

**THE IMPACT OF ARTIFICIAL INTELLIGENCE ON PUBLIC
SECTOR AND ON PUBLIC SERVICES**

Anna Maria CHIARIELLO¹

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¹ Phd in Public Law, University of Rome Tor Vergata, Rome, Italy.

8. CONCLUSIONS

1. AI IN MODERN SOCIETIES

In modern societies artificial intelligence (AI) has been largely adopted, more and more frequently interfering with our activities, thus favoring a modified and new normal model of life.

AI has been variously defined and there is no univocity in its definition². In general, it can be said that AI is the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. It is the discipline that allows a machine to process and represent an enormous amount of information, analyse the environment, draw deductions, make reasoning, find solutions, plan, act towards a specific goal and learn automatically by improving its performances through experience, and finally work and decide independently. It studies the theoretical foundations, methodologies and techniques that allow the design of hardware and software systems capable of providing the electronic computer with performance that, to a common observer, would seem to belong exclusively to human intelligence. According to the European Commission's definition, AI represents "a

² On the non-univocity of the meaning of AI for example: Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group, CAHAI-PDG(2021)03, 4, 2021*; J. BERRYHILL-K.K. HEANG-R. CLOGHER-K. MCBRIDE, *Hello, World: Artificial Intelligence and its Use in the Public Sector*, OECD Working Papers on Public Governance No. 36, 2019, especially 7 and 11. According to the Council of Europe, AI is to be understood as "a set of sciences, theories and techniques whose purpose is to reproduce by a machine the cognitive abilities of a human being", www.coe.int/en/web/human-rights-rule-of-law/artificialintelligence/glossary. The term was coined by John McCarthy in 1956, during a summer seminar at Dartmouth College: in this regard F. AMIGONI-V. SCHIAFFONATI-M. SOMALVICO, *Intelligenza Artificiale*, in www.treccani.it, 2008.

fast evolving family of technologies that can bring a wide array of economic and societal benefits across the entire spectrum of industries and social activities”³.

It is possible to distinguish between generic AI (also called “strong” or “general” AI) and specific AI (also called “weak” AI).

Strong AI, which at the time being is only theoretical, has the characteristics of a mind and its cognitive capacity is no different from that of humans. It aims to create intelligent machines that are indistinguishable from the human mind. When strong AI is achieved, the machines won’t rely on human programming to be able to think or accomplish tasks. Strong AI can be used in the “provisional” administration as it allows to respect the guarantees of the administrative proceeding⁴.

While strong AI is capable of learning and thinking like humans do, weak AI (which is the one we see in our daily lives and is actually the only artificial intelligence that exists today), on the other hand, has limited functionality and focuses on automating specific tasks. It refers to the use of advanced algorithms to accomplish specific problem solving or reasoning tasks that do not encompass the full range of human cognitive abilities. In particular, weak AI simulates (doesn’t duplicate neither overcomes) the real intelligence, that is it acts and thinks as having the brain, and aims at creating systems able to acquire most of the human cognitive abilities and in some of its complex functions is successful. It compares

³ European Commission, *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*, COM(2021) 206, 21 April 2021, recital 3.

⁴ G. MARCHIANÒ, *Intelligenza artificiale: IA specifiche e l’amministrazione provvedimentale – IA generali e i servizi pubblici*, in *Federalismi.it*, 11, 2021, 137; G. SARTOR-F. LAGIOIA, *Le decisioni algoritmiche tra etica e diritto*, in *Intelligenza artificiale - il diritto, i diritti, l’etica*, 2020, 66; D.U. GALETTA-J.G. CORVALÁN, *Intelligenza Artificiale per una Pubblica Amministrazione 4.0? Potenzialità, rischi e sfide della rivoluzione tecnologica in atto*, in *Federalismi.it*, 3, 2019, 10.

similar cases, elaborates for them several solutions, finally chooses the most congruous and rational one. Weak AI is unable to “think” autonomously, but it needs the human control. In many sectors the public administration uses this technology to provide its services, from medicine to water, from city cars to the construction of robots, supporting activities of the public administration⁵.

Going back to the mentioned European Commission’s definition of AI, such a positive definition emphasizes the remarkable advantages offered by AI, able to improve quality of life and efficiency of our society. However, beside its merits, AI presents also some dangerous disadvantages. Both advantages and disadvantages still need to be more clearly enlightened, as AI is based on a rapid evolving technology and the spectrum of all its qualities and limits is continuously changing.

2. AI IN THE PUBLIC SECTOR

⁵ G. MARCHIANÒ, *Intelligenza artificiale: IA specifiche e l’amministrazione provvedimentale – IA generali e i servizi pubblici*, in *Federalismi.it*, 11, 2021, 146.

Among the multiple areas which are penetrated and affected by AI⁶ and its algorithms⁷ there is also the public sector. Public administration is increasingly applying AI

⁶ On AI in the public sector: Oxford Commission on AI & Good Governance, *AI in the Public Service: From Principles to Practice*, 2021. On AI in Administrative Law, *ex multis*, E. CARLONI, *AI, algoritmi e pubblica amministrazione in Italia*, in *Revista de los Estudios de Derecho y Ciencia Política*, 2020, 7; S. CRISCI, *Intelligenza artificiale ed etica dell'algoritmo*, in *Foro amministrativo*, 10, 2018, 1787; P. OTRANTO, *Decisione amministrativa e digitalizzazione della p.a.*, in *Federalismi.it*, 2, 2018, 1; J. PONCE, *La prevención de riesgos de mala administración y corrupción, la inteligencia artificial y el derecho a una buena administración*, in *Revista Internacional Transparencia e Integridad*, 6, 2018; ID., *Inteligencia artificial, Derecho administrativo y reserva de humanidad: algoritmos y procedimiento administrativo debido tecnológico*, in *Revista General de Derecho Administrativo*, 50, 2019; L. VIOLA, *L'intelligenza artificiale nel procedimento e nel processo amministrativo: lo stato dell'arte*, in *Foro amministrativo*, 9, 2018, 1598; ID., *Attività amministrativa e intelligenza artificiale*, in *Cyberspazio e diritto*, 1-2, 2019, 78; I. MARTÍN DELGADO, *Automazione, intelligenza artificiale e pubblica amministrazione: vecchie categorie concettuali per nuovi problemi?*, in *Istituzioni del federalismo*, 3, 2019, 643; M.C. CAVALLARO-G. SMORTO, *Decisione pubblica e responsabilità dell'Amministrazione nella società dell'algoritmo*, in *Federalismi.it*, 16, 2019, 1; A. LALLI, *Il sapere e la professionalità dell'amministrazione pubblica nell'era dei big data e dell'intelligenza artificiale*, presented at Associazione Italiana Professori di Diritto Amministrativo Conference, 2019, in www.dirittoamministrativo.org; B. CARAVITA DI TORITTO, *Principi costituzionali e intelligenza artificiale*, in *Intelligenza artificiale: il diritto, i diritti, l'etica*, (U. RUFFOLO ed.), Milan, Giuffrè, 2020, 451; G. FASANO, *L'intelligenza artificiale nella cura dell'interesse generale*, in *Giornale di diritto amministrativo*, 6, 2020, 715; C. BENETAZZO, *Intelligenza artificiale e nuove forme di Intelligenza artificiale e nuove forme di interazione tra cittadino e pubblica amministrazione*, in *Federalismi.it*, 16, 2020, 24; P.S. MAGLIONE, *La Pubblica Amministrazione "al varco" dell'Industria 4.0: decisioni automatizzate e garanzie procedurali in una prospettiva human oriented*, in *Amministrazioneincammino.it*, 2020; D. MARONGIU, *L'intelligenza artificiale "istituzionale": limiti (attuali) e potenzialità*, in *European Review of Digital Administration & Law*, 1, 2020, 37; R. CAVALLO PERIN, *Ragionando come se la digitalizzazione fosse data*, in *Diritto amministrativo*, 2, 2020, 305; F. PATRONI GRIFFI, *Intelligenza artificiale: amministrazione e giurisdizione*, in *Intelligenza artificiale*, in *Il diritto, i diritti, l'etica*, 2020, 475; B. RAGANELLI, *Decisioni pubbliche e algoritmi: modelli alternativi di dialogo tra forme di intelligenza diverse nell'assunzione di decisioni amministrative*, in *Federalismi.it*, 22, 2020; A. CASSATELLA, *La discrezionalità amministrativa nell'età digitale*, in *Scritti per Franco Gaetano Scoca*, I, Naples, Editoriale Scientifica, 2021, 675; A. BARONE, *Amministrazione del rischio e intelligenza artificiale*, in *European Review of Digital Administration & Law*, 1, 2020, 63.

⁷ AI is based on algorithms, computational techniques capable of replicating human behavior. Made up of a finite sequence of operations (instructions), they learn information, translate or interpret written or spoken human

to perform its numerous and complex tasks, taking advantage of those benefits that for a long time have been an exclusive prerogative of the private sector. As a consequence of this expanding tendency, while defining their approach to the development and use of AI in appropriate national AI strategies, most of the States includes also the development and use of AI in the public sector⁸.

languages and solve complex problems through logic or reasoning. For a definition of algorithm see the entry *Algorithm*, in *Encyclopaedia Britannica – Micropaedia*, 1985. Regarding algorithms and Law, especially Administrative Law: E. CARLONI, *Algoritmi su carta. Politiche di digitalizzazione e trasformazione digitale delle amministrazioni*, in *Diritto pubblico*, 2, 2019, 363; B. CAROTTI, *Algoritmi e poteri pubblici: un rapporto incendiario*, in *Giornale di diritto amministrativo*, 1, 2020, 5; G. MARCHIANÒ, *La legalità algoritmica nella giurisprudenza amministrativa*, in *Diritto dell'economia*, 3, 2020, 229. AI and in particular algorithms are also valuable for all or almost all of the other activities of the public administration. In fact, they intervene in many areas of administrative activity, from the conservation and storage of data to controls, communication, participation and the preparation of technical decision-making contents. In this regard, the progress of AI has allowed the transition from the function of collecting and cataloging documents to the processing and adoption of legal acts, including administrative ones, using computers and algorithms, but not without a series of problems. On the algorithms and their use both in the preliminary and decision-making phase, as well as in the effectiveness integrative phase, and in both bound and discretionary activities, R. CAVALLO PERIN, *Pubblica amministrazione e data analysis*, in *L'amministrazione pubblica con i big data: da Torino un dibattito sull'intelligenza artificiale* (R. CAVALLO PERIN ed.), Turin, Università degli Studi di Torino, 2021, 16 and 17.

⁸ According to an OECD mapping on AI, fifty countries (including the EU) have introduced national AI strategies. Thirty-six of these have adopted specific strategies for AI in the public sector. See www.oecd-ilibrary.org. In March 2018, the Italian Task Force on AI, led by the Agency for Digital Italy (Agenzia per l'Italia digitale), published the white paper "*L'intelligenza artificiale al servizio dei cittadini*" ("Artificial intelligence at the service of citizens"). The document discusses the key challenges related to the implementation of AI in the public sector and makes a series of recommendations on how the government can overcome them by facilitating the adoption of technologies by the State in order to improve services to citizens and businesses. In addition, many countries are financing projects that concern the public sector.

The unavoidable and for some aspects worrisome “spread” of AI in the public sector is justified by the benefits that it offers or may offer⁹, first of all the improvement of the services provided, especially those connoted by repetitiveness or complexity¹⁰, in terms of subjects and territorial areas involved and technical characteristics¹¹. In fact, thanks to the use of AI services can be provided in a more continuous, efficient and quicker way, making the use of human and material resources optimal and diminishing costs, which are related both to the transaction and, mostly, to the collection and analysis of information and data.

AI contributes to improving public services in a number of ways. Among these are the automation of routine government and administrative process and the coordination of actions in public administration. Also, AI makes it possible to analyse huge amounts of data, to weigh more variables in complex decision makings while eliminating human errors, to increase user participation, to personalize services and ultimately to make them more accurate¹².

⁹ At the European level, for example, see the report AI Watch, *Artificial Intelligence in public services, Overview of the use and impact of AI in public services in the EU*, 2020. In this report, the European Commission, in mapping the use of AI in public services within the Member States, concludes that “governments across the EU are exploring the potential of AI use to improve policy design and evaluation, while reorganizing the internal management of public administrations at all levels. Indeed, when used in a responsible way, the combination of new, large data sources with advanced machine learning algorithms could radically improve the operating methods of the public sector, thus paving the way to pro-active public service delivery models and relieving resource constrained organizations from mundane and repetitive tasks”.

¹⁰ See A. MASUCCI, *Digitalizzazione dell'amministrazione e servizi pubblici on line*, in *Diritto pubblico*, 1, 2019, 117.

¹¹ G. AVANZINI, *Decisioni amministrative e algoritmi informatici*, Naples, Editoriale Scientifica, 2019, 80.

¹² O. CAPDEFERRO VILLAGRASA, *La inteligencia artificial del sector público: desarrollo y regulación de la actuación administrativa inteligente en la cuarta revolución industrial*, in *Revista de internet, derecho y política*, 30, 2020, 1, especially 4, which also highlights how the use and reuse by people of the large amount of public sector data have great potential as factors of a transformative effect in all sectors of the economy. An example of the use

As a consequence, and as it will be deepened later, thanks to AI public administration is able to improve its relationship with individuals, providing them with more prompt and better assistance and greater guarantees. This is possible, as mentioned, also thanks to the use of big data¹³, collected through the detection of information on habits,

of AI in the public sector is Paraná Inteligência Artificial (PIÁ), launched in 2019 to reduce bureaucracy, simplify and allow citizens access to state public services. PIÁ consists of a platform and an application that brings together over 380 services, and also acts as a channel for dialogue between the state government and the population. To use the system, it is sufficient to access the platform or application and to ask questions to the “PIÁ” assistant. It is also possible to use voice commands and if the user provides his own tax code, the level of customization of the services increases, since the system knows who it is communicating with. Furthermore, AI systems can also be used by citizens to check the acts carried out by public entities, as in the case of the Brazilian Operação Serenata de Amor, which through AI analyzes public expenses, mainly those reimbursed for the exercise of the parliamentary activity of federal deputies and senators. The robot responsible for scanning the data is called Rosie. So that the population can understand the information generated by Rosie, on the specific website “Jarbas” it is possible to view the expenses and details of each suspect found. See in this regard D. DESORDI-C. DELLA BONA, *A inteligência artificial e a eficiência na administração pública*, in *Revista de direito*, 12, 2, 2020, 15-16. On the further effects of the use of AI expected in the future, see *AI Watch – Artificial Intelligence for the public sector, Report of the “1st Peer Learning Workshop on the use and impact of AI in public services”*, Brussels, 11-12 February 2020, according to which “it is expected that the long-term effects of using AI in the public sector will cause the following direct and indirect impacts, in addition to higher efficiency of services: (i) Real-time feedback on governmental portals - via AI/automated services, as it becomes easier to provide and collect real time feedback; (ii) Time savings through digital services; (iii) Prevention / prediction – AI use to create more predictive services (debt relief for example); (iv) Dissemination of the use of new technologies by citizens; (v) Inclusiveness (of services) through equal offering and equal (because AI-based) interaction; (vi) Quality of life – increased societal value and even poverty reduction”.

¹³ Big data refers to a huge set of data, attributable to different sources and which flow with such rapidity that compared to them the traditional tools for storing and processing data are obsolete. Regarding big data and administrative activity: D.U. GALETTA, *Open-Government, open-data e Azione Amministrativa*, in *Le Istituzioni del Federalismo*, 3, 2019, 674; F. DE LEONARDIS, *Big data, decisioni amministrative e “povertà” di risorse della pubblica Amministrazione*, in *La decisione nel prisma dell’intelligenza artificiale* (E. CALZOLAIO ed.), Milan Padua, Wolters Kluwer Cedam, 2020, 152; F. COSTANTINO, *Lampi. Nuove frontiere delle decisioni amministrative tra open e big data*, in *Diritto amministrativo*, 4, 2017, 799; G. CARULLO, *Big data e pubblica amministrazione nell’era delle banche interconnesse*, in *Concorrenza e mercato*, 23, 2016, 181; M. FALCONE, *“Big data” e pubbliche*

interests, behaviors and preferences of citizens and businesses, and used by public administration to increase the efficiency of services¹⁴. This assumes particular relevance when public administration has to solve specific problems in critical areas such as health, transport, security, school or even judicial system.

With regard to health, for example, AI is able to anticipate risk factors, allowing the introduction of preventive measures, it helps to interpret the results of the tests, suggests diagnoses, allows the development of highly individualized treatment plans and timely identification of potential pandemics¹⁵. In the public transport area, through special traffic detection sensors, the AI favors more effective and timely circulation of public transport, optimizing travel in real time and redistributing passenger flows¹⁶. There are also many

Amministrazioni: nuove prospettive per la funzione conoscitiva pubblica, in *Rivista trimestrale di diritto pubblico*, 3, 2017, 601.

¹⁴ D.U. GALETTA, *Algoritmi, procedimento amministrativo e garanzie: brevi riflessioni, anche alla luce degli ultimi arresti giurisprudenziali in materia*, in *Rivista italiana di diritto pubblico comunitario*, 3, 2020, 501. See also G. CARULLO, *Gestione, fruizione e diffusione dei dati dell'amministrazione digitale e funzione amministrativa*, Turin, Giappichelli, 2017.

¹⁵ J. BERRYHILL-K.K. HEANG-R. CLOGHER-K. MCBRIDE, *Hello, World: Artificial Intelligence*, 78, shows as a practical example the Precision Medicine Initiative (PMI) program, launched in the USA in 2015, which, through new technologies and algorithms, allows to sequence the DNA of patients quickly and at affordable costs and to carry out a detailed molecular characterization of diseases and cancers, enabling clinicians to adopt the best choices and the most effective treatment programs for the direct benefit of patients. Furthermore, in Italy a home telemonitoring system has been adopted for patients suffering from chronic obstructive pulmonary disease, which makes use of machine learning (see below) and involves the Processing and Bioinformatics Systems Unit (Unità di Sistemi di Elaborazione e Bioinformatica) of the Rome Biomedical Campus and the Campus Biomedico University Hospital in Rome. Thanks to a pulse oximeter connected to an app, this system is able to detect potentially dangerous events for patients, receiving data on heart rate and hemoglobin saturation three times a day. In the field of general health, robotic medicine makes use of AI. See I. MASI, *L'intelligenza artificiale al servizio della pubblica amministrazione 2.0*, in *Diritto.it*, 2017.

¹⁶ J. BERRYHILL-K.K. HEANG-R. CLOGHER-K. MCBRIDE, *Hello, World: Artificial Intelligence*, 80 and 82, shows, as an example, the project implemented in Portugal aimed at minimizing the response time of the emergency medical

applications of AI in the field of security, both physical and IT, such as when it is used to locate suspected criminals, to detect fraud, to carry out biometric identification and verify any precedents, to improve video surveillance and image research and to detect and block cyber-attacks¹⁷. With regard to education, AI allows the continuous evaluation of performance, the automatic evaluation of students and the optimization of learning. With regard to the judicial sector, AI can find application as a “thinking machine” in the context of the so-called “predictive justice”, that is to make predictions on the outcome of a case, or also, possibly in the future, to assist the judge in his decision-making¹⁸.

The described advantages obtained in the public sector from the use of AI should not be deceptive. In fact, despite the many benefits brought, AI also may be associated with

service vehicles, using predictive models capable of anticipating the demand for the service by combining existing historical data and context-sensitive data from various sources, like weather, allowing a more strategic use of the aforementioned means. Also in Portugal, in 2019 the ePortugal program was launched, the new portal of public services, accompanied by Sigma, a virtual assistant active twenty-four hours a day, seven days a week, which provides written answers to questions frequently asked by citizens. If Sigma deems its answer inadequate, it asks the user if he or she wants to speak to a human person and in this case connects them by phone or e-mail depending on the user’s preference. An AI system applied to road traffic has also been adopted in Los Angeles: G. PESCE, *Funzione amministrativa, intelligenza artificiale e blockchain*, Naples, Editoriale Scientifica, 2021, 83.

¹⁷ For example, the facial recognition systems used in a number of cities around the world to help locate suspected criminals and counter terrorism. In this regard, Thailand uses AI to monitor network traffic and conduct big data analyzes to detect suspicious user behavior (*i.e.* two unusual logins with the same credentials, but hundreds of kilometers away). Again, in relation to security, AI comes into play when drones are used in the event of a gathering or general control of the territory.

¹⁸ See C. VALENTINO, *La silenziosa rivoluzione dell’intelligenza artificiale anche nei sistemi giudiziari*, in *Diritto.it*, 2021; L. VIOLA (ed.), *Giustizia predittiva e interpretazione della legge con modelli matematici. Atti del Convegno tenutosi presso l’Istituto dell’Enciclopedia Italiana Treccani*, Milan, Diritto Avanzato, 2019.

numerous risks, legal as well as ethical¹⁹. These risks shouldn't be underrated: in fact, new technologies have on the society an impact of such a magnitude as to potentially endanger even the democratic values and human rights on which the society is founded, risking to shake it from its roots. The possible risks include, for example, that of giving rise to opaque, discriminatory or prejudicial implementations, jeopardizing legal security, rights and protection of privacy. Another risk may be neglecting the cardinal principles of administrative action, such as the obligation to publicity, transparency, motivation, reasonableness, proportionality, thus generating problematic short circuits in the performance of administrative activities and also in the provision of services²⁰. In other words, there is the risk, particularly scaring in the public sector, that AI, if misused, instead of producing the desired positive effects, could produce negative and harmful effects to citizens.

3. AI, PUBLIC SERVICES AND THE PUBLIC SECTOR IN EUROPE AND IN ITALY

Defining public services is opportune before analyzing the use of AI in the public sector. The concept of public service can vary in different States and is not always clear²¹. In

¹⁹ In this regard, the European Commission has recently adopted the *Ethics Guidelines for Trustworthy AI* (2019), aimed at providing guidance on how to design and implement AI systems in an ethical and reliable way. See *infra*, para. 3.

²⁰ O. CAPDEFERRO VILLAGRASA, *La inteligencia artificial del sector público: desarrollo y regulación de la actuación administrativa inteligente en la cuarta revolución industrial*, 9. About the Italian case law on the compatibility of information technologies with the principles of administrative action: Italian State Council, sec. VI, 4th February 2020, no. 881; 13th December 2019, no. 8472; 8th April 2019, no. 2270.

²¹ For example, in the Italian legal system it is not clear what public service is and in this regard in doctrine different orientations can be distinguished. According to a first subjective approach, public services are only the activities of production of goods and services managed directly or indirectly by public entities. According to an objective approach, public services are activities aimed at public purposes and regulated by public law, even if they are also

a global perspective, as needed in this study, the concept may have different meanings. For example, many of what in Italy are defined as public functions, on a global level are instead classified as public services.

According to UN's indications,²² public services include also security, finance and public education. Therefore, in evaluating the use of AI in the public area, it is necessary to

performed by private subjects. On the notion of public service, *ex multis*: A. DE VALLES, *I servizi pubblici*, in *Primo trattato completo di diritto amministrativo italiano*, VI, part I, (V.E. ORLANDO ed.), Milan, Società Editrice Libreria, 1930, 377; U. POTOTSCHNIG, *I pubblici servizi*, Padua, Cedam, 1964; F. MERUSI, (entry) *Servizio pubblico*, in *Novissimo Digesto Italiano*, XVII, 1970, 215; S. CATTANEO, (entry) *Servizi pubblici*, in *Enciclopedia del diritto*, XLII, 1990, 355; P. CIRIELLO, (entry) *Servizi pubblici*, in *Enciclopedia Giuridica Treccani*, XXVIII, 1992, 1; G.M. RACCA, *I servizi pubblici nell'ordinamento comunitario*, in *Diritto amministrativo*, 1994, 201, later in *La concessione di pubblico servizio* (G. PERICU-A. ROMANO-V. SPAGNUOLO VIGORITA eds.), Milan, Giuffrè, 1995, 201; F. GIGLIONI, *Osservazioni sulla evoluzione della nozione di "servizio pubblico"*, in *Foro amministrativo*, 1998, 2265; A. PIOGGIA, *Appunti per uno studio sulla nozione di pubblico servizio: i limiti e i requisiti dell'assunzione del servizio pubblico da parte dell'ente locale*, in *Quaderni del Pluralismo*, 1998, 175; S. CASSESE, *Dalla vecchia alla nuova disciplina dei servizi pubblici*, in *Rassegna giuridica dell'energia elettrica*, 2-3, 1998, 233; ID., *La nuova costituzione economica*, Bari, Laterza, 2000, 83; V. CERULLI IRELLI, *Corso di diritto amministrativo*, Turin, Giappichelli, 2000, 47; F. SALVIA, *I servizi pubblici nella letteratura recente*, in *Nuove autonomie*, 2001, 7991; L.R. PERFETTI, *Contributo ad una teoria dei pubblici servizi*, Padua, Cedam, 2001; V. DE FALCO, *Il servizio pubblico tra ordinamento comunitario e diritti interni*, Padua, Cedam, 2003; G. CAIA, *La disciplina dei servizi pubblici*, in *Diritto amministrativo* (L. MAZZAROLLI-G. PERICU-A. ROMANO-F. ROVERSI MONACO-F.G. COCA eds.), Bologna, Monduzzi, 2005; G. NAPLESTANO, (entry) *Servizi pubblici*, in *Dizionario di diritto pubblico* (S. CASSESE dir. by), Milan, VI, 2006, 5517.

²² The reference is to the CPC nomenclature (common classification of products) of the United Nations. The indications of the UN have been implemented by the Council Directive 92/50/EEC of 18 June 1992 relating to the coordination of procedures for the award of public service contracts, no longer in effect. In particular, Annexes IA and IB of the aforementioned directive referred to the mentioned nomenclature. Currently, at EU level, reference is made to the Common Procurement Vocabulary (CPV) adopted by Regulation (EC) No 2195/2002 of the European Parliament and of the Council of 5 November 2002 on the Common Procurement Vocabulary (CPV), a hierarchically structured nomenclature divided into divisions, groups, classes, categories and sub-categories. See recital 119 of Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC.

extend the analysis to the mentioned sectors as well, exploring how to use AI and simultaneously protect the citizens, the rights of the latter, the services they need and eventually democracy.

When referring to public services affected by the application of new technologies, it is intended to indicate the information activity, the new form in which traditional functions are exercised, and the facilitating tools for the provision of traditional public services, which in themselves cannot be digitized, but in relation to which technology facilitates the relationship between the service manager and the user²³.

That said, the use of AI in public sector moves slower than in the private sector. By adopting dedicated projects, acts, policies, declarations and regulations regarding the application of AI in the public sector, governments try to bridge the gap with the private sector in terms of use of AI. In particular, about forty countries adopted specific strategies concerning the use of AI in the public sector²⁴, encouraging its diffusion while safeguarding interests and rights with which such use could conflict²⁵.

²³ In this sense G. PESCE, *Digital First*, Naples, Editoriale Scientifica, 2018, 137.

²⁴ As seen above, according to a mapping on AI carried out by the OECD, fifty countries (including the EU) have introduced national AI strategies. Thirty-six of these have adopted specific strategies for AI in the public sector.

²⁵ Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group, CAHAI-PDG(2021)03*, 7. See also O. CAPDEFERRO VILLAGRASA, *La inteligencia artificial del sector público*, 3.

In Italy, with the aim of implementing the Digital Administration Code (Codice dell'Amministrazione Digitale, CAD)²⁶, which applies also to public service managers²⁷, in 2020 the three-year *Plan for information technology in public administration* was adopted. Drafted by the Agency for Digital Italy (Agenzia per l'Italia Digitale)²⁸, the Plan sets objectives and identifies main development and management interventions of the information systems of public administrations²⁹. In order to carry out the actions envisaged by the previous plans, this Plan pursues a series of objectives. Firstly, it intends to foster the development of the digital society, where services citizens and businesses are at the center, through the digitization of the public administration considered the engine of the development for the whole country. Secondly, it tends to promote sustainable, ethical and inclusive development, through innovation and digitization at the benefit of people, communities and territories, while respecting environmental sustainability. Finally, it aims to help disseminate new digital technologies in the Italian productive system, encouraging standardization, innovation and experimentation in the field of public services.

Formerly, in 2019 the Italian strategy for technological innovation and digitization was adopted. It addressed three main “challenges”, namely the digitization of the society, the innovation of the country and the sustainable and ethical development of the society. In

²⁶ Legislative Decree 7 March 2005, No. 82, art. 14-*bis*. On the Italian Digital Administration Code, *ex multis*, F. CARDARELLI, *Amministrazione digitale, trasparenza e principio di legalità*, in *Diritto dell'informazione e dell'informatica*, 2015, 227; ID., *Codice dell'amministrazione digitale*, Rome, Treccani, 2017, 211.

²⁷ Pursuant to art. 2, para. 2, lett. b), of the Italian Digital Administration Code, the provisions of the latter apply to public service managers, including listed companies, in relation to services of public interest.

²⁸ The Agency for Digital Italy was established with the Legislative Decree 22 June 2012, No. 83, with the aim, among others, of implementing the objectives of the Italian Digital Agenda for the promotion and dissemination of digital technologies in the country.

²⁹ This Plan is approved by the Prime Minister or by the minister delegated for computerization. In addition to the drafting of the Plan, the Agency for Digital Italy is also entrusted with verifying its implementation.

supporting these challenges, the strategy outlined a general process of structural transformation of the country and, for generating innovation, in addition to digital infrastructures and to public-private sectors cooperation, involved also the services of the public administration³⁰.

In 2018, the Agency for Digital Italy adopted the *White Paper on Artificial Intelligence at the Service of the Citizen (Libro Bianco sull'Intelligenza artificiale al servizio del Cittadino)*, a soft law not binding act, which analyses the impact of the most advanced information technologies on social relationships and on the traditional model of administrative activity and addresses the issue of automating administrative activities with the use of AI.³¹

³⁰ On the three-year plan for information technology in the public administration and on the strategy for technological innovation and digitization of the country, see the report of the Research Department of the Italian Chamber of Deputies, *La transizione digitale della pubblica amministrazione*, 2021.

³¹ Agency for Digital Italy, *Libro Bianco sull'Intelligenza Artificiale al servizio del Cittadino*, March 2018, in <https://ia.italia.it/assets/librobianco.pdf>. About it M. TRESCA, *I primi passi verso l'Intelligenza Artificiale al servizio del cittadino: brevi note sul Libro Bianco dell'Agenzia per l'Italia digitale*, in *Medialaws - Rivista di diritto dei media*, 3, 2018, 1; A. SOLA, *L'automatizzazione dell'azione amministrativa*, in *Amministrazione in Cammino*, 2020, 1, especially 9. It should also be considered that, again with regard to Italy, the Legislative Decree 1 March 2021, No. 22, provides that the Prime Minister will promote, guide and coordinate government action in various matters, including the digitization of public administrations. This digitization plays a central role in the National Recovery and Resilience Plan (NRRP). In fact, digitization, innovation and security in the public administration is one of the three components of the first mission of the NRRP, precisely called "Digitization, innovation, competitiveness and culture". The spread of digital administration has been promoted and pursued with a series of regulatory acts, such as the 2020 budget law, the Legislative Decree No. 162/2019, and the Law Decree No. 76/2020 containing urgent measures for simplification and digital innovation. These interventions have allowed Italy to improve the level of effectiveness and digitization of the public administration, in particular by investing in skills, accelerating digitization and increasing the efficiency of local public services. Thus European Commission, *Country Report Italy 2020*, February 26, 2020. In Italy, the binding legal framework for the use of AI software in the public law sector appears to be incomplete, however. In fact, art. 3-bis, Law 7 August 1990, No. 241, as amended by Legislative Decree 16 July 2020, No. 76, provides only that to achieve greater efficiency in their activities, public

At EU level, in 2018 the European Commission adopted an *AI strategy*³², which addresses the private and public socio-economic aspects of AI, both private and public. Being aware that AI is able to transform and improve public services, the EU AI strategy draws up a coordinated plan for the alignment of strategies aimed at promotion of development of AI in Europe³³.

The following year, the Commission adopted the *Ethics Guidelines for Trustworthy AI* for developing ethical and reliable AI systems, based on the following four principles: (i) respect for human autonomy; (ii) prevention of harm; (iii) fairness; (iv) explicability processes³⁴.

administrations act by means of IT and telematic tools, in internal relations, between the various administrations and between these and private individuals. While art. 50-ter, Legislative Decree No. 82/2005 establishes a National Digital Data Platform, regulating the use of information technologies only in terms of the interconnection of information systems of public administrations.

³² European Commission, 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*, COM(2018) 237, 25 April 2018.

³³ European Commission, 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, *Coordinated Plan on Artificial Intelligence*, COM(2018) 795, 7 December 2018.

³⁴ The *Ethics Guidelines for Trustworthy AI* have been developed by the Commission High-Level Expert Group on Artificial Intelligence (AI HLEG), composed of 52 artificial intelligence experts from academia, civil society and industry. In drafting the document, the group considered various issues, such as equity, security, transparency, future of work, democracy, privacy and protection of personal data, dignity and non-discrimination, and started from the assumption that the ethics of AI is based on fundamental human rights.

In 2020, the Commission published the *White Paper On Artificial Intelligence - A European approach to excellence and trust*³⁵, based on the protection of consumer rights and the promotion of innovation. Considering that different and unrelated national initiatives may risk to compromise legacy, to weaken citizens' confidence and to hinder the emergence of a dynamic European industry, with this White Paper the Commission points out the opportunity to have a common European approach on AI utilization to avoid the fragmentation of the market. A strategic framework was deemed necessary, in order to establish measures aligning efforts at European, national and regional level and, through a public-private partnership, to mobilize resources for an “ecosystem of excellence” and to create incentives for AI-based solutions³⁶.

In April 2021 the EU proposed an Act regulating the use of AI technologies (*AI Act*) intended to outline the path for the development and the use of AI systems. With this Act the EU promotes both innovation and fundamental rights of people and aims to establish a common legal framework, imposing to Member States objectives relevant to the public interest, while guaranteeing the reliability of new technologies³⁷.

³⁵ European Commission, *White Paper On Artificial Intelligence - A European approach to excellence and trust*, COM(2020) 65, 19 February 2020.

³⁶ G. MARCHIANÒ, *Intelligenza artificiale: IA specifiche e l'amministrazione provvedimentale – IA generali e i servizi pubblici*, 141.

³⁷ European Commission, *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*, COM(2021) 206, 21 April 2021. According to recital 37, another area in which the use of AI systems deserves special consideration is the access to and enjoyment of certain essential private and public services and benefits necessary for people to fully participate in society or to improve one's standard of living. In this regard it is considered that “AI systems used to evaluate the credit score or creditworthiness of natural persons should be classified as high-risk AI systems, since they determine those persons' access to financial resources or essential services such as housing, electricity, and telecommunication services. AI systems used for this purpose may lead to discrimination (...) or create new forms of discriminatory impacts. Considering the very limited scale of the impact

Regardless of the efforts at EU level, single States still don't seem adequately prepared for such a high practical and regulatory level. National AI legislations continue to be different in the public sector³⁸, causing dysfunctions and problems. Besides the well-known benefits, AI may have transformative and disruptive impacts on public services, able to generate uncertainty and risks. At the moment it seems necessary to anticipate a legal act as uniform and complete as possible, allowing the administrations to utilize the enormous potential of AI on public services while assuring the citizens and gaining their confidence.

4. GOOD IMPACTS OF USING AI IN THE PUBLIC SECTOR

and the available alternatives on the market, it is appropriate to exempt AI systems for the purpose of creditworthiness assessment and credit scoring when put into service by small-scale providers for their own use. Natural persons applying for or receiving public assistance benefits and services from public authorities are typically dependent on those benefits and services and in a vulnerable position in relation to the responsible authorities. If AI systems are used for determining whether such benefits and services should be denied, reduced, revoked or reclaimed by authorities, they may have a significant impact on persons' livelihood and may infringe their fundamental rights, such as the right to social protection, non-discrimination, human dignity or an effective remedy. Those systems should therefore be classified as high-risk. Nonetheless, this Regulation should not hamper the development and use of innovative approaches in the public administration, which would stand to benefit from a wider use of compliant and safe AI systems, provided that those systems do not entail a high risk to legal and natural persons. Finally, AI systems used to dispatch or establish priority in the dispatching of emergency first response services should also be classified as high-risk since they make decisions in very critical situations for the life and health of persons and their property". In the EU, the General Data Protection Regulation (GDPR) No. 2016/679 had already regulated the use of AI, but in relation to judicial decisions, prohibiting the adoption of automated decisions without human intervention.

³⁸ Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group, CAHAI-PDG(2021)03*, 7.

As mentioned, the use of AI in the public sector can result very advantageous. It can affect the relations among the different levels of government as well as the relations between public powers and private subjects.

First of all, the use of AI favors coordination among the different levels of government. The use of AI and of algorithms is expected to improve cooperation between administrations and institutions and also to save time and financial resources, with benefits to the whole public sector. Subjects communicate better with each other and consequently improve efficiency, ultimately getting closer to the needs of citizens, eliminating or reducing duplications of efforts³⁹. Better coordination among government levels, without spoiling their autonomy, appears increasingly relevant in complex and articulated systems. Using AI in the public sector, it is possible to select the best level of government for the specific public function: appropriate algorithms can help determine the best level for realizing a public function or, in other words, determine which level of government can best comply with the public interest and therefore perform its function more efficiently.

The use of AI also facilitates relations between public powers and private entities, in particular in relation to the access to data and public services and to the quality of the latter. Also, the public sector algorithmization process brings the administration closer to the citizens, thus promoting democracy⁴⁰, participation, cooperation with administrations and

³⁹ G. PESCE, *Digital First*, 128, in which it is believed that the application of AI to the public sector can only entail, at least at the communication level, a certain centralization of information and procedures.

⁴⁰ In this regard, see Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *2030 Digital Compass: the European way for the Digital Decade*, COM (2021) 118, 9 March 2021, with which the European Commission presented a vision and perspectives for the digital transformation of Europe by 2030 and according to which the correct application of AI to public services, according to adequate standards, indicators and regulations, makes these services more democratic. In particular, in relation to the Digitalization of public services sector (one of the four sectors that make up Europe's digital compass), the EU's objective is to ensure that democratic life and online public services are fully accessible to all by 2030, including people with disabilities, creating a digital environment that provides easy-to-

institutions and elimination of unnecessary steps. Thanks to AI a new relational modality is created, and it involves the citizen-user and the public administration. It is more efficient and faster, favoring also integration and cooperation, and ultimately democracy. By favoring to users the access to public services and information on them AI can contribute to the improvement of these services, facilitating a cooperative feeling and eventually reaching a better relationship between public authorities and private subjects. Citizens and businesses cooperation in formulating in advance the technical rules for the use of AI also may have a positive impact on the public services quality. Such private participation in AI use planning may favor solution of some critical issues due to the opacity or irrationality of the algorithm, prevent quarrels⁴¹ and with its human-centric approach transform public services, making them more in line with user needs.

5. PUBLICITY AND TRANSPARENCY PRINCIPLES IN THE USE OF AI IN THE PUBLIC SECTOR

To make certain that a proper use of AI is made, and especially that citizens are assured adequate and effective protection, public administration must not depart from the

use, efficient and personalized tools with high standards of security and privacy. Furthermore, ensuring electronic voting would encourage greater participation of citizens in democratic life. In particular, the following objectives are to be achieved by 2030: (i) fundamental public services: 100% online; (ii) online health: medical records available at 100%; (iii) digital identity: used by 80% of citizens.

⁴¹ An example of such a system can be found in the United Kingdom where the public administration develops and publishes programs relating to the use of AI in sectors such as education and health. The public administration then revokes them in the not uncommon case in which law firms propose administrative appeals for any discriminatory effects or for the irrationality of the programs presented. See on this point M. FINCK, *Automated Decision-Making and Administrative Law*, in *The Oxford Handbook on Comparative Administrative Law* (P. CANE ET AL. eds.), Oxford University Press, Oxford, 2020, 658; G. PESCE, *Funzione amministrativa, intelligenza artificiale e blockchain*, 139 and 140.

general principles inspiring its action, such as publicity and transparency⁴². Compliance with these principles appears necessary also in order for citizens to perceive as reliable the use of new technologies within the public sector. Only by adopting fair and responsible processes and structures AI will be able to transform public services, obtaining citizens confidence to the public service⁴³.

Transparency of the algorithms and publicity of the related decision-making processes require the citizens to know when the algorithms are used, how they function, identification of the AI system and of the institution responsible for it⁴⁴. As all other public administration decisions, decisions made on the basis of AI must be fully explained and understood. The not transparent use of AI in the public sector limits the possibility of the

⁴² In this sense, in the Italian legal system, the State Council stated that the technical rule that governs the algorithm is a general administrative rule, created by man and not by machine, and for this reason it is subject to the general principles of administrative activity, such as those of publicity, transparency, reasonableness and proportionality, and is in any case subject to review by the administrative judge, who must assess the correctness of the automated process in all its elements (decision No. 2270/2019). In this sense G. PESCE, *Funzione amministrativa, intelligenza artificiale e blockchain*, 11. The Author also adds that in the mentioned decision the judge “recognized the importance of the digitization of the Public Administration for the improvement of the quality of the services provided to citizens and users, the full compliance of the algorithm with the canons of efficiency and economy of the administrative action and the good performance of the public administration, the benefits, in carrying out repetitive and non-discretionary activities, which are obtained by excluding interference due to negligence (or worse intent) of the official (human being) with a consequent greater guarantee of impartiality” (unofficial translation).

⁴³ Studies show that citizens’ trust and reliance on AI are quite poor. In this sense, among others, Oxford Commission on AI & Good Governance, *AI in the Public Service: From Principles to Practice*, 2021, 6.

⁴⁴ B. BARRAUD, *L’algorithmisation de l’administration*, in *Revue Lamy Droit de l’immatériel*, Lamy, Wolters Kluwer, 2018, 42, especially para. 20, in which the Author also reports that in 2016 for the first time an administration made public the source code of one of its algorithms (in particular it was an algorithm in the field of tax calculation), giving way to the publication of other public administration source codes.

public administration to explain the decisions taken, to monitor and correct them⁴⁵. The lack of transparency and accountability entails not only ethical, but also political and legal consequences, since citizens could reasonably have difficulty in accepting and executing the decisions taken.

To obtain a transparent use of AI, algorithms must be traceable and explainable. This means that it must be possible to understand the decision-making process of the machine, especially when it has a strong impact on people's lives. The reasoning behind the results produced by the machine must remain public in a clear and understandable language. However, the publicity of algorithms is not always sufficient. When they are very complex, a non-expert public would still not be able to understand them and their publication may not be of help for transparency purposes. In such cases it is needed to explain the algorithms and to indicate and describe the purpose for which they are used, the variables for obtaining the results, the type and quality of data used, and the decision-making rules adopted⁴⁶.

⁴⁵ On AI and the principle of transparency: A. SIMONCINI, *L'algoritmo incostituzionale: intelligenza artificiale e il futuro delle libertà*, in *Biolaw Journal*, 1, 2019, 63, especially 77; S. CRISCI, *Evoluzione tecnologica e trasparenza nei procedimenti "algoritmici"*, in *Diritto di Internet*, 2, 2019, 377; S. SASSI, *Gli algoritmi nelle decisioni pubbliche tra trasparenza e responsabilità*, in *Analisi giuridica dell'economia*, 1, 2019, 106; A.G. OROFINO, *L'attuazione del principio di trasparenza nello svolgimento dell'amministrazione elettronica*, in *Judicium - il processo civile in Italia e in Europa*, 2020, in www.judicium.it.

⁴⁶ Among others, N. BUBLITZ CAMARA, *O uso da inteligência artificial no processo administrativo como ferramenta para auxiliar na efetividade dos direitos humanos*, in *Revista Brasileira de Direito Social*, Belo Horizonte, 4, 1, 2021, 16. See also Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group*, CAHAI-PDG(2021)03, 4 and 17. Sometimes, however, the functioning of the algorithm is deliberately not made public for various reasons: to prevent the system from being circumvented making the algorithm ineffective, to protect the rights of the developers and programmers of the algorithm who have an interest in not disclosing the source code algorithms (and which for this reason are used to introduce confidentiality clauses in contracts in this regard) or because of the complexity of the algorithms which can be extremely dynamic and therefore by nature not able to be reproduced. On AI and transparency also: D.U. GALETTA, *La Pubblica Amministrazione nell'era delle*

To reach a good level of transparency, also adequate legislation and initiatives are needed. For example, in France in 2016 the *Loi pour une république numérique* extended the range of data that public administrations make public⁴⁷. The law now considers the source codes of government softwares as administrative documents, with the same communication conditions. It also recognizes the individual right to be informed when the administration uses an algorithm to take a personal decision. Therefore the citizen must be appropriately informed about the purpose of using the algorithm, the degree and methods of contribution of the algorithmic processing to the decision-making process, the data processed and their sources, the processing parameters and, possibly, their weighting and the operations carried out⁴⁸. The administration is also obliged to communicate in an intelligible form the rules of data processing and the main characteristics of its action.

In order to promote transparency and publicity, in Spain and in the United Kingdom it is recommended that the administration adopts a catalogue of all IT applications that can have an impact on citizens, including those that have an impact on the provision of public services⁴⁹. Similarly, in Canada, the government asks public sector organizations to publish

ICT: sportello digitale unico e Intelligenza Artificiale al servizio della trasparenza e dei cittadini?, in *Cyberspazio e Diritto*, 3, 2018, 319.

⁴⁷ *Loi pour une République numérique*, 7 October 2016, amending art. L. 300-2 of the *Code des relations entre le public et l'administration*.

⁴⁸ Art- R. 311-3-1-2 of the *Code des relations entre le public et l'administration* (deriving from the Decree No. 2017-330, 14 March 2017). Limits to the transmission of the aforementioned information by the administration to citizens are security and secrets protected by law.

⁴⁹ O. CAPDEFERRO VILLAGRASA, *La inteligencia artificial del sector público*, 6. Similarly, in Amsterdam and Helsinki *AI Registries for transparency purposes* are a good example of initiatives aimed at explicitly communicating and explaining where AI is used and how automated decisions are taken, clearly describing any or potential opacity.

the results of their *Algorithmic Impact Assessment* and to make citizens aware of decisions that may impact them⁵⁰.

At EU level, in its *Ethics Guidelines for Trustworthy AI* (2019), the European Commission sets a number of ethical principles and imperatives, among them that of explainability, the lack of compliance with which would preclude the possibility of challenging the decisions made using algorithms. The Commission, in particular, expects that decision-making processes are transparent, that the capabilities and the purpose of AI systems are communicated openly and that final decisions are explainable to stakeholders, as much as possible. Similarly, the contemporary OECD document, *Principles on Artificial Intelligence*, establishes five principles to be followed when employing AI, including transparency and responsible disclosure regarding AI systems in order to ensure that people understand and may question AI-based results⁵¹. In accordance with this document, the Brazilian Strategy for AI (2021) is founded on five principles aimed at guaranteeing responsible management of AI systems and these principles include transparency and explainability⁵².

⁵⁰ In this sense J. BERRYHILL-K.K. HEANG-R. CLOGHER-K. MCBRIDE, *Hello, World: Artificial Intelligence*, 110.

⁵¹ OECD Council, Recommendation on Artificial Intelligence (AI), 22 May 2019, which is the first intergovernmental standard on AI.

⁵² N. BUBLITZ CAMARA, *O uso da inteligência artificial no processo administrativo como ferramenta para auxiliar na efetividade dos direitos humanos*, 13. In an analogous sense, Etalab, the Task Force under the French Prime Minister's Office in charge of open data and open government, in 2019 published a guide for public administrations on the responsible use of algorithms in the public sector, *Guidance on Accountability for Public Algorithms*, which proposes the following six principles aimed at ensuring the reliability of AI in the public sector: (i) acknowledgment, *i.e.* the obligation to inform interested parties when using an algorithm; (ii) general explanation, on the functioning of an algorithm; (iii) individual explanation, personalized of a specific result or decision; (iv) justification on why an algorithm is used and on the reasons for choosing a particular algorithm; (v) publication of the source code and the necessary documentation, informing the interested parties about the possible elaboration of the algorithm by third parties; (vi) allow for contestation, in order to discuss and appeal against algorithmic decisions. See:

Also the Italian State Council has recently voiced its position on the duty for the administration to guarantee adherence to the principle of transparency while utilizing algorithms⁵³. In particular, according to the State Council, a strengthened declination of the aforementioned principle necessitates that the algorithm used to make the robotic decision must be “recognizable”, in order to allow to verify the adherence of the outcomes of the robotic procedure with the prescriptions and purposes of the law or of the administration. In this manner the methods and rules underlying the algorithm are clear (and therefore can be questioned). The algorithm’s knowability must be ensured in all aspects: from its authors to the procedure used for its elaboration, to the decision mechanism, including the priorities assigned in the evaluation and decision-making procedure and the data selected as relevant.

When the deployment of AI results in the so-called “black box effect”, compliance with the principle of transparency and the related duty of motivation faces major challenges⁵⁴.

www.etalab.gouv.fr/datasciences-et-intelligence-artificielle e www.etalab.gouv.fr/how-etalab-is-working-towards-public-sector-algorithms-accountability-aworking-paper-for-rightscon-2019.

⁵³ Italian State Council, 8th April 2019, no. 2270, which also states that the algorithmic rule must be not only knowable in itself, but also subject to the full knowledge and full review of the administrative judge, and that, by virtue of the principle of transparency, the right to check the regularity of the procedure must be recognized, also for the purpose of filing a possible appeal. See on this decision, *ex multis*, I. MASI, *L'intelligenza artificiale al servizio della pubblica amministrazione 2.0*; E. PROSPERETTI, *Obbligo di motivazione e procedimenti in cui non è nata a priori la logica dell'algoritmo*, Note to the decision of the State Council, section VI, 8 April 2019, no. 2270, in www.dirittomercatotecnologia.it, 2019; D.U. GALETTA, *Algoritmi, procedimento amministrativo e garanzie: brevi riflessioni, anche alla luce degli ultimi arresti giurisprudenziali in materia*, para. 5; G. MARCHIANÒ, *Intelligenza artificiale: IA specifiche e l'amministrazione provvedimentale – IA generali e i servizi pubblici*, 154; V. NERI, *Diritto amministrativo e intelligenza artificiale: un amore possibile*, in *Urbanistica e Appalti*, n. 5, 2021, 581.

⁵⁴ On the black box effect, *ex multis*, F. PASQUALE, *The Black Box Society: The Secret Algorithms That Control Money And Information*, London, Harvard University Press, 2015; C. COGLIANESE-D. LEHR, *Regulating by Robot: Administrative Decision Making in the Machine-Learning Era*, in *The Georgetown Law Journal*, vol. 105, n. 5, 2017, 1147; Y. BATHAEE, *The Artificial Intelligence Black Box and the failure of intent and causation*, in *Harvard Journal of Law & Technology*, 31, 2, 2018, 890; D. CARD, *The “black box” metaphor in machine learning*, in

In such circumstances, both reasoning and decision occur in a “black box”, consequently programmers and officials are unable to explain how the machine learning⁵⁵ algorithm arrived at the outcome. These are complex algorithms, spontaneously updating or self-learning, which can change the function of the program, without knowing how much and in which elements it changed⁵⁶.

The provision of the source code or of the text written in non-programming computer language appears to be an unsatisfactory solution since in fact not only it is illegible even by experts, but also it only partially reveals the dynamics of the decision. Being these technologies scarcely predictable and vulnerable to cyber security threats, it’s difficult or almost impossible to explain the reasons for the decision the algorithm adopted, in contrast to the procedural principles and guarantees provided for by law. The public administration justifies its acts and explains its decisions, especially when the legal system allows a margin

<https://towardsdatascience.com>, 2019; O. CAPDEFERRO VILLAGRASA, *La inteligencia artificial del sector público*, 9.

⁵⁵ Machine learning, a branch of AI, consists - as the term itself indicates - in automatic learning. So called in 1959 by Arthur Lee Samuel, machine learning is aimed at making computers capable of learning on their own, without being programmed. The algorithms must be fed with a large amount of data and allow the machines to improve their results more and more based on experience. See D. DESORDI-C. DELLA BONA, *A inteligência artificial e a eficiência na administração pública*, 11. On *machine learning, ex multis*, V.J. BARRAT, *Our Final Invention: Artificial Intelligence and the End of the Human Era*, New York, Thomas Dunne Books, 2013, 92.

⁵⁶ In this regard G. PESCE, *Funzione amministrativa, intelligenza artificiale e blockchain*, 134, in which it is pointed out that “affirming that AI can assume the nature of a ‘black box’ does not imply, however, a total impenetrability of the algorithm to an accurate examination of the human being. Rather, it means that the method used for predictions by self-learning algorithms cannot be interpreted according to ordinary statistical intuitions. is different to say that no one is able to know how the algorithms arrive at a certain prediction. If this were not the case, after all, the p.a. could not make use of it because in contrast with the principle of transparency that must necessarily characterize its action” (unofficial translation).

of discretion⁵⁷. In such cases, given the impossibility or the difficulty in explaining the algorithms and their operation, it appears necessary to clearly define responsibilities. In this regard, the principle of accountability, which is “the core of modern democratic systems”⁵⁸ is indissolubly linked to the principle of transparency, particularly in public activities. Those who exercise public functions must be accountable for their actions (or omissions) in front of citizens, to save real democracy values.

In addition, to counteract the black box effect, the Art. 22 of the EU General Data Protection Regulation No. 2016/679 (GDPR)⁵⁹ states that “the data subject shall have the right not to be subject to a decision based *solely* on automated processing (...) which produces legal effects concerning him or her or similarly significantly affects him or her”. The same article, however, establishes a derogation system and stipulates that the aforementioned does not apply to those procedures performed in pursuing the public interest or in exercising an official authority as a controller. According to the following Art. 23, the right of not being subjected to a decision based solely on automated processing can be limited only by two conditions. Firstly, the principle of legality must be respected, *i.e.* the automated processing must be provided for by EU law or national law. Second, the principle of proportionality must be respected. More precisely, the limitation is a necessary and

⁵⁷ Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group*, CAHAI-PDG(2021)03, 18; and European Commission, Directorate-General for Justice and Consumers, *Liability for artificial intelligence and other emerging digital technologies*, Publications Office, 2019.

⁵⁸ M. BOVENS, *The concept of public accountability*, in *The Oxford Handbook of Public Management* (E. FERLIE-L. LYNNE-C. POLLITT eds.), Oxford, 2007, 182. On the issue of liability and harmful action from AI: G. MARCHIANÒ, *Intelligenza artificiale: IA specifiche e l'amministrazione provvedimentoale – IA generali e i servizi pubblici*, 159.

⁵⁹ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

proportionate measure in a democratic society to safeguard a long series of specifically listed public interests, such as national security, defense and public security⁶⁰.

In any case, since it is essential that the public administration provides adequate reasons for its decisions, automated processing, when admissible, must be “subject to suitable safeguards, which should include specific information to the data subject and the right to obtain human intervention, to express his or her point of view, to obtain an explanation of the decision reached after such assessment and to challenge the decision”⁶¹. In other words, when it concerns the public activity, the principle of transparency and the related

⁶⁰ The public interests listed in the GDPR, art. 23, para. 1, are: *a*) national security; *b*) defence; *c*) public security; *d*) the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including the safeguarding against and the prevention of threats to public security; *e*) other important objectives of general public interest of the Union or of a Member State, in particular an important economic or financial interest of the Union or of a Member State, including monetary, budgetary and taxation matters, public health and social security; *f*) the protection of judicial independence and judicial proceedings; *g*) the prevention, investigation, detection and prosecution of breaches of ethics for regulated professions; *h*) a monitoring, inspection or regulatory function connected, even occasionally, to the exercise of official authority in the cases referred to in points (a) to (e) and (g); *i*) the protection of the data subject or the rights and freedoms of others; *j*) the enforcement of civil law claims.

⁶¹ Recital 71 of GDPR. With regard to articles 22 and 23 of the GDPR, and to the aforementioned recital: I. MASI, *L'intelligenza artificiale al servizio della pubblica amministrazione 2.0*, 10; S. CIVITARESE MATTEUCCI, “*Umano troppo umano*”. *Decisioni amministrative automatizzate e principio di legalità*, in *Diritto pubblico*, 1, 2019, 23; D.U. GALETTA-J.G. CORVALÁN, *Intelligenza Artificiale per una Pubblica Amministrazione 4.0? Potenzialità, rischi e sfide della rivoluzione tecnologica in atto*, 17; A. BOIX PALOP, *Los algoritmos son reglamentos: la necesidad de extender las garantías propias de las normas reglamentarias a los programas empleados por la administración para la adopción de decisiones*, in *Teoría y Método, Revista de Derecho Público*, 1, 2020, 223; G. PESCE, *Il Consiglio di Stato ed il vizio della opacità dell'algoritmo tra diritto interno e diritto sovranazionale*, in *Giustamm.it*, 2020, 9; A. SOLA, *L'automatizzazione dell'azione amministrativa*, 10; D.U. GALETTA, *Algoritmi, procedimento amministrativo e garanzie: brevi riflessioni, anche alla luce degli ultimi arresti giurisprudenziali in materia*, para. 4. In the same sense, the mentioned European Parliament Regulation of 21 April 2021 provides for an obligation of transparency and explanation of AI applications and for the necessary human intervention, as well as the adoption of measures such as independent audits to ensure compliance.

accountability principle cannot be entirely sacrificed by completely replacing human activity with that of AI.

As mentioned, reliability and legitimacy of new technologies' use in the public sector must be guaranteed, to obtain citizens confidence in them. Suitable monitoring and audit mechanisms of AI systems has been suggested. Moreover a global, multi-sector and independent authority or agency for certification for *ex ante* validating and then for periodically checking use of new technologies in public services for security standards and global quality indicators (controls so far neglected) has been proposed. This measure would possibly correct any wrong algorithmic logic and value attributed to individual variables, helping to create a durable confidence between public service providers and users⁶². Furthermore, the constitution of an independent global arbitration authority that quickly and effectively assesses and resolves disputes involving the operators in public service AI systems (*i.e.* developers, regulators and users)⁶³ has also been proposed. It seems very

⁶² Oxford Commission on AI & Good Governance, *AI in the Public Service: From Principles to Practice*, 2021, 12. See also R. CAVALLO PERIN-I. ALBERTI, *Atti e procedimenti amministrativi digitali*, in *Il diritto dell'Amministrazione pubblica digitale* (R.CAVALLO PERIN-D.U.GALETTA eds.), Turin, Giappichelli, 2020, 146; V. HEROLD, *Demokratische Legitimation automatisiert erlassener Verwaltungsakte*, Berlin, Duncker & Humblot GmbH, 2020, 239.

⁶³ Oxford Commission on AI & Good Governance, *AI in the Public Service: From Principles to Practice*, 2021, 9. In particular, this study believes that the independent arbitration authority should be approached, in a complementary way, by an international scientific body, also independent, which provides impartial evaluations to the former. The independent arbitration authority in turn would signal to the scientific body the need to carry out research on the issues and problems relating to the disputes raised before it. More specifically, the scientific body, to be designed on the model of the Intergovernmental Panel on Climate Change (IPCC), should carry out research on algorithmic audits, economic impacts, practical use cases and best policy practices, as well as disseminate the results of such research in order to inspire and coordinate the use of new AI systems to solve problems that require collective action.

appropriate because of the rapid technical innovation, which does not permit to anticipate how the new AI tools will be utilized in the public sector⁶⁴.

6. PUBLIC SERVICE PRINCIPLES AND AI

Public services are regulated by “historical” principles and characteristics, identified in legislation, in case law and by sector authorities. Specifically, provision of public services are characterized by: (i) dutifulness, that is the public authorities are responsible for providing the services; (ii) equality and equal treatment, that is the users have equal right of access to the services and to receive qualitatively equal services for the same need; (iii) non-discrimination, that is the service must be guaranteed to all citizens without distinction of income, location, social class, race, individual conditions; (iv) universality, that is the service must be made available to all end-users at a set quality level and at an affordable price (affordability), regardless of the geographical location⁶⁵.

⁶⁴ There are those who have hypothesized the institution of a specific regulatory authority in relation to AI in the public sector. This is the case, for example, of the Report of the English Committee on Standards in Public Life, *Artificial Intelligence and Public Standards*, 2020. However, after speculating on the institution of such an authority, the Committee suggests that the Center for Data Ethics and Innovation (CDEI) be given an independent legal basis to act as a central regulatory body, advising regulators and the government on how to address emerging AI issues in their respective fields (recommendation 4). This proposal would in fact allow the aforementioned regulatory authorities to continue to use their specific experience in the sector, also having an expert regulatory body focused only on AI. For this to work effectively, it is important that the regulatory guarantee body has sufficiently broad competences and powers.

⁶⁵ These are elements that are found, for example, at the basis of the notion of “service of general interest” (SGI) expressed in the Commission’s Green Paper of 21 May 2003 on services of general interest, COM (2003) 270, and, indeed, founded on the principles of continuity, universality, accessibility of tariffs and of protection of consumers - users. On public services, see the first note of the second paragraph.

The application of AI to public administration, and notably to the delivery of public services, can generate benefits in terms of efficiency and results obtained. For instance, the need of globalization is better satisfied by the capacity of algorithms to contrast the territorial and social division within and among States and the isolation of populations, providing them with public more effective, faster and personalized services⁶⁶. Additionally, while the management of services by humans may generate even involuntary discrimination, the AI customized services may personalize treatment of cases, favoring implementation of the principle of substantive equality⁶⁷.

Simultaneously, the employment of new technologies in the public sector may raise significant problems in complying with the aforementioned principles. For example, given that algorithmic processing allows to customize the public service and to better adapt administrative decisions to the specificities of each case, care must be taken to control that the principles of equality and universality are not in danger⁶⁸. It is not a minor problem as AI, although being, as seen, a powerful tool in helping to improve the efficiency of public

⁶⁶ In this sense B. BARRAUD, *L'algorithmisation de l'administration*, para. 8, in which it is noted, for example, that the State Council (in the document *Puissance publique et plateformes numériques: accompagner l'"ubérisation"*, *La documentation française*, 2017), underlining how IT platforms are an opportunity to develop new public service activities, proposes that the General Commissioner for the Equality of Territories define a methodology aimed at taking into consideration the new possibilities offered by the aforementioned platforms in conceiving and implement policies to combat territorial inequalities and incentives for the development of territorial capacities.

⁶⁷ On AI and the principle of equality: A. SIMONCINI-S. SUWEIS, *Il cambio di paradigma nell'intelligenza artificiale e il suo impatto sul diritto costituzionale*, in *Rivista di filosofia del diritto*, 1, 2019, 87; G. RESTA, *Governare l'innovazione tecnologica: decisioni algoritmiche, diritti digitali e principio di uguaglianza*, in *Politica del diritto*, 2, 2019, 199; A. CELOTTO, *Come regolare gli algoritmi. Il difficile bilanciamento fra scienza, etica e diritto*, in *Analisi giuridica dell'economia*, issue 1, 2019, 47; P. ZUDDAS, *Intelligenza artificiale e discriminazioni*, in *Liber amicorum per Pasquale Costanzo*, 2020, in www.giurcost.org.

⁶⁸ On these issues B. BARRAUD, *L'algorithmisation de l'administration*, para. 24.

administration and public services, doesn't have to result in a violation of the principles that govern them.

Numerous factors related to new technologies have the potential to be detrimental to public service delivery and compliance with the principles relating to them. For instance, an uneven widespread connection on the territory runs the danger of creating inequality and a "digital fracture" between the well-connected fringes of the population and those poorly or not at all connected. Thus, use of new technologies, especially digital ones, in public services must be characterized by a valid and evenly spread connection, by providing not only the adequate legal framework but also the suitable infrastructures⁶⁹.

Negative effects can be produced also by databases of "poor quality", *i.e.* characterized by discriminatory bias, such as those relating to sex or gender stereotypes: databases, for instance, with some groups under or over-represented, and therefore neglected or exaggeratedly emphasized. An unrefined and uncritical use of historical or contemporary data, especially when elaborated by machine learning systems, may be responsible of discrimination⁷⁰. The bias in databases could unintentionally be reflected into the services provided, therefore violating the principles of equality and non-discrimination. In order to prevent it, human intervention must modify contested decisions while public administration checks the results of the algorithmic systems in order to correct any illegitimate

⁶⁹ G. PESCE, *Digital First*, 138.

⁷⁰ Council of Europe, *Ad Hoc Committee on Artificial Intelligence (CAHAI), Policy Development Group*, CAHAI-PDG(2021)03, 13.

discrimination⁷¹. This is a delicate and necessary operation, requiring considerable means and resources that however frequently are not available to the administration⁷².

The described crucial questions are of widespread apprehension. For example, in the United Kingdom the Committee on Standards in Public Life expresses concern that the prevalence of data bias constitutes a threat to the principle of objectivity, which must govern public life. To avoid the spread of discrimination in the public sector, in a recent report, the Committee requests that the anti-discrimination legislation in the use of AI be clarified⁷³. In Brazil a resolution of the Conselho Nacional de Justiça of 2020 underlines the importance of compatibility between fundamental rights and the development of AI and deems necessary to observe principles including equality and non-discrimination⁷⁴.

⁷¹ B. BARRAUD, *L'algorithmisation de l'administration*, para. 17.

⁷² F. MOLINARI-C. VAN NOORDT-L. VACCARI-F. PIGNATELLI-L. TANGI, *AI Watch. Beyond pilots: sustainable implementation of AI in public services*, EUR 30868 EN, Publications Office of the European Union, Luxembourg, 2021, especially 36. In this regard, it should be considered that the validity of the activities carried out by the AI systems directly depends on the quality of the data on which they are based.

⁷³ Committee on Standards in Public Life, *Report on artificial intelligence and its impact on public standards*, 2020, in www.gov.uk, in which a series of recommendations are proposed in order to better manage data bias in public services and to provide fair public services: (i) the Equality and Human Rights Commission should develop guidance in partnership with the Alan Turing Institute and the Centre for Data Ethics and Innovation (CDEI) on how public bodies should best comply with the Equality Act 2010 (Recommendation 3); (ii) ensuring diversity within AI teams who are designing or developing products; (iii) public and private providers of public services should consciously tackle issues of bias and discrimination (Recommendation 10).

⁷⁴ Conselho Nacional de Justiça, Resolução nº 332/2020 on the use of AI in the judicial power. In particular, this resolution deems it necessary to respect the principles of transparency, predictability, verifiability, impartiality, substantial justice, equality, non-discrimination, plurality, solidarity and justice and guarantees respect for fundamental rights in the development and use of AI.

Because of the mentioned concerns, the numerous declarations, guidelines and codes of ethics elaborated by experts from the world's leading institutions proposing measures to regulate the use of AI in the public sector are suited⁷⁵.

7. THE USE OF AI AND THE COLLABORATIVE TRANSFORMATION IN PUBLIC SERVICES

Thanks to the use of AI, in the field of public services processes of collaborative transformation among government levels and between public and private subjects –different from a mere bureaucratic relationship in opaque and less democratic forms – can be facilitated.

Similarly to what occurs in the private sector, after having users assessed the quality of the specific services received, specific algorithmic tools allow to mediate divergent evaluations and in real time propose appropriate corrective measures. In other words, by continuously learning the user needs, algorithmic systems implement a collaborative improvement type of the public services provided. Particularly in the public sector, this is a very relevant aspect as one of the obstacles entangling the administrative activity is its difficulty in taking decisions that satisfy both the public and private subjects.

Similarly, quality standards (*i.e.* the minimum levels of quality to be guaranteed to users by service providers) also improve. By forcing to review many of the pre-existing

⁷⁵ For example see: N. BUBLITZ CAMARA, *O uso da inteligência artificial no processo administrativo*, 10, which mentions a manifesto of 2018 aimed at preventing AI advances from violating human rights; J. BERRYHILL-K.K. HEANG-R. CLOGHER-K. MCBRIDE, *Hello, World: Artificial Intelligence*, 113, where, based on the awareness that if it is not possible to temper an AI bias it is difficult to justify its use in the public sector, to mitigate and monitor cognitive biases in algorithms, especially in the case of decisions made with deep learning black box system, it is proposed to create governance frameworks at the design stage that include a means of monitoring outcomes.

standards and to improve the quality of the data and software used, AI allows the services quality to adapt to the new needs of users, thus improving the quality of services. This mechanism therefore appears to be able to overcome the gap between the quality standards of the public sector, usually included in the Service Charter and related documents, and the higher quality standards of the private sector. Given that any algorithmic decision taken in the public sector should be subject to standards higher than those in the private sector, as many citizens have no alternative to public services, guaranteeing a valid level of quality of the services offered by using AI is relevant not only for the welfare of citizens but also for the safe of democracy. In fact these services affect the exercise of other rights.

Standards have also an additional substantial impact in minimizing the risks and maximizing the potencial presented by AI when applied in the public sector. Compliance with harmonized standards, for instance within the European Union or even better globally, can generate a presumption of legitimacy of AI applications and services, producing confidence in their compliance with the provisions of the legislation and also incentives to comply with the standards themselves. This is significant not only when public service is provided by a public administration but, even more, when it is provided by a private subject. The provision of public services through the use of AI by private entities thus poses significant hurdles in upholding a certain level of standards, particularly in terms of quality and transparency.

Having made it clear that a high level of standardization in public services may have benefits, setting standards in relation to AI in such services may be complex, both on institutional and structural level. The operation must be executed within an appropriate legal framework, with adequate resources and with the aid of efficient mechanisms to resolve any disputes. In fact, confidence in adopting AI in the public sector in general, and in public services in particular, appears to be closely related to the development of effective and solid standards, inconceivable in absence of a suitable legal framework. Lack of such framework exposes to adoption of technical standards potentially facilitating prejudices and inequalities not corrected by public intervention, therefore exerting a negative impact on public life.

The use of AI in public services may result in the simplification of procedures and through it transform the services, their quality and improve the relationship between service managers and users. Simplifying means that intermediate steps and intermediaries are systematically reduced and/or eliminated. Through this process of “disintermediation”, the service manager and the end-user get closer, establishing a more collaborative relationship. Furthermore, by combining the process of technological innovation of the public administration with an overall simplification of both the regulatory and procedural context, the further positive effect of reducing bureaucratic burdens and constraints is produced.

The so-called “once only” principle is a clear example of simplification: according to this principle the citizen is allowed to ask for information to the public administration only once and the administration cannot ask the citizen for documents already at its disposal, thus saving both time and money⁷⁶. At this point effective interoperability between the databases of the various entities is needed, to establish a constant dialogue with each other⁷⁷. By developing digital technologies that serve as a unitary communication channel between individuals and public administrations, the outlined simplification process must be applied consistently at all levels of government, improving the efficiency and quality of public

⁷⁶ The “once only” originates from EU Regulation on the single digital gateway, aimed at simplifying and improving the effectiveness of interactions with public administrations of different Member States for citizens and businesses, also avoiding duplication (total or partial) for the same information: Regulation (EU) 2018/1724 of the European Parliament and of the Council of 2 October 2018 establishing a single digital gateway to provide access to information, to procedures and to assistance and problem-solving services and amending Regulation (EU) No 1024/2012 and, in particular, recitals 12 ff., 40, 55, 63, 72, and art. 14, para. 2. See: D.U. GALETTA, *Transizione digitale e diritto ad una buona amministrazione: fra prospettive aperte per le Pubbliche Amministrazioni dal PNRR e problemi ancora da affrontare*, in *Federalismi.it*, 7, 2022, para. 5.

⁷⁷ This is the case, for example, of Italy, where, according to the survey “*Digitalizzazione e interoperabilità delle banche dati fiscali*” (Digitization and interoperability of tax databases), approved by the Parliamentary Supervisory Commission On The Tax Registry, 2022, the “once only” principle was at the time largely disregarded, despite repeated attempts by the legislator to impose its application.

services⁷⁸. It is essential to create a system of supportive platforms through which achieving the “once-only” communication by ensuring extraordinary bureaucratic simplification and an open and transparent dialogue between citizens and private parties with the public administration.

The simplification of access of public administrations to digital service improves collaboration between public administration and citizens-users, and consequently improves also quality and efficiency of the services provided. In particular, simplification is facilitated by the possibility for citizens to use through their digital identity also services provided by public service concessionaires and by publicly controlled companies⁷⁹.

8. CONCLUSIONS

The application of AI in the public sector is becoming an expanding reality, the new normal⁸⁰. It represents a necessity at a global level, as it allows the administration to provide public services of higher quality and to improve their efficiency, and it helps to heal some of the “diseases” affecting the public administration, the public sector and the public services.

⁷⁸ Report of the V Budget Commission of the Italian Chamber of Deputies on the identification of priorities in the use of the Recovery Fund (Doc. XVI, no. 4), 12 October 2020, 24, containing the addresses relating to the “Digitization of the PA”.

⁷⁹ The principle of digital first, which in the Italian legal system is governed by art. 1, para. 1, lett. b), Law 7 August 2015, No. 124, establishes that it is necessary “to redefine and simplify administrative procedures, in relation to the needs of speed, certainty of timing and transparency towards citizens and businesses, through a discipline based on their digitization and for the full realization of the principle ‘digital first’, as well as the organization and internal procedures of each administration” (unofficial translation).

⁸⁰ As regards Italy, for example, the mentioned European Commission Country Report of February 2020 recorded progress in increasing the efficiency and digitization of public administration, and in particular in the offer of digital public services for citizens and for businesses.

In fact, new technologies brings automation, saving resources, speeding routine government and administrative processes and decision-making, and providing greater coordination and closer cooperation both among levels of government and between public and private subjects.

Beside the evident advantages and considerable opportunities in designing a new normality, the application of new technologies to the public sector however may be accompanied by some risks and limitations, as evidenced by the not yet satisfactory implementation path⁸¹. It is critical to consider the effects of AI on the principles governing the administrative activity and public services, as well as on the defense and promotion of fundamental rights and of the rights of the community with respect to institutions. These risks should not be undervalued. New technologies may jeopardize the democratic values and human rights on which the society is founded. In this context, it is necessary to consider the difficulties related to the wide range of interests involved, not always converging, such as those of citizens, businesses, programmers and society.

The introduction of AI in public services and its legal consequences are certainly only at a starting point. New debates and conflicts, both in doctrine and in jurisprudence, are anticipated, aiming to establish to what extent this phenomenon can spread and the limits for accepting it. Investigation aiming to answer this question takes complex forms that partially are not known and foreseeable. However, boundaries are clear and cannot be overcome or neglected. These include the aforementioned major principles governing public services. Although reassessment of traditional schemes is required, the transformation and innovation process presently underway cannot disregard those principles and the pursuit of public interest objectives. These principles are critical parameters also in the new developing normality, to keep intact the system of guarantees on which administrative law and today's democratic systems are based. Because of this, in administrative law it seems necessary to

⁸¹ Oxford Commission on AI & Good Governance, *AI in the Public Service: From Principles to Practice*, 2021, 2, in which it is highlighted that, despite the many projects in which the use of AI is foreseen, it often struggles to find a complete and satisfactory implementation, often producing disappointing and worrying results.

adopt tools allowing new technologies for more efficient public services, while reconciling the use of them with the values of the legal system and preserving people's rights and guarantees.

***Abstract.** The use of AI in public services brings a wide range of benefits, such as the reduction of costs, the improvement of the quality of services, the enlargement of production scales and the extension of citizens' guarantees. The aim of this study is to analyse the advances in the public sector and in particular in public services reached in the relation between different levels of government and between public authorities and private subjects thanks to the application of AI. The study also analyses the role of the principles of public administration activity while using AI and the importance of publicity and transparency in the application of AI in the public sector. Moreover, within a general legal framework which lacks uniformity in relation to the use of AI in the public sector, the study examines the risks that the use of AI in the public sector and especially in public services could bring, in particular with regard to the respect of the principles governing these services, wondering about the need of compliance with them.*