramajoli M., Il provvedimento amministrativo, Giappichelli, Torino, 2017, *passim*.

Vincenti E., Responsabilità per l'esercizio di attività pericolose, in Aa.Vv., Enciclopedia del diritto. Responsabilità civile, Giuffrè, Milano, 2024, pp. 1293-1294.

Viola L., L'intelligenza artificiale nel procedimento e nel processo amministrativo: lo stato dell'arte, in federalismi.it, 21, 2018, pp. 20-23.

Viola L., Caputo L., Decisione amministrativa algoritmica e algoritmo di mero supporto: verso una minore trasparenza?, in NT+ Diritto (Il Sole 24 Ore), 2 July 2025.

Vipiana Perpetua P.M., Gli atti amministrativi: vizi di legittimità e di merito, cause di nullità ed irregolarità, CEDAM, Padova, 2003.

Virga G., Integrazione della motivazione nel corso del giudizio e tutela dell'interesse alla legittimità sostanziale del provvedimento impugnato, in Diritto processuale amministrativo, 1993.

Virga P., Il provvedimento amministrativo, Giuffrè, Milano, 1972, *passim*.

Viswanathan P.S., Agentic AI: A Comprehensive Framework for Autonomous Decision-Making Systems in Artificial Intelligence, in International Journal of Computer Engineering and Technology (IJCET), vol. 16, issue 1, Jan-Feb 2025, p. 864.

Vitta C., Nuovi cenni sulla responsabilità dell'amministrazione pubblica per fatti illeciti, in Giurisprudenza italiana, 1929, IV, p. 1 ff.

Vladeck D.C., Machines Without Principals: Liability Rules and Artificial Intelligence, in Washington Law Review, 89(1), 2014, p. 142, 145.

Volpe F., La non annullabilità dei provvedimenti amministrativi illegittimi, in Diritto processuale amministrativo, 2008, p. 319 ff.

Vredenburgh K., Fairness, in J.B. Bullock, Y.C. Chen, J. Himmelreich, V.M. Hudson, A. Korinek, M.M. Young, B. Zhang (eds.), The Oxford Handbook of AI Governance, Oxford University Press, New York, 2025, p. 129.

Wachter S., Limitations and Loopholes in the EU AI Act and AI Liability Directives: What This Means for the European Union, the United States, and Beyond, in Yale Journal of Law & Technology, 26(3), 2024, pp. 671-718.

Wachter S., Mittelstadt B., Floridi L., Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation, in International Data Privacy Law, vol. 7, n. 2, 2017, pp. 76-99.

Wang Y., Pan Y., Su Z., Deng Y., Zhao Q., Du L., Luan T.H., Kang J., Niyato D., Large Model Based Agents: State-of-the-Art, Cooperation Paradigms, Security and Privacy, and Future Trends, available at arXiv, 2 June 2025, p. 1.

Warren S.D., Brandeiss L.D., The Right to Privacy, in Harvard Law Review, vol. 4, no. 5, 1890, pp. 193-220.

Washington A.L., How to Argue with an Algorithm: Lessons from the COMPAS-ProPublica Debate, in Colorado Technology Law Journal, 17, 2018, pp. 131-160.

Waters R., Meta under fire for 'polluting' open-source, 17 October 2024, in https://www.ft.com/content/397c50d8-8796-4042-a814-0ac2c068361f.

Weerts H.J.P., An Introduction to Algorithmic Fairness, available at arXiv, 12 May 2021, p. 6.

Wilson H.J., Daugherty P.R., Collaborative Intelligence: Humans and AI Are Joining Forces, in Harvard Business Review, July-August 2018, p. 1-11.

Wissuchek C., Zschech P., Exploring Agentic Artificial Intelligence Systems: Towards a Typological Framework, in PACIS 2025 Proceedings, 6, 2025, p. 3.

Wooldridge M., Intelligent Agents, in G. Weiss (ed.), Multiagent Systems. A Modern Approach to Distributed Artificial Intelligence, The MIT Press, Cambridge, Massachusetts, 1999, p. 32.

Wooldridge M., Jennings J.R., Intelligent agents: theory and practice, in The Knowledge Engineering Review, vol. 10:2, 1995, pp. 116-117.

Xi Z., Chen W., Guo X., He W., Ding Y., Hong B., Zhang M., Wang J., Jin S., Zhou E., Zheng R., Fan X., Wang X., Xiong L., Zhou Y., Wang W., Jiang C., Zou Y., Liu X., Yin Z., Dou S., Weng R., Qin W., Zheng Y., Qiu X., Huang X., Zhang Q., Gui T., The rise and potential of large language model based agents: a survey, in Science China Information Sciences, vol. 68, issue 2, 2025, p. 3.

Yi S., Cong T., He X., Li Q., Song J., Beyond the Tip of Efficiency: Uncovering the Submerged Threats of Jailbreak Attacks in Small Language Models, available at arXiv, 26 May 2025, p. 1.

Yu R., Spina Alì G., What's Inside the Black Box? AI Challenges for Lawyers and Researchers, in Legal Information Management, 19, 2019, pp. 2-13.

Zednik C., Solving the Black Box Problem: A Normative Framework for Explainable Artificial Intelligence, in Philosophy & Technology, 34, 2021, p. 266.

Zhang S., Roller S., Goyal N., Artetxe M., Chen M., Chen S., Dewan C., Diab M., Li X., Lin X.V., Mihaylov T., Ott M., Shleifer S., Shuster K., Simig D., Singh Koura P., Sridhar A., Wang T., Zettlemoyer L., OPT: Open Pre-trained Transformer Language Models, available at arXiv,21 June 2022.

Zhang T., Gao C., Ma L., Lyu M.R., Kim M., An Empirical Study of Common Challenges in Developing Deep Learning Applications, in 2019 IEEE 30th International Symposium on Software Reliability Engineering (ISSRE), 2019, p. 111.

Zhou Z., Li L., Chen X., Li A., Mini-Giants: "Small" Language Models and Open Source Win-Win, available at arXiv, 7 July 2024, p. 1.

Zingales I., Pubblica amministrazione e limiti della giurisdizione tra principi costituzionali e strumenti processuali, Giuffrè, Milano, 2007.

Ziosi M., Mökander Z., Novelli C., Casolari F., Taddeo M., Floridi L., The EU Liability Directive (AILD): Bridging Information Gaps, in European Journal of Law and Technology, 14(3), 2023.

Zito A., Consumazione del potere e discrezionalità, in AIPDA, Annuario 2022. "Discrezionalità e amministrazione", Editoriale Scientifica, Napoli, 2023, p. 77.

Zito A., Il danno da illegittimo esercizio della funzione amministrativa. Riflessioni sulla tutela dell'interesse legittimo, Editoriale Scientifica, Napoli, 2003.

Zito A., L'integrazione in giudizio della motivazione del provvedimento: una questione ancora aperta, in Diritto processuale amministrativo, 3, 1994, p. 577 ff.

Case Law

Italian Ordinary Court (*Tribunale ordinario*)

Trib. Bari, labor sec., judgement of 4 March 2025, no. 852

Trib. Palermo, labor sec., judgement of 17 November 2023

Trib. Napoli, sec. XI, judgement of 12 June 2023, no. 6007

Trib. Roma, labor sec., judgement of 10 February 2023, no. 1463

Trib. Bologna, labor sec., order of 31 December 2020

Trib. Milano, specialized sec. in business matters, judgement of 22 May 2017, no. 5752

Italian Court of Appeal (*Corte d'Appello*)

Court of Appeal, Napoli, sec. I, judgement of 3 July 2018, no. 3335

Court of Appeal, Roma, sec. II, judgement of 6 February 2017, no. 758

Court of Appeal, Campobasso, judgement of 7 July 2016, no. 176

Court of Appeal, Roma, sec. II, judgement of 2 March 2006, no. 1138

Italian Supreme Court of Cassation (*Suprema Corte di Cassazione*)

Cass. civ., SS.UU., judgement no. 26080 of 25 September 2025

Cass. civ., sec. III, order no. 197 of 7 January 2025

Cass. civ., SS.UU., order of 2 September 2024, no. 23452

Cass. civ., SS.UU., order of 26 June 2024, no. 17634

Cass. civ., sec. III, judgement of 10 November 2023, no. 31330

Cass. civ., sec. III, order of 29 September 2023, no. 27680

Cass. civ., sec. III, judgement of 13 February 2023, no. 4303

Cass. civ., SS. UU., order of 19 January 2023, no. 1567

Cass. civ., SS.UU., order no. 20943 of 30 June 2022

Cass. civ., sec. II, order of 8 June 2022, no. 18528

Cass. civ., sec. III, order of 2 May 2022, no. 13752

Cass. civ., sec. II, order of 19 January 2022, no. 1516

Cass. civ., sec. III, order of 17 January 2022, no. 1180

Cass. civ., sec. II, order of 14 October 2021, no. 28069

Cass. civ., SS.UU., judgement of 15 January 2021, no. 615

Cass. civ., SS.UU, order of 5 August 2020, no. 16722

Cass. civ., sec. II, judgement of 28 July 2020, no. 16051

Cass. civ., sec. II, order of 25 June 2020, no. 12645

Cass. civ., SS.UU., order of 28 April 2020, no. 8236

Cass. civ., sec. III, judgement of 20 April 2020, no. 7969

Cass. civ., SS.UU., order of 4 October 2019, no. 24859

Cass. civ., sec. III, order of 21 May 2019, no. 13579

Cass. Civ., SS.UU., judgement of 16 May 2019, no. 13246

Cass. civ., sec. III, order of 30 November 2018, no. 30999

Cass. civ., sec. II, judgement of 23 March 2018, no. 7286

Cass. civ., sec. III, judgement of 30 November 2017, no. 28656

Cass. pen., Sez. VI, 27 settembre 2017, n. 48603

Cass. civ., sec. VI-3, order of 5 July 2017, no. 16637

Cass. pen., Sez. VI, 16 marzo 2017, n. 35205

Cass. civ., sec. II, judgement of 14 March 2017, no. 6586

Cass. civ., SS.UU., judgement of 3 October 2016, no. 19682

Cass. civ., SS.UU., order of 3 October 2016, no. 19677

Cass. civ., sec. III, judgement of 3 May 2016, no. 8643

Cass. civ., sec. II, judgement of 5 April 2016, no. 6596

Cass. civ., sec. I, judgement of 1 April 2016, no. 6366

Cass. civ., sec. III, judgement of 26 January 2016, no. 1321

Cass. civ., sec. III, judgement of 27 November 2015, no. 24213

Cass. civ., sec. III, judgement of 6 October 2015, no. 19883

Cass. civ., sec. III, judgement of 12 February 2015, no. 2761

Cass. civ., SS.UU., judgement of 23 September 2014, no. 19974

Cass. civ., sec. VI-3, judgement of 5 September 2014, no. 18812

Cass. civ., sec. III, judgement of 19 February 2014, no. 3964

Cass. civ., SS.UU., judgement of 20 January 2014, no. 1013

Cass. civ., judgement of 19 December 2013, no. 28419

Cass. civ., sec. II, judgement of 9 August 2013, no. 19131

Cass. civ., SS.UU., judgement of 30 December 2011, no. 30175

Cass. civ., sec. III, judgement of 18 July 2011, no. 15733

Cass. civ., labor sec., judgement of 5 August 2010, no. 22822

Cass. civ., sec. III, judgement of 13 March 2009, no. 6155

Cass. civ., sec. III, judgement of 19 October 2007, no. 21972

Cass. civ., sec. III, judgement of 20 April 2007, no. 9509

Cass. civ., sec. III, judgement of 16 June 2005, no. 12965

Cass. civ., sec. I, judgement of 25 May 2005, no. 11018

Cass. civ., sec. III, judgement of 12 December 2003, no. 19060

Cass. civ., sec. III, judgement of 24 November 2003, no. 17851

Cass. civ., sec. III, judgement of 28 March 2001, no. 4481

Cass. civ., SS.UU., judgement of 22 July 1999, no. 500

Cass. civ., sec. V, judgement of 1 July 1999 no. 6750

Cass. civ., sec. II, judgement of 22 March 1999, no. 2661

Cass. civ., sec. III, judgement of 4 June 1998 no. 5484

Cass. civ., sec. I, judgement of 28 May 1998, no. 5287

Cass. civ., SS.UU., judgement of 4 November 1996, no. 9522

Cass. civ., sec. III, judgement of 4 April 1995, no. 3935

Cass., civ., sec. III, judgement of 1 April 1995, no. 3829

Cass. civ., sec. III, judgement of 1 June 1994, no. 5306

Cass. civ., sec. III, judgement of 29 April 1991, no. 4710

Cass. civ., sec. III, judgement of 21 November 1984, no. 59602

Cass. civ., sec. III, judgement of 27 February 1984, no. 1393.

Cass. civ., SS.UU., judgement of 4 July 1949, no. 1657

Italian Regional Administrative Court (*Tribunale Amministrativo Regionale*)

T.A.R. Campania, Napoli, sec. III, judgement of 16 June 2025, no. 4530

T.A.R. Lombardia, Milano, sec. IV, judgement of 13 May 2025, no. 1649

T.A.R. Napoli, sec. III, judgement of 24 March 2025, no. 2456

T.A.R. Lazio, Roma, sec. II, judgment no. 4546 of March 3, 2025

T.A.R. Sicilia, Palermo, sec. III, judgement of 12 December 2024, no. 3475

T.A.R. Lombardia, Milano, sec. V, judgement of 4 November 2024, no. 3022

T.A.R. Piemonte, Torino, sec. II, judgement of 27 September 2024, no. 956

T.A.R. Lombardia, Brescia, sec. I, judgement of 15 April 2024, no. 309

T.A.R. Campania, Napoli, sec. III, judgement of 6 November 2023, no. 6019

T.A.R. Lazio, Roma, sec. III-bis, judgement of 12 June 2023, no. 10016

T.A.R. Lazio, Roma, sec. III-bis, judgement of 16 May 2023, no. 8384

T.A.R. Campania, Salerno, sec. II, judgement of 2 May 2023, no. 1018

T.A.R. Lazio, Roma, sec. III-bis, judgement of 20 April 2023, no. 6875

T.A.R. Campania, Salerno, sec. II, judgement of 27 March 2023, no. 710

T.A.R. Campania, Salerno, sec. II, judgement of 20 March 2023, no. 644

T.A.R. Puglia, Bari, sec. III, judgement of 10 March 2023, no. 474

T.A.R. Sardegna, Cagliari, sec. II, judgement of 9 March 2023, no. 170

T.A.R. Lazio, Roma, sec. II-ter, judgement of 3 January 2023, no. 137

T.A.R. Lombardia, Brescia, sec. II, judgement of 16 December 2022, no. 1335

T.A.R. Sicilia, Catania, sec. I, judgement of 9 December 2022, no. 3220

T.A.R. Campania, Napoli, sec. III, judgement of 14 November 2022, no. 7003

T.A.R. Campania, Salerno, sec. II, judgement of 6 September 2022, no. 2327

T.A.R. Puglia, Bari, sec. II, judgement of 1 August 2022, no. 1128

T.A.R. Lazio, Latina, sec. I, judgement of 30 July 2022, no. 717

T.A.R. Piemonte, Torino, sec. II, judgement of 29 June 2022, no. 605

T.A.R. Lazio, Roma, sec. III, judgement of 21 June 2022, no. 8313

T.A.R. Puglia, Bari, judgement of 22 April 2022, no. 552.

T.A.R. Lazio, Roma, sec. II-bis, judgement of 18 March 2022, no. 3158

T.A.R. Sicilia, Palermo, sec. III, judgement of 22 November 2021, no. 3197

T.A.R. Liguria, Genova. sec. I, judgement of 5 July 2021, no. 631

T.A.R. Lazio, Roma, sec. III-bis, judgement of 30 June 2021, no. 7769

T.A.R. Sicilia, Catania, sec. III, judgement of 15 April 2021, no. 1161

T.A.R. Sardegna, Cagliari, sec. II, judgement of 21 January 2021, no. 33

T.A.R. Lazio, Roma, sec. III-bis, judgement of 18 December 2020, no. 13692

T.A.R. Campania, Napoli, sec. III, judgement of 9 September 2020, no. 3733

T.A.R. Sardegna, Cagliari, sec. II, judgement of 22 July 2020, no. 416

T.A.R. Lazio, Roma, sec. III-bis, judgement of 1 July 2020, no. 7526

T.A.R. Lazio, Roma, sec. III-bis, judgement of 30 June 2020, no. 7370

T.A.R. Campania, Salerno, sec. II, judgement of 28 January 2020, no. 153

T.A.R. Lombardia, Milano, sec. II, judgement of 8 November 2019, no. 2348

T.A.R. Calabria, Catanzaro, sec. II, judgement of 30 May 2019, no. 1106

T.A.R. Sardegna, Cagliari, sec. II, judgement of 9 April 2019, no. 326

T.A.R. Lazio, Roma, sec. III, judgement of 4 March 2019, no. 2864

T.A.R. Veneto, Venezia, sec. III, judgement of 21 January 2019, no. 72

T.A.R. Lazio, Roma, sec. III-bis, judgement of 10 September 2018, no. 9224

T.A.R. Campania, Napoli, sec. III, judgement of 20 February 2018, no. 1090

T.A.R. Campania, Napoli, sec. II, 17 October 2017, no. 4842

T.A.R. Lazio, Roma, sec. III-bis, judgement of 23 March 2017, no. 3769

T.A.R. Lazio, Roma, sec. III-bis, judgement of 22 March 2017, no. 3769

T.A.R. Lazio, Roma, sec. III-bis, judgement of 21 March 2017, no. 3742

T.A.R. Campania, Napoli, sec. II, judgement of 23 November 2016, no. 5431

T.A.R. Lazio, Roma, sec. II-quater, 21 November 2016, no. 11560

T.A.R. Liguria, Genova, sec. II, judgement of 25 October 2016, no. 1049

T.A.R. Calabria, Catanzaro, sec. II, judgement of 12 January 2016, no. 49

T.A.R. Sicilia, Palermo, sec. II, judgement of 20 April 2015 no. 987

T.A.R. Lombardia, Milano, sec. II, judgement of 5 November 2014, no. 2653

T.A.R. Trentino-Alto Adige, Trento, sec. un., judgement of 10 October 2014, no. 353

T.A.R. Lazio, Roma, sec. II, judgement of 12 May 2014, no. 4898

T.A.R. Sicilia, Palermo, sec. III, judgement of 29 March 2011, no. 575

T.A.R. Lombardia, Milano, sec. III, judgement of 31 January 2011, no. 273

T.A.R. Campania, Napoli, sec. IV, judgement of 20 July 2010, no. 16867

T.A.R. Toscana, Firenze, sec. II, judgement of 16 June 2010, no. 1930

T.A.R. Sicilia, Palermo, sec. I, 4 February 2009, no. 293

T.A.R. Lazio, Roma, sec. I, 09 July 2008, no. 6498

T.A.R. Emilia Romagna, Parma, sec. I, 22 January 2008, no. 33

T.A.R. Campania, Napoli, sec. VII, 08 November 2007, no. 11074

T.A.R. Lazio, Roma, sec. III, 06 November 2007, no. 10922

T.A.R. Sicilia, Palermo, sec. I, 23 May 2006, no. 1230

Italian Supreme Administrative Court (*Consiglio di Stato*)

Cons. Stato, sec. V, judgement of 26 November 2025, no. 9316

Cons. Stato, sec. III, judgement of 11 August 2025, no. 7000

Cons. Stato, sec. VI, judgement of 11 June 2025, no. 5038

Cons. Stato, sec. VI, judgement of 6 June 2025, no. 4929

Cons. Stato, sec. IV, judgement of 4 June 2025, no. 4857

Cons. Stato, sec. VII, judgement of 15 May 2025, no. 4185

Cons. Stato, sec. IV, judgement of 6 May 2025, no. 3844

Cons. Stato, sec. V, judgement of 15 April 2025, no. 3236

Cons. Stato, sec. III, judgement of 31 March 2025, no. 2654

Cons. Stato, sec. V, judgement of 17 March 2025, no. 2151

Cons. Stato, sec. V, judgement of 3 March 2025, no. 2144

Cons. Stato, sec. VI, judgement of 7 January 2025, no. 49

Cons. Stato, sec. V, judgement of 22 January 2025, no. 488

Cons. Stato, sec. V, judgement of 7 February 2025, no. 957

Cons. Stato, sec. IV, judgement of 25 November 2024, no. 9467

Cons. Stato, sec. VI, judgement of 19 November 2024, no. 9265

Cons. Stato, sec. VI, judgement of 12 November 2024, no. 9059

Cons. Stato, sec. V, judgement of 5 November 2024, no. 8857

Cons. Stato, sec. V, judgement of 5 August 2024, no. 6983

Cons. Stato, sec. V, judgement of 2 July 2024, no. 5871

Cons. Stato, sec. III, judgement of 27 June 2024, no. 5688

Cons. Stato, sec. VI, judgement of 21 May 2024, no. 4500

Cons. Stato, Advisory Section for Normative Acts, opinion of 28 March 2024, no. 440

Cons. Stato, sec. IV, judgement of 20 March 2024, no. 2700

Cons. Stato, sec. VI, judgement of 5 March 2024, no. 2155

Cons. Stato, sec. VI, judgement of 29 February 2024, no. 1979

Cons. Stato, sec. V, judgement of 23 February 2024, no. 1825

Cons. Stato, sec. IV, judgement of 2 February 2024, no. 1117

Cons. Stato, sec. V, judgement of 3 January 2024, no. 96

Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11258

Cons. Stato, sec. VII, judgement of 27 December 2023, no. 11220

Cons. Stato, sec. II, judgement of 27 December 2023, no. 11263

Cons. Stato, sec. VII, judgement of 15 November 2023, no. 9796

Cons. Stato, sec. II, judgement of 6 September 2023, no. 8193

Cons. Stato, sec. IV, judgement of 4 September 2023, no. 8151

Cons. Stato, sec. V, judgement of 24 August 2023, no. 7931

Cons. Stato, sec. IV, judgement of 7 August 2023, no. 7596

Cons. Stato, sec. III, judgement of 25 July 2023, no. 7288

Cons. Stato, sec. VI, judgement of 12 July 2023, no. 6809

Cons. Stato, sec. IV, judgement of 7 June 2023, no. 5592

Cons. Stato, sec. VI, judgement of 28 April 2023, no. 4297

Cons. Stato, sec. VI, 28 April 2023, no. 4297

Cons. Stato, sec. VI, judgement of 19 April 2023, no. 3956

Cons. Stato, sec. IV, judgement of 5 April 2023, no. 3532

Cons. Stato, sec. IV, judgement of 6 March 2023, no. 2273

Cons. Stato, sec. V, judgement of 13 February 2023, no. 1522

Cons. Stato, Ad. Plen., judgement of 24 January 2023, no. 4

Cons. Stato, sec. VI, judgement of 13 January 2023, no. 448

Cons. Stato, sec. IV, judgement of 29 December 2022, no. 11557

Cons. Stato, sec. VI, judgement of 29 November 2022, no. 10489

Cons. Stato, sec. VI, judgement of 2 November 2022, no. 9541

Cons. Stato, sec. V, judgement of 31 October 2022, no. 9411

Cons. Stato, sec. VI, judgement of 27 October 2022, no. 9183

Cons. Stato, sec. III, order of 30 September 2022, no. 8428

Cons. Stato, sec. V, judgement of 27 September 2022, no. 8330

Cons. Stato, sec. II, judgement of 20 July 2022, no. 6372

Cons. Stato, sec. VI, judgement of 21 June 2022, no. 5090

Cons. Stato, sec. VII, judgement of 31 May 2022, no. 4438

Cons. Stato, sec. II, judgement of 28 May 2022, no. 4287

Cons. Stato, sec. VI, judgement of 12 May 2022, no. 3762

Cons. Stato, sec. VII, judgement of 11 May 2022, no. 3698

Cons. Stato, sec. V, judgement of 11 April 2022, no. 2713

Cons. Stato, sec. II, judgement of 14 March 2022, no. 1790

Cons. Stato, sec. IV, judgement of 1 March 2022, no. 1446

Cons. Stato, sec. VII, judgement of 15 February 2022, no. 1129

Cons. Stato, sec. I, Section Assembly, 9 February 2022, no. 306

Cons. Stato, sec. VI, judgement of 20 December 2021, no. 8449

Cons. Stato, sec. V, judgement of 29 November 2021, no. 7951

Cons. Stato, sec. III, judgement of 25 November 2021, no. 7891

Cons. Stato, sec. VI, judgement of 28 September 2021, no. 6533

Cons. Stato, sec. VI, judgement of 8 September 2021, no. 6236

Cons. Stato, sec. VI, judgement of 22 June 2021, no. 4796

Cons. Stato, sec. II, judgement of 11 June 2021, no. 4519

Cons. Stato, sec. V, judgement of 3 June 2021, no. 4272

Cons. Stato, sec. IV, judgement of 21 May 2021, no. 3924

Cons. Stato, sec. VI, judgement of 27 April 2021, no. 3385

Cons. Stato, Ad. Plen., judgement of 23 April 2021, no. 7

Cons. Stato, sec. II, judgement of 26 March 2021, no. 2551

Cons. Stato, sec. IV, judgement of 9 February 2021, no. 1202

Cons. Stato, sec. VI, judgement of 9 February 2021, no. 1206

Cons. Stato, sec. III, judgement of 7 December 2020, no. 7717

Cons. Stato, sec. I, opinion, 20 November 2020, no. 1891

Cons. Stato, sec. I, opinion of 20 November 2020, no. 1891

Cons. Stato, sec. III, judgement of 28 October 2020, no. 6594

Cons. Stato, sec. III, judgement of 22 October 2020, no. 6378

Cons. Stato, Ad. Plen., judgement of 16 October 2020, no. 22

Cons. Stato, sec. IV, judgement of 14 October 2020, no. 6212

Cons. Stato, Ad. Plen., judgement of 25 September 2020, no. 19

Cons. Stato, sec. VI, judgement of 28 July 2020, no. 4805

Cons. Stato, sec. II, judgement of 9 June 2020, no. 3673

Cons. Stato, sec. I, final opinion, 25 May 2020, no. 976

Cons. Stato, sec. II, judgement of 6 May 2020, no. 2866

Cons. Stato, sec. VI, judgement of 27 April 2020, no. 2676

Cons. Stato, Ad. Plen., judgement of 2 April 2020, no. 10

Cons. Stato, sec. VI, judgement of 4 February 2020, no. 881

Cons. Stato, sec. III, judgement of 14 January 2020, no. 330

Cons. Stato, sec. IV, judgement of 7 January 2020, no. 120

Cons. Stato, sec. VI, judgement of 13 December 2019, no. 8472

Cons. Stato, sec. III, judgement of 29 November 2019, no. 8205

Cons. Stato, sec. V, judgement of 23 August 2019, no. 5803

Cons. Stato, sec. III, judgement of 7 May 2019, no. 2933

Cons. Stato, sec. VI, judgement of 8 April 2019, no. 2270

Cons. Stato, sec. VI, judgement of 28 February 2019, no. 1405

Cons. Stato, sec. III, judgement of 22 February 2019, no. 1236

Cons. Stato, sec. V, judgement of 10 September 2018, no. 5291

Cons. Stato, sec. VI, judgement of 19 May 2018, no. 3013

Cons. Stato, sec. IV, judgement of 10 May 2018, no. 2814

Cons. Stato, sec. VI, judgement of 7 May 2018, no. 2699

Cons. Stato, sec. IV, judgement of 12 March 2018, no. 1535

Cons. Stato, sec. IV, judgement of 9 March 2018, no. 1508

Cons. Stato, sec. IV, judgement of 3 January 2018, no. 28

Cons. Stato, sec. IV, judgement of 28 December 2017, no. 6120

Cons. Stato, sec. I, Adunanza di Sezione, final opinion of 18 October 2017, no. 2652

Cons. Stato, Ad. Plen., 17 October 2017, no. 8

Cons. Stato, sec. IV, judgement of 18 September 2017, no. 4352

Cons. Stato, sec V, judgement of 11 May 2017, no. 2184

Cons. Stato, sec. V, judgement of 10 January 2017, no. 45

Cons. Stato, sec. V, judgement of 10 August 2016, no. 3579

Cons. Stato, sec. IV, judgement of 22 June 2016, no. 2275

Cons. St., Ad. Plen., judgement of 29 February 2016, no. 6

Cons. Stato, sec. V, judgement of 30 December 2015, no. 5868

Cons. Stato, sec. V, judgement of 11 December 2015, no. 5653

Cons. Stato, sec. IV, judgement of 17 November 2015, no. 5228

Cons. Stato, Ad. Plen., judgement 27 April 2015, no. 5

Cons. Stato, Ad. Plen., judgement of 13 April 2015, no. 4

Cons. Stato, sec. V, judgement of 27 March 2015, no. 1619

Cons. Stato, sec. V, judgement of 10 February 2015, no. 675

Cons. Stato, sec. V, judgement of 22 January 2015, no. 257

Cons. Stato, sec. V, judgement of 5 December 2014, no. 6026

Cons. Stato, Ad. Plen., judgement of 20 November 2014, no. 32

Cons. Stato, sec. IV, judgement of 18 November 2014, no. 5671

Cons. Stato, Ad. Sez., opinion, 8 April 2014, no. 1151

Cons. Stato, sec. III, judgement of 7 April 2014, no. 1629

Cons. Stato, sec. IV, judgement of 4 December 2013, no. 5768

Cons. Stato, sec. VI, judgement of 31 October 2013, no. 5266

Cons. Stato, sec. V, judgement of 15 July 2013, no. 3802

Cons. Stato, sec. IV, judgement of 22 March 2013, no. 1632

Cons. Stato, sec. V, judgement of 16 January 2013 no. 233

Cons. Stato, sec. V, judgement of 3 May 2012, no. 2548

Cons. Stato, sec. IV, judgement of 2 April 2012, no. 1958

Cons. Stato, sec. VI, judgement of 12 March 2012, no. 1402

Cons. Stato, sec. II, judgement of 15 March 2011, no. 1169

Cons. Stato, sec. VI, judgement of 10 September 2009, no. 5439

Cons. Stato, sec. IV, judgement of 17 February 2009 no. 859

Cons. Stato, Ad. plen., 3 dicembre 2008, n. 13

Cons. Stato, sec. V, judgement of 19 September 2008, no. 4522

Cons. Stato, sec. IV, judgement of 16 June 2008, no. 2977

Cons. Stato, sec. VI, judgement of 27 February 2008, no. 721

Cons. Stato, sec. VI, judgement of 23 June 2006, no. 3981

Cons. Stato, Ad. Plen., judgement of 18 April 2006, no. 6

Cons. Stato, sec. IV, judgement of 22 March 2005, no. 1206

Cons. Stato, sec. IV, judgement of 22 September 2003, no. 5398

Cons. Stato, sec. VI, judgement of 29 January 2002, no. 476

Cons. Stato, sec. IV, judgement of 9 April 1999, no. 601.

Italian Court of Auditors (*Corte dei Conti*)

Corte dei Conti, Sez. Riun., advisory capacity, in opinion no. 4/2025 issued during the session of 9 June 2025.

Corte dei Conti, jur. sec., Regione Abruzzo, judgement of 4 March 2025, no. 10.

Corte dei Conti, jur. sec., Regione Abruzzo, judgement of 19 February 2025, no. 8.

Corte dei Conti, jur. sec., Tuscany Region, judgement of 22 November 2024, no. 108.

Corte dei Conti, Campania, jur. sec., judgement no. 529 of 29 October 2024.

Corte dei Conti, jur. sec., Campania Region, judgement of 19 August 2024, no. 429.

Corte dei Conti, jur. sec. Regione Abruzzo, judgement of 25 June 2024, no. 94.

Corte dei Conti, jur. sec., Marche Region, judgement of 2 January 2024, no. 1.

Corte dei Conti, jur. sec., Regione Calabria, judgement of 26 October 2023, no. 184.

Corte dei Conti, jur. sec., Regione Emilia Romagna, judgement of 13 September 2022, no. 144.

Corte dei Conti, jur. sec., Regione Liguria, judgement of 19 November 2021, no. 207.

Corte dei Conti, Lazio, sec. giur., judgement of 12 August 2021, no. 657.

Corte dei Conti, sec. I Centr. App., 37/2021.

Corte dei Conti, jur. sec., Regione Molise, judgement of 26 September 2018, no. 63.

Corte dei Conti, jur. sec., Abruzzo, judgement of 17 October 2012, no. 376.

Corte dei Conti, jur. sec. app. Regione Siciliana, judgement of 8 June 2012, no. 180.

Corte dei Conti, jur. sec., Piedmont, judgement of 17 February 2012, no. 25.

Corte dei Conti, jur. sec., Abruzzo, judgement of 18 July 2006, no. 462.

Corte Conti, sec. I centr. App., judgement of 5 October 2001, no. 291/A.

Corte dei Conti, Sez. Riun., judgement no. 23/A of 21 May 1998.

Corte dei Conti, Sez. Riun., judgement no. 56/A of 10 June 1997.

Corte dei Conti, joint sections, no. 12/1997.

Italian Constitutional Court (*Corte Costituzionale*)

Corte Cost., judgement of 6 June 2024, no. 132

Corte Cost., judgement of 27 May 2020, no. 100

Corte Cost., order of 17 March 2017, no. 58

Corte Cost., order of 26 May 2015, no. 92

Corte Cost., judgement of 5 November 2010, no. 310

Corte Cost., judgement of 2 November 2010, no. 310

Corte Cost., judgment of 23 March 2007, no. 104

Corte Cost., judgement of 5 July 2004, no. 204

Corte Cost., judgement of 10 May 1999, no. 156

Corte Cost., judgement of 11 November 1998, no. 371

Corte Cost., judgment of 5 March 1998, no. 40

Corte Cost., judgment of 17 December 1997, no. 404

Corte Cost., judgement of 29 January 1993, no. 24

Corte Cost., judgment of 19 May 1988, no. 559

Corte Cost., judgement of 7 July 1988, no. 773

Corte Cost., judgement of 14 March 1968, no. 2

French Administrative Court (*Tribunal Administratif*)

Tribunal Administratif de la Guadeloupe, Judgement no. 1801094, 4 February 2019

Tribunal Administratif de Paris, Judgement no. 1508951/5-2, 10 March 2016

French Supreme Administrative Court (*Conseil d'État*)

Conseil d'État, 4ème - 1ère chambres réunies, Decision no. 433296, 15 July 2020

Conseil d'État, 4ème - 1ère chambres réunies, Decision no. 427916, 12 June 2019

French Constitutional Court (*Conseil Constitutionnel*)

Conseil Constitutionnel, Decision no. 2020-834, 3 April 2020

Other Works Mentioned

AAAI 2025 Presidential Panel on the Future of AI Research, March 2025, available at Association for the Advancement of Artificial Intelligence.

Agenzia per l'Italia Digitale (AgID), Linee guida su acquisizione e riuso di software per le pubbliche amministrazioni, 9 maggio 2019.

Article 29 Data Protection Working Party, Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679, 2018.

Bill no. 1457, approved by the Senate of the Italian Republic on 27 December 2025,

concerning «Modifiche alla legge 14 gennaio 1994, n. 20, e altre disposizioni nonché delega al

Governo in materia di funzioni della Corte dei conti e di responsabilità amministrativa e per

danno erariale», available at Italian Senate.

Capgemini Research Institute, Data foundations for government. From AI ambition to execution, 2025, available at capgemini.com.

Charter of Fundamental Rights of the European Union.

Code des relations entre le public et l'administration (CRPA) (France).

Commission d'accès aux documents administratifs (CADA), Opinion no. 20144578, Session of 8 January 2015.

Commission d'accès aux documents administratifs (CADA), Opinion no. 20161989, Session of 23 June 2016.

Commissione parlamentare di inchiesta sulla digitalizzazione e l'innovazione della P.A., Relazione del 13 febbraio 2020.

Communication from the European Commission C(2025) 5053, 29 July 2025, Guidelines on the definition of an artificial intelligence system established by Regulation (EU) 2024/1689 (AI Act).

COM/2018/237, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Artificial Intelligence for Europe.

Constitution of the Italian Republic

Corte dei Conti, Relazione sul sistema delle garanzie / stato di attuazione del PNRR, novembre 2023.

Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation.

Databricks, Free Dolly: Introducing the World's First Truly Open Instruction-Tuned LLM, 11 April 2023, in https://www.databricks.com/blog/2023/04/12/dolly-first-open-commercially-viable-instruction-tuned-llm

Databricks, Hello Dolly: Democratizing the magic of ChatGPT with open models, 23 March 2023, in https://www.databricks.com/blog/2023/03/24/hello-dolly-democratizing-magic-chatgpt-open-models.html

DeepSeek-AI, DeepSeek-V3 Technical Report, available at arXiv, 18 February 2025.

Directive (EU) 2024/2853 of the European Parliament and of the Council of 23 October 2024 on liability for defective products and repealing Council Directive 85/374/EEC (Product Liability Directive).

Dossier of 27 June 2025 of the Research Service of the Italian Parliament, drafted jointly by the Senate of the Republic and the Chamber of Deputies, concerning the provisions and delegation to the Italian Government regarding artificial intelligence, available at Italian Senate.

Eleuther AI, Announcing GPT-NeoX-20B, 2 February 2022, https://blog.eleuther.ai/announcing-20b/.

European Commission, Commission welcomes political agreement on Artificial Intelligence Act (press release), 9 December 2023, available at European Commission.

European Commission, European enterprise survey on the use of technologies based on artificial intelligence, 28 July 2020.

European Convention on Human Rights (ECHR)

European Data Protection Board (EDPB), Opinion 2024/28 on certain data protection aspects related to AI models, 2024.

European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).

European Parliament, Amendments adopted by the European Parliament on 14 June 2023 on the proposal for a regulation of the European Parliament and of the

Council on laying down harmonised rules on artificial intelligence (Artificial Intelligence Act), P9_TA(2023)0236.

Expert Group on Liability and New Technologies – New Technologies Formation, Liability for Artificial Intelligence and other emerging digital technologies, European Commission, 2019.

French Law no. 2016-1321 of 7 October 2016 (Loi Lemaire)

Italian Administrative Procedure Act (Law no. 241 of 7 August 1990)

Italian Civil Code

Italian Code of Administrative Procedure (Legislative Decree no. 104 of 2 July 2010)

Italian Code of Audit Justice (Legislative Decree no. 174 of 26 August 2016)

Italian Code of Civil Procedure

Italian Criminal Code

Italian Decree-Law no. 76 of 16 July 2020

Italian Digital Administration Code (Legislative Decree no. 82 of 7 March 2005)

Italian Group of Experts of the Ministry of Economic Development, Proposte per una strategia italiana per l'intelligenza artificiale, 2019, available at Ministero delle Imprese e del Made in Italy

Italian Law no. 20 of 14 January 1994

Italian Law no. 246 of 28 November 2005

Italian Law no. 234 of 24 December 2012

Italian Law no. 132 of 23 September 2025

Italian Law no. 1 of 7 January 2026

Italian Legislative Decree no. 165 of 30 March 2001

Italian Legislative Decree no. 33 of 14 March 2013

Italian Legislative Decree no. 39 of 8 April 2013

Italian Presidential Decree no. 3 of 10 January 1957

Italian Presidential Decree no. 184 of 12 April 2006

Italian Public Contracts Code (Legislative Decree no. 36 of 31 March 2023)

IBM, What is overfitting?, https://www.ibm.com/think/topics/overfitting.

Idaho Code, § 5-346 (Personhood Status).

Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, A Definition of AI: Main capabilities and scientific disciplines, 8 April 2019.

Independent High-Level Expert Group on Artificial Intelligence set up by the European Commission, Ethics Guidelines for Trustworthy AI, 8 April 2019.

John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Stati Uniti).

Meta AI, Democratizing access to large-scale language models with OPT-175B, 3 May 2022.

Meta AI, Introducing LLaMA: A foundational, 65-billion-parameter large language model, 24 February 2023.

Meta AI, Meta and Microsoft Introduce the Next Generation of Llama, 18 July 2023.

Ministero dell'Università e della Ricerca, Ministero dello Sviluppo Economico, Ministro per l'Innovazione Tecnologica e la Transizione Digitale (ed.), Programma Strategico Intelligenza Artificiale 2022-2024, available at innovazione.gov.it

Mistral AI, Introducing Mistral 3, in https://mistral.ai/news/mistral-3

OECD C/MIN(2019)3/FINAL, Recommendation of the Council on Artificial Intelligence, 22 May 2019.

OECD C/MIN(2024)16/FINAL, Revised Recommendation of the Council on Artificial Intelligence, 3 May 2024.

OECD, Explanatory Memorandum on the updated OECD definition of an AI system, OECD Artificial Intelligence Papers, n. 8, 2024.

Open letter to the European Commission, Artificial Intelligence and Robotics.

Open Source Initiative, Open Source AI Definition, version 1.0, 28 October 2024.

Proposal for a Directive of the European Parliament and of the Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive), COM/2022/496 final.

Proposal for a Regulation of the European Parliament and of the Council, laying down harmonised rules on artificial intelligence (Artificial Intelligence Act), 21 April 2021.

Qwen Team, Qwen2.5 Technical Report, available at arXiv, 3 January 2025.

Rapport Sénat n. 350 (2017-2018) by Mme Sophie Joissains, fait au nom de la commission des lois constitutionnelles, de législation, du suffrage universel, du Règlement et d'administration générale (Francia).

Regulation (EU) 2016/679 (General Data Protection Regulation - GDPR).

Regulation (EU) 2018/1046.

Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act – AI Act).

Senate of the Italian Republic, Summary Report no. 214 of 27 November 2024, available at Italian Senate

Stability AI, Stability AI Launches the First of its Stable LM Suite of Language Models, 19 April 2023, in https://stability.ai/news/stability-ai-launches-the-first-of-its-stablelm-suite-of-language-models

Stability AI, Stable Diffusion Public Release, 22 August 2022, in https://stability.ai/news/stable-diffusion-public-release

Utah Code, § 63G-32-102.