

Better Decision-Making, Algorithmic Discrimination and Gender Biases: A New Challenge for the Administration of the 21st Century*

Eva M^a Menéndez Sebastián

(Full Professor of Administrative Law at Oviedo University)

With the collaboration of Belén M^a Mattos Castañeda

(PhD in Law at Durham University)

ABSTRACT We are currently witnessing a social transformation with various converging factors, among which this article will focus on the new public governance and the incorporation of artificial intelligence. This work proposes an analysis of the connection between these two spheres and, in particular, two elements: good administration and the employment of algorithms by the Public Administration. The aim is to highlight the necessity to regulate this instrument and adopt preventive and control mechanisms, in order to avoid algorithmic discrimination, especially from a gender-sensitive perspective.

1. Problem statement

The role played by the Administration and its relationship with the citizens are extremely relevant in a State of social democracy, subject to the Rule of Law.¹ This premise has gained special significance and meaning in recent times, with the impetus of what has been called *new public governance*.

To begin with, some fundamental aspects of this phenomenon will be succinctly outlined. *Good government*, *good administration*, and *good regulation* are three concepts inherent to this idea of *new public governance*. This article will not address the differences between these three notions in detail, and previous works may be consulted for further reference.² Here it will be sufficient to underline that it is possible to make a distinction between the three concepts aforementioned. The difference is not merely

regarding the subject but rather the technical or political nature of the decision. However, these notions share common features, in particular, the importance of certain principles and aims.

In terms of the aims, the idea of *public governance* should be connected or based on two essential elements or objectives: regaining the confidence of citizens in the institutions and putting into practice what the French doctrine denominates as *administrative citizenship*, which will be addressed later in this work. The key idea is that the Public Administration is at the service of citizens and, therefore, citizens can control it. In order to do this, they must be able to learn about it (transparency), get involved in the decision-making process (participation), and evaluate its performance (accountability).

Within this idea of public governance, there are some principles that are particularly worthy of attention, such as transparency,³ participation,⁴ accountability,⁵ public ethic

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¹ As it has been highlighted in E.M^a. Menéndez Sebastián, *La Administración al servicio de la justicia social*, Madrid, Iustel, 2016.

² E.M^a. Menéndez Sebastián, *De la función consultiva clásica a la buena administración. Evolución en el Estado Social y Democrático de Derecho*, Madrid, Marcial Pons, 2021; or E.M^a. Menéndez Sebastián and J. Ballina Díaz, *Sostenibilidad social y ciudadanía administrativa digital*, Madrid, REUS, 2022.

³ This is perhaps the aspect that has been emphasized the most. It responds to the need to know what the Public Administration does in order to be able to control it, and it must be extended to public services as well.

⁴ It should be noticed that there are different types of participation and each one of them contributes to good administration, good governance and good regulation, not only by the civil society – which has knowledge about its needs –, but also by interest groups or experts, whose knowledge contributes to greater success in decision-making. There are also different types of participation according to the moment when it takes place. For instance, deliberative participation

and integrity,⁶ open data,⁷ effectiveness and efficiency,⁸ innovation,⁹ and equality and non-

(determining what is of general interest for citizens, i.e. issues to be addressed), participation in decision-making (participation in the strictest sense, this is, in the elaboration of norms, the political decision-making, and the Administration as well), and participation in the evaluation of those decisions and their results.

⁵ Evaluating decisions is important to determine their effectiveness, thereby changing or maintaining them. Accountability – which may also be considered as participation from a broad perspective – is extremely relevant, and this might be the least studied aspect of the three notions that usually encompass the concept of *public governance*. In this regard, it is noteworthy the recent study conducted by the French Conseil d'État on this subject: *Etude annuelle 2020. Conduire et partager l'évaluation des politiques publiques*, La Documentation Française, Paris, 2020. This issue is also connected with what has been denominated as legal experiments, *clauses de réexamen*, *review clauses*, *sunset clause* or *clause crépusculaire* and has been explored in works such as A. Boto Álvarez, *Experimentación regulatoria: la introducción de proyectos pilotos de excepción en el sector eléctrico español*, in M. Anglés Hernández and M. Palomino Guerrero (eds.), *Justicia energética y sector eléctrico iberoamericano*, México, UNAM, 2021, 161, and in other legal systems more intensively.

⁶ Measures in this area are essential to restore public confidence in the institutions. This principle is also related to current issues such as codes of conduct; interest groups, their registration and the legislative footprint file – which is one of the regulatory commitments of the IV Open Government Plan in Spain; revolving doors; conflicts of interest, etc. For further information, see: J. Ballina Díaz, *La formalización de las relaciones entre las instituciones europeas y los grupos de interés: encuentros y desencuentros*, in M^a.P. Andrés Saénz De Santa María (ed.), *Una contribución a la europeización de la ciencia jurídica: Estudios sobre la Unión Europea*, Navarra, Thomson Reuters-Civitas, 2019; Id., *La información sobre los grupos de interés comunitarios: un campo prometedor para el big data*, in A. Huergo Lora and G.M. Díaz González (eds.), *La regulación de los algoritmos*, Navarra, Thomson Reuters Aranzadi, 2020; and J. Ponce Solé, *Mejora de la regulación, lobbies y huella normativa. Un análisis empírico de la informalidad*, Valencia, Tirant lo Blanch, 2019.

⁷ The Directive (EU) 2019/1024 on open data and the re-use of public sector information of the European Parliament and of the Council of 20 June 2019 are especially relevant to this topic.

⁸ *Good administration* measures are fundamental in this sphere; hence it is necessary to delve into digital transformation, administrative simplification, and organisational issues. Since *good government* and *good administration* primarily seek better decision-making these are especially linked to effectiveness and efficiency. In this regard, the general importance of impact assessments, and specifically of *good regulation* must not be overlooked.

⁹ In order to satisfy social demands, Administrations must undergo a transformation, from the bureaucratic model to an innovative model, which will allow them to be more effective and efficient. This will lead to the adoption of people-based designs, opting for co-creation, introducing instruments such as *sandbox*,

discrimination.¹⁰

Therefore, a strategy of *public governance* that aims at being global, comprehensive, and inclusive must adopt this approach and, especially, a gender-sensitive perspective. This aspect is related to the achievement of the Sustainable Development Goals set by the 2030 Agenda, specifically goals no. 5, 10, 16, and 17. These refer to gender equality, reduction of inequalities, peace, justice and strong institutions, and multi-stakeholder partnership, respectively, all of which inform the core concept of *social sustainability*.¹¹

This is the approach that this work will employ without losing sight of the fact that the use of artificial intelligence and, in particular, algorithms in administrative decision-making has been called into question, not only concerning non-participation but also the violation of the principle of equality and non-discrimination.

2. The *citoyenneté administrative*: a key French notion

The term *administrative citizenship*¹² proposed by the French doctrine reflects the transformation of the consideration of an individual who has a relationship with the Public Administration or uses a public service from subject or user¹³ to citizen. Likewise, it

nudging, or *innovations lab*.

¹⁰ Equality is not only a clear goal of the 2030 Agenda, but it is also essential to the topic addressed in this work as much of citizens' mistrust in the Administration originates from the perception of inequality. In addition, there can be no adequate *public governance* in a State of social democracy if it is not committed to eradicating inequality. This also entails refraining from taking measures that might increase such inequalities, especially regarding the digital divide, which must be addressed. *Public governance* must be inclusive hence, it is necessary to have a global vision from a gender-sensitive perspective and, more generally, with an approach of non-discrimination.

¹¹ As has been indicated by the European Economic and Social Committee in its exploratory opinion on "A socially sustainable concept for raising living standards, boosting growth and employment, as well as citizens' security in the digital era" (2018/C 237/01), this issue relates to the capacity to ensure conditions for human well-being (security, health, training, democracy, participation, and justice) equitably distributed between different classes and genders. Therefore, *social sustainability* must be introduced and implemented in the same way as environmental and economic sustainability to reduce inequalities.

¹² On this point see E.M^a. Menéndez Sebastián and J. Ballina Díaz, *Sostenibilidad social y ciudadanía administrativa digital*.

¹³ As it has already been pointed out by V. Donier, *Les*

is essential to consider the changes in the classic conception of citizenship itself more attached to the idea of nationality.

The new position acquired by the individual in relation to the Public Administration from a perspective of citizenship justifies an introduction to the principles, which are pivotal to *new governance*. There is a profound transformation of the relationship between the Administration and citizens, formerly considered subjects, in line with what has been considered the transition from *democratic administration* to *administrative democracy*. The increasing use of the notion of *democracy* in Public Administration clearly reflects this change. It entails granting new rights to all citizens and getting them involved in administrative processes within the framework of deliberative and participatory mechanisms.¹⁴

The issue of *administrative democracy*¹⁵ reflects, in fact, a profound change in the way the relationship between the Public Administration and democracy was traditionally conceived. The former is no longer expected to be democratic but rather to become the spearhead and drive in the reformulation and strengthening of the logic of democracy. However, it is necessary to emphasize that this is complementary to representative democracy and not a substitute¹⁶ and that participation in power does not end with the right to vote and that it extends in a sustained manner.¹⁷ All of this is

related to *good administration*,¹⁸ in the sense of efficiency and better decision-making.

This transformation can be noticed in several legal instruments, which have replaced the terms *subject*, *petitioner* or *user* by *citizen*. This is clear in France with *Loi n° 2000-321 du 12 avril 2000 relative aux droits des citoyens dans leurs relations avec les administrations*¹⁹ and, more recently in Spain with *Ley 39/2015, de 1 de octubre, de Procedimiento Administrativo Común de las Administraciones Públicas*,²⁰ or *Ley de Contratos del Sector Público (LCSP)* from 2017.²¹

Therefore, by recognising that the individual formerly conceived as a subject is a citizen, contemporary texts consider that the administrative relationship has a civic dimension. The Administration must provide citizens with the means to exercise their citizenship, and the administrative relationship is one of the means of access to it. This leads to a transformation in the nature of the administrative relationship, with citizens entitled to participate in administrative action and to have access to the Administration, which is held accountable to them.

In these terms, *administrative citizenship* encompasses two fundamental aspects. In the first place, due to the change in the terminology, all of the citizens' rights can be considered now citizenship rights. Secondly, the civic dimension of the administrative relationship is reinforced as a pillar of political citizenship. The emergent *administrative citizenship* entails that electors are at the same time citizens of the Administration and citizens in the

droits de l'utilisateur et ceux du citoyen, in *Revue française de droit administratif*, vol. 1, 2008, 13, the first step in this evolution was about the idea of the user, demonstrating thus the subject's emancipation, ceasing to be in a subordinate position with the Administration and becoming its beneficiary instead.

¹⁴ According to J. Chevallier, *De l'Administration démocratique à la démocratie administrative*, in *Revue française d'administration publique*, vols. 137-138, 2011, 217.

¹⁵ According to C. Testard, *Pouvoir de décision unilatérale de l'administration et démocratie administrative*, Paris, LGDJ, 2018, this is understood as the set of rules that promote the participation of citizens in the elaboration of administrative decisions.

¹⁶ This is the argument followed by the Conseil d'État, *La citoyenneté. Être (un) citoyen aujourd'hui*, Paris, La Documentation Française, 2018, 14; J. Chevallier, *De l'Administration démocratique à la démocratie administrative*, 227; G. Dumont, *La citoyenneté administrative*, PHD thesis, Université Panthéon-Assas Paris 2, Paris, 2002, 367; and E. Debaets, *Protection des droits fondamentaux et participation de l'individu aux décisions publiques*, in *Jurisdoctrina*, vol. 4, 2010, 175.

¹⁷ A.G. Orofino, *La trasparenza oltre la crisi. Accesso,*

informatizzazione e controllo civico, Bari, Cacucci, 2020, 53.

¹⁸ As has been claimed by the Conseil d'État, *Consulter autrement, participer effectivement*, Paris, La Documentation Française, 2011, 92.

¹⁹ The *Code des relations entre le public et l'administration (CRPA)*, enacted by *Ordonnance n° 2015-1341 du 23 octobre 2015 relative aux dispositions législatives du code des relations entre le public et l'administration*, *JO*, n° 0248, 25 octobre 2015, *texte n° 2*, 19872, replaces the term "citizen" by that of "public", as has been indicated by F. Pinel, *La participation du citoyen à la décision administrative*, PHD thesis, Université Rennes 1, Rennes, 2018, 19.

²⁰ This law uses the term "ciudadano" (masculine form of citizen) twenty-one times and only once "ciudadana" (feminine form of citizen), but without explaining the effects terminology shift or making it explicit.

²¹ For instance, article 312 refers to services contract with direct benefits to citizenship.

Administration.²² Finally, the aim is to make citizenship effective through the relationship of citizens with the Administration, this is, with the extended and active participation of citizens in the administrative power.

3. An approach to good administration

The aim of this work is not to discuss what is understood by the *notion of good administration*²³ or what it entails in detail. As a paradox, even though this term has been in use for years, not only in jurisprudence but also explicitly in several legal texts,²⁴ such sources fail to provide a concept or definition of *good administration*. Moreover, this phenomenon occurs in various legal systems.²⁵

The absence of a relatively concrete and widely accepted concept caused that the relevance and role of *good administration* have not been recognised, and its practical application has been considerably relegated, despite being a central aspect of Administrative Law. There have been some references to this crucial element of our discipline in jurisprudence recently, but yet excessively timid.

This work argues for granting value to this concept and asserting its importance in the contemporary practice of Administrative Law, stressing the need to provide it with substantial legal effects to connect it with the previously exposed idea of *administrative citizenship*. The role of the European Union in

this regard has been remarkable, both through the jurisprudence from the Court of Justice of the European Union (CJEU)²⁶ and in the indisputable work of the European Ombudsman.²⁷

There are various perspectives on this point, some of which are fundamental: from the role of *good administration* in the construction of the European administrative area²⁸ to a more restrictive view²⁹ that distinguishes it from other terms such as *good government* or *good governance*. Even though Government and Administration have always been closely linked, their functions, approaches, principles, and instruments cannot and should not be identical.

Following this approach, it is possible to offer a concrete notion of *good administration* based on the meaning of the words that compose it and its aim, which is to objectively and effectively serve the general interest.³⁰ Therefore, there will be *good administration* when it adequately serves the public interest. The adequacy of the means at its service becomes decisive, as Herbert A. Simon has indicated concerning the good administrative behaviour and its connection with efficiency,³¹ which had been earlier associated with the notion of good administration and its correct operation³² by the Italian doctrine. On the other hand,

²² G. Dumont, *La citoyenneté administrative*, 666.

²³ For further development on this point see: E.M^a. Menéndez Sebastián, *De la función consultiva clásica a la buena administración. Evolución en el Estado Social y Democrático de Derecho*.

²⁴ Highlighting article 41 of the European Union Charter of Fundamental Rights. This has been developed in E.M^a. Menéndez Sebastián, *La apuesta europea por una buena administración: implicaciones y estado de la cuestión*, in M^a.P. Andrés Saénz De Santa María (ed.), *Una contribución a la europeización de la ciencia jurídica: Estudios sobre la Unión Europea*, Navarra, Thomson Reuters-Civitas, 2019, 613.

²⁵ In spite of the genuine endeavour made by some authors such as R. Bousta, *Essai sur la notion de bonne administration en Droit public*, Paris, L'Harmattan, 2010. Regarding the topic of *good administration*, we must also mention the multiple works by J. Ponce Solé, *Deber de buena administración y derecho al procedimiento administrativo debido. Las bases constitucionales del procedimiento administrativo y del ejercicio de la discrecionalidad*, Valladolid, Lex Nova, 2001; Id., *La lucha por el buen gobierno y el derecho a una buena administración mediante el estándar jurídico de diligencia debida*, Madrid, Cuadernos de la Cátedra de Democracia y Derechos Humanos, 2019.

²⁶ From Judgment of the Court of 11 February 1955, *Industrie Siderurgiche Associate (ISA) v High Authority of the European Coal and Steel Community*, case 4-54, ECLI:EU:C:1955:3, to Judgment of the Court (First Chamber) of 25 June 2020, case C-730/18 P, *SC v Eulex Kosovo*, ECLI:EU:C:2020:505, among several others.

²⁷ Regarding the prominent labour of this body on good administration see for example, B. Ferrer Jeffrey, *Presente y futuro del Defensor del Pueblo Europeo, guardián de la buena administración*, in *Revista de Derecho de la Unión Europea*, vol. 3, 2002, 341.

²⁸ Highlighting in this regard the thesis proposed by E. Chevalier, *Bonne administration et Union européenne*, Bruxelles, Bruylant, 2014.

²⁹ R. Bousta, *Essai sur la notion de bonne administration en Droit public*.

³⁰ For example, as established by article 103 of the Spanish Constitution.

³¹ H.A. Simon, *Administrative behavior: a study of decision making processes in administrative organizations*, New York, NY, The Free Press, 1957, 38.

³² Article 97 of the Italian Constitution refers to this. For instance, according to S. Cassese, *Il diritto alla buona amministrazione*, in *Relazione alla 'Giornata sul diritto alla buona amministrazione' per il 25° anniversario della legge sul 'Sindic de Greuges' della Catalogna*, Barcelona, 2009, 3, this constitutional precept entails the sanction of the principles of impartiality and *good administration*.

however, it is essential to bear in mind the essence of Administrative Law, namely the balance between the public interest and particular interests.

In conclusion, the term *good administration* is used here to refer to that which serves its function well, acting without detriment to particular interests and with respect towards them. The *good administration* is such that adequately ponders current means, circumstances, facts, and evidence in order to adopt the best decision possible, for which the appropriate procedure is fundamental. The appropriate procedure fulfils two relevant functions – it contributes to better decision-making, and it stands as a guarantee of the rights of the concerned parties. This is connected with the statement of reasons, the obligation of *due care* or *due diligence* referred to by the Court of Justice of the European Union,³³ which constitutes the basis of equity.

It is also relevant to understand that the approach adopted in the proposed notion of *good administration* addresses better decision-making, better functioning, etc., from a technical-legal lens rather than a political perspective. Therefore, the proposed differentiation between *good government* and *good administration* does not only – or even primarily – refers to the subject from which the act emanates or to the rule or legal product in question. On the contrary, it addresses its character, whether technical-legal or political.

Hence, following this more or less concrete concept, the specific qualities of *good administration* ought to be considered too. This point refers to how this notion can contribute with more than just a rhetorical recognition of preexisting rights and principles, both before the administrative act and after it, concerning its control. Among these features, it is possible to highlight four: the proper functioning of the Public Administration, including the importance of standards and soft law; good administrative decision, including discretionary power, due diligence, balancing of interests, statement of reasons, assessment of facts and circumstances, etc.; a more comprehensive

control, including the question of whether the legal opportunity has somehow become part of the review of legality process, which is not only judicial but also conducted by other agents such as the Ombudsperson, who plays a crucial role in this regard; and the principle of effective administrative protection understood as more than a set of procedural rights, which, according to the Spanish Supreme Court, does not end with the mere strict observance of procedure and formalities.

The necessity or advantage of connecting the notion of *good administration* – in the terms outlined here – and *administrative citizenship* is highlighted by the fact that the Charter of Fundamental Rights of the European Union, in its chapter dedicated to citizenship – articles 39 to 46 –, includes not only the right to vote and to stand as a candidate, freedom of movement and residence and diplomatic and consular protection but also the right to good administration, the right of access to documents, the European Ombudsman and the right to petition.

In addition, the connection between the aforementioned *deliberative administration* and *good administration* is apparent. The aim is to respond to the need for a transparent and open Administration facilitating the acceptability of decisions, as well as for a more efficient Administration capable of providing faster and more direct responses to the needs expressed by the citizens.³⁴ Moreover, if deliberation entails considering all the aspects of a phenomenon to make the right decision on the matter, it is connected with the idea of *good administration*, this is, pursuing the best possible decision by taking into account all the elements present.

In order to respond to the need for a *good administration*, even if this is understood from a restrictive perspective connected with efficiency and effectiveness only, it is undoubtedly essential to consider all the relevant viewpoints that allow making the best possible decisions. For instance, the points of view of public service users and citizens in general are crucial, and taking them into account is linked to the so-called people-based design. The needs addressed by these services must be considered to provide a better response, making the Public Administration

³³ See, for instance, the Judgment of the European Court of Justice of 4 April 2017, case C-337/15 P, ECLI:EU:C:2017:256; or the Judgement of 22 November 2017, case C-691/15 P, ECLI:EU:C:2017:882.

³⁴ As it has been stated by the Conseil d'État, *Consulter autrement, participer effectivement*, 92.

more effective and legitimate and even achieving greater acceptance of its decisions.

Furthermore, this notion of *administrative citizenship* integrates public consultation in the decision-making process and responds to the consideration of the user, subject, or interested party as a citizen. By acknowledging that the Administration subject is also a citizen, the civic dimension of the administrative relationship is recognised. With this transformation, the administrative relationship becomes one of the means of access to citizenship, which entails that citizens have the right to know the Administration – transparency –, to be engaged in administrative action – participation – and that the Administration must be accountable to them – accountability –. The compliance with this will lead to a more effective and efficient Administration – which is connected with the goal of *good administration* – as well as greater legitimacy.³⁵

4. Employment of algorithms in administrative decision-making

After providing a brief explanation of the proposed notion of *good administration*, it is evident that there is a connection between this and the idea of better decision-making, optimising resources, and, in general, effectiveness and efficiency. This section will hence focus on the use of algorithms for this purpose.

In the first place, it is necessary to distinguish between digitisation, automation, and artificial intelligence. As some authors have indicated,³⁶ digitalisation involves the use of information and communications technology (ICT) for administrative processes, replacing paper. Automation³⁷ goes beyond digitisation by replacing the human operator,

which requires³⁸ prior regulatory provisions per article 41 of Law 1 October 2015, no. 40, of Legal Regime of the Public Sector³⁹ (Spain). Moreover, it is common to refer to artificial intelligence concerning tasks that previously required human intervention, including the elaboration of the whole or part of the content of an administrative decision. Thus, there is artificial intelligence when it is possible to go beyond the application of the rules that the programmer has set for the algorithmic analysis of a large amount of data, and the programme creates new rules from the correlations that it discovers within the supplied data.⁴⁰

Furthermore, setting aside the compelling debate concerning the legal nature of algorithms,⁴¹ it should be noted that there are several types. The function of a number of them is merely to facilitate the Administration decision-making process hence they may be regarded as more elementary; for instance, programmes employed to apply a scale or formula, which could be hand-made, making it feasible to assess its correct application. Moreover, some algorithms mechanize or automate regulated processes with some degree of complexity that can be hardly replicated by human beings. Finally, perhaps the most controversial issue is predictive algorithms, which add their own decisional elements from the analysis of previous data. Thus, as the French *Défenseur des droits* has

³⁵ The link between both concepts has also been indicated by some authors, such as F. Delpérée, *Rapport de synthèse sur la citoyenneté administrative*, in *Annuaire européen d'administration publique*, Aix-en-Provence, Presses Universitaires d'Aix-Marseille, 2020, 205, who claims that *good administration* is a necessary condition for good citizenship.

³⁶ A. Huergo Lora, *Regular la inteligencia artificial (en Derecho Administrativo)*, in *Blog de la Revista de Derecho Público*, 8 March 2021.

³⁷ Regarding the recent use of automation by Public Administrations, see A. Cerrillo Martínez, *Robots, asistentes virtuales y automatización de las administraciones públicas*, in *Revista Gallega de Administración Pública*, vol. 61, 2021, 271.

³⁸ Since laws confer the power to issue administrative acts to administrative agencies, whose incumbents are natural persons.

³⁹ Regarding the regulation of automatised administrative operations, it is relevant to highlight the pioneer work by I. Martín Delgado, *Naturaleza, concepto y régimen jurídico de la actuación administrativa automatizada*, in *Revista de Administración Pública*, vol. 180, 2009.

⁴⁰ See A. Huergo Lora, *Regular la inteligencia artificial (en Derecho Administrativo)*, who mentions the case of programmes that predict where infringements are most likely to occur based on the analysis of past transgressions within a sector, allowing the Administration to concentrate its inspection efforts there.

⁴¹ It is relevant to briefly mention two doctrinal trends on this point - some authors consider algorithms as acts, for instance, A. Huergo Lora, *Regular la inteligencia artificial (en Derecho Administrativo)*, whereas others understand that these have a regulatory nature, such as 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 *Revista de Derecho Público: Teoría y Método*, vol. 1, 2020, 223.

pointed out, algorithms vary according to their conception and capacity to learn, as well as their intended prediction of events, behaviours, or individual preferences.⁴²

To sum up, it is important to consider that this phenomenon represents a passage from the logical-deductive procedure to the Boolean logic of correlations and probabilities, which involves certain risks, both in the design and data.⁴³ This is the case with algorithms capable of learning, which can draw their conclusions and/or generate their own instructions from the available data and previous repetitions. In these cases, it is difficult to determine the reasons for the decision-making, as they are not introduced from the beginning but generated by the algorithm instead.

Nevertheless, it is also true that algorithms in particular, and artificial intelligence in general, can also contribute to better decision-making by being able to handle amounts of data that would otherwise be unattainable for humans. If employed correctly, this could contribute to a more efficient allocation of resources, hence to *good administration*.⁴⁴

5. Algorithmic bias and gender-sensitive

So far it has been explained what is meant by *good administration* and which is the expected role of artificial intelligence, in particular algorithms, in it. Therefore, this section will focus on how gender equality can be affected by this new instrument in the hands of Public Administrations, as well as at the private level, and the measures that can be implemented in this regard.

There are various and several risks and benefits⁴⁵ that have been pointed out from

different approaches, in terms of the digital world in general and concerning the use of artificial intelligence in particular. It is necessary to consider that the use of these technologies has not been associated in vain with the idea of effectiveness and efficiency and, hence, *good administration*.

Among the risks these may pose, it is possible to mention ethical concerns regarding *posthumanism* and the enhanced human,⁴⁶ the three levels of the digital divide, in particular, the third in terms of participation in social and political life – in the era of open government⁴⁷ –, and the gender biases of algorithms which is the specific point that this work addresses.

Even though it may be thought that algorithms would not include gender biases or discriminate, some experiences have shown the contrary.⁴⁸ For instance, it is worth mentioning a study from the University of Boston⁴⁹ which makes evident that automatic learning techniques to train an artificial intelligence system using Google news solved the analogy “man is to computer programmer, what woman is to X” with the answer to X being equal to housewife.

Another example of this issue has been pointed out in the study “Semantics derived automatically from language corpora necessarily contain human biases”.⁵⁰ In this case, an algorithm trained with texts taken from the internet associated female names like Sarah with words linked to family, such as parents and wedding. In contrast, male names

⁴² Défenseur des Droits, *Rapport Dématérialisation d'accès aux services publics*, Paris, 2019, 65.

⁴³ As stated by C. Baz Lomba, *Los algoritmos en la toma de decisiones administrativas*, in *CEF-Legal*, vol. 243, April 2021, 129.

⁴⁴ P. Padilla Ruiz, *Inteligencia artificial y Administración Pública*, in *El Consultor de los Ayuntamientos*, vol. 10, 2019, 96, follows this argument, stating that if the aim is to improve the lives of citizens and be more efficient and proactive, saving costs and time, there is no doubt that algorithms and robots should occupy a prominent place in the procedures of any Public Administration.

⁴⁵ There are authors that argue that algorithmic decisions are less biased than those made by human beings. This is the case of A.P. Miller., *Want Less-Biased Decisions? Use Algorithms*, in *Harvard Business Review*, 26 July 2018.

⁴⁶ Regarding this compelling issue it is essential to refer to the work of S. Rodotà, *Diritto, scienza, tecnologia: modelli e scelte di regolamentazione*, Turin, Giappichelli, 2004, 397; as well as the following work: *Del ser humano al posthumano*, in T. De La Quadra-Salcedo and J. L. Piñar Mañas (eds.), M. Barrio Andrés M. and J. Toirregrosa Vázquez (coords.), *Sociedad digital*, Madrid, BOE, 2018, 87.

⁴⁷ For further references about the digital divide, see E. M^a. Menéndez Sebastián and J. Ballina Díaz, *Digital citizenship: fighting the digital divide*, in *European Review of Digital Administration & Law (Erdal)*, vol. 2, No. 1, 2021.

⁴⁸ As it has been explained by S. Leavy, *Gender Bias in Artificial Intelligence: The Need for Diversity and Gender Theory in Machine Learning*, in *GE '18: Proceedings of the 1st International Workshop on Gender Equality in Software Engineering*, Gothenburg, Sweden, May 2018, 14.

⁴⁹ Conducted by T. Bolukbasi, K.W. Chang, J.Y. Zou, V. Saligrama and A. T. Kalai, *Man is to computer programmer as woman is to homemaker? debiasing word embeddings*, in *Advances in neural information processing systems*, 2016, 4349.

⁵⁰ By A. Caliskan, J.J. Bryson and A. Narayanan, in *Science*, 14 April 2017, vol. 356, No. 6334, 183.

like John had stronger associations with words attributed to work, such as professional and salary.

It is also worth remembering the algorithm used by Amazon for the selection of its personnel, which had to be discarded because it showed strong gender biases, penalising resumes that contained the word “woman”.

Another research has demonstrated that Bing retrieves pictures of women more frequently when the searches include words considered “warm” such as sensitive or emotional. Conversely, words referring to traits associated with “competence” such as intelligent or rational, tend to be represented by pictures of men. Furthermore, when searching for the word “person”, the engine often retrieves more pictures of men than women.⁵¹

The paper “Balanced Datasets Are Not Enough: Estimating and Mitigating Gender Bias in Deep Image Representations”⁵² has found that the algorithm would associate pictures of shopping and kitchens with women. Hence, most of the time, it would deduce that “if she is in the kitchen, she is a woman”. Instead, it would associate images of physical training with men.

In addition to text data and images, user inputs and interactions also reinforce and contribute to the learning of biases by algorithms. The work “*It’s a Man’s Wikipedia? Assessing Gender Inequality in an Online Encyclopedia*”⁵³ has noted that issues related to family and romantic relationships are discussed much more frequently in Wikipedia articles on women than men. In addition, women’s biographies tend to be more associated (through links) with men than vice versa.

An even clearer case of algorithmic bias

⁵¹ J. Ottermacher, J. Bates and P. D. Clough, *Competent Men and Warm Women: Gender Stereotypes and Backlash in Image Search Results*, in *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, Colorado Convention Center, Denver, CO, 2017, 6620.

⁵² By T. Wang, J. Zhao, M. Yatskarm, K-W. Chang and V. Ordonez, from the University of Virginia, University of California Los Angeles and Allen Institute for Artificial Intelligence, available at https://openaccess.thecvf.com/content_ICCV_2019/papers/Wang_Balanced_Datasets_Are_Not_Enough_Estimating_and_Mitigating_Gender_Bias_ICCV_2019_paper.pdf.

⁵³ C. Wagner, D. Garcia, M. Jadidi, and M. Strohmaier, *It’s a Man’s Wikipedia? Assessing Gender Inequality in an Online Encyclopedia*, in *16th International Conference on Web and Social Media*, vol. 9, No. 1, 454.

can be found in gendered languages, as revealed by the study “*Examining Gender Bias in Languages with Grammatical Gender*”.⁵⁴ This research showed gender biases when translating from English to languages with grammatical gender, such as Spanish and French. For example, when the word lawyer was translated from English into Spanish, there was a stronger automatic association with *abogado* (masculine) than *abogada* (feminine). On the contrary, the word nurse was more frequently related to *enfermera* (feminine) than *enfermero* (masculine). In principle, it should have associated both terms with identical probability. Despite the numerous criticisms of recent years, the biases that occur when translating from a language without grammatical gender, such as English, to a language with grammatical gender, such as Spanish or French, are still present nowadays in some automatic translators.

There are also examples in the public sector,⁵⁵ such as the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS)⁵⁶ and PREDPOL cases, in the area of crime prediction, where algorithms were found to discriminate from a racial perspective.⁵⁷ It is also worth mentioning the case of BOSCO, regarding the electricity social bond in Spain, *Aadhaar* for social welfare in India, *AMS* regarding Austrian public system to detect probabilities

⁵⁴ This research has been conducted by P. Zhou, W. Shi, J. Zhao, K-H. Huang, M. Chen, R. Cotterell, K-W. Chang, published in *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing*, Hong Kong, 2019, 5276.

⁵⁵ As it has been pointed out by P. Rivas Vallejo, *Discriminación algorítmica: detección, prevención y tutela*, in *XXXI Jornades Catalanes de Dret Social (“Treball, discriminación i Covid”)*, Barcelona, April 2021, 11.

⁵⁶ www.northpointeinc.com/files/downloads/FAQ_Document.pdf. The discriminatory nature of this case, which referred to the probability of recidivism in the commission of crimes, was revealed in the report by J. Angwin, J. Larson, S. Mattus and L. Kirchner, *Machine Bias: There’s software used across the country to predict future criminals. And it’s biased against blacks*, published on 23 May 2016 and available at www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing.

⁵⁷ Regarding this case, see M. González, *¿Cómo funciona Predpol, el software que dice predecir dónde van a suceder crímenes?*, in *Xataka*, 14 February 2015, available at <https://www.xataka.com/aplicaciones/como-funciona-predpol-el-software-que-dice-predecir-donde-van-a-sucedecr-crimenes>.

of finding employment,⁵⁸ *System Risk Indication (SyRI)* in The Netherlands in terms of detection of tax and tax rate fraud,⁵⁹ among others.⁶⁰

The risk that algorithms may discriminate is less acceptable when it comes to Public Administration, which leads to two issues. In the first place, the need to control the use of algorithms that discriminate in the private sphere relies on the Administration as the public authority entrusted by the Spanish Constitution to ensure material and effective equality and remove the obstacles that prevent it. Moreover, the Administration ought to be extremely cautious when employing these instruments in administrative decision-making, which does not mean that their use is prohibited but rather that special measures are required. This is a particularly relevant issue that needs to be addressed, considering the cases aforementioned – even though not all of them entailed discrimination from a gender perspective –, as well as the doubts and the debate surrounding the transparency of algorithms versus motivation and effective judicial and administrative protection.

The importance of an adequate use of algorithms and the need to introduce precautions in this respect seems to be addressed by the regulation draft of the European Union on new rules for Artificial Intelligence and algorithms. This regulatory framework includes a set of criteria for algorithms and corresponding risk categories.⁶¹ In particular, this proposal for regulation at the European level establishes different scenarios: cases in which the

employment of artificial intelligence – although not identical to algorithms⁶² is prohibited, cases in which this is subject to prior authorisation,⁶³ cases with specific provisions,⁶⁴ high-risk cases that require prior verification by a third party,⁶⁵ and other cases for which a form of prior declaration or commitment of compliance is sufficient.⁶⁶

In conclusion, regulating the use of algorithms by Public Administrations is extremely urgent, and it is necessary to introduce precautions to avoid potential gender biases, as well as other forms of discrimination. In this line, the European Commission has adopted an anthropocentric approach in the Communication on “Building Trust in Human-Centric Artificial Intelligence” (COM/2019/168 final) and the “White paper on Artificial Intelligence - A European approach to excellence and trust” (COM/2020/65 final),⁶⁷ where ethics plays a crucial role.⁶⁸ If regaining citizens' trust in public institutions is one of the main

⁵⁸ On this regard see C. Castillo, *Algorithmic Discrimination*, in *Conference in BCN Analytics Data and Ethics event*, April 2018, available at <https://youtu.be/VII8YWWd81U?t=18m42s>, and W. Fröhlich, I. Spiecker and G. Döhmann, *Können Algorithmen diskriminieren?*, in *Verfassungsblog*, 26 December 2018, available at <https://verfassungsblog.de/koennen-algorithmen-diskriminieren>.

⁵⁹ On this case, see the sentence by The Hague Tribunal from 5 February 2020, ECLI:NL:RBDHA:2020:1878.

⁶⁰ As highlighted by the *Défenseur des droits* in collaboration with the *Commission Nationale Informatiques & Libertés (CNIL)*, *Algorithmes: prévenir l'automatisation des discriminations*, Paris, 2020, 3, nowadays these processes can be found in essential areas, such as access to social benefits, police and justice, the functioning of organisations such as hospitals, access to public services or recruitment procedures.

⁶¹ In this regard, see A. Huergo Lora, *El proyecto de Reglamento sobre la Inteligencia Artificial*, in *Almacén de Derecho*, 17 April 2021.

⁶² According to the European Ethical Charter on the use of AI in the judicial systems and their environment from 4 December 2018, an algorithm is the finite sequence of formal rules (logical operations and instructions) that allow to obtain a result of the initial input of information. This sequence can be part of an automated execution process and take advantage of models designed through machine learning; while artificial intelligence is a set of scientific methods, theories and techniques whose aim is to reproduce, through a machine, the cognitive abilities of human beings.

⁶³ This group includes, for example, remote biometric identification in public spaces, which is subject to administrative authorisation and will only be granted when there is a rule that allows it in order to fight against grave crimes and being subject to strict limits and guarantees.

⁶⁴ Certain applications, such as the so-called “chatbot” or the “deep fake”, as well as applications of high-risk artificial intelligence, have various control mechanisms, which are listed in Annex II and regulated in articles 5-40.

⁶⁵ Such as those used for biometric identification and for the operation of critical infrastructures.

⁶⁶ The other group that does not require such independent verification but will be subjected to a form of declaration of responsibility includes typical artificial intelligence “predictive” applications. However, considering that these may still engage in discriminatory practices, other types of prior control may be appropriate.

⁶⁷ From 19 February 2020.

⁶⁸ With regard to this topic, see L. Ireni-Saban and M. Sherman, *Ethical Governance of Artificial Intelligence in the Public Sector*, London, Routledge, 2021, which argues that ethical evaluation of AI should be an integral part of public service ethics and that an effective regulatory framework is needed to provide ethical and evaluation principles for decision-making in the public sphere at both local and international levels.

objectives of the idea of new public governance, the emergence of inequalities will be a hindrance. The reason for this is that, as prior works have discussed, distrust originates in great measure from the sense of inequality.⁶⁹ Therefore, it is necessary to prevent the deepening of pre-existing differences that appear intolerable by the use of artificial intelligence since this would undermine and harm a genuine notion of citizenship.⁷⁰

Other legal documents take into consideration the need for protection against potential algorithmic discrimination and indicate various solutions, emphasising preventive controls. Some countries have begun to adopt legal measures in their jurisdictions. For example, the United Kingdom has approved the “Guide to the General Data Protection Regulation (GDPR)”,⁷¹ which is based on the “Guide to Data Protection”,⁷² the United States has the “Algorithmic Accountability Act”,⁷³ France has a general regulation on this subject in the *Loi n° 2016-1321 du 7 octobre 2016 pour une République numérique*,⁷⁴ as well as the work conducted by *Etalab*,⁷⁵ including the elaboration of the *Guide d’ouverture des codes sources publics: guide pratique*,⁷⁶ Canada has

made significant advances in this field with guidance on how to use algorithms ethically; The Netherlands has a tool to make algorithms available openly; New Zealand Algorithm Charter for citizens to understand how the government uses personal data.

Another relevant legal instrument is the “Toronto Declaration: Protecting the right to equality and non-discrimination in machine learning systems” from 2018,⁷⁷ which aims at establishing a sort of Public Algorithms Authority; as well as the “Principles for Accountable Algorithms and a Social Impact Statement for Algorithms”⁷⁸ from the FAT,⁷⁹ among others.

From another perspective, it is also worth mentioning that the European network of legal experts in gender equality and non-discrimination has proposed a system called “PROTECT”,⁸⁰ the acronym equivalent to prevent, redress, open, train, explain, control, and test, which entails seven key actions to address algorithmic discrimination; or the “2019 Artificial Intelligence for Europe document from the European Economic and Social Committee”; and the “2019 Ethics Guidelines for Trustworthy Artificial Intelligence”, which stresses the need for AI not to be employed in a discriminatory way, but rather to use these tools to mitigate existing biases and discrimination.⁸¹

It is possible to draw various conclusions from a comparative analysis. In the first place, there is an evident concern for the appropriate use of artificial intelligence and, in particular, algorithms in the public decision-making process. Hence, several countries have been driven to take action in this regard and regulate the use of AI and algorithms, leading in turn to the European Union to issue various legal documents that can serve as a starting point towards a regulatory framework.⁸²

⁶⁹ See E.M^a. Menéndez Sebastián and J. Ballina Díaz, *¿Qué es la ciudadanía hoy?*, in *Objetivos de desarrollo sostenible*, Navarra, Thomson Reuters, 2022.

⁷⁰ As it has been pointed out by J. Tomlison, *Justice in the Digital State. Assessing the Next Revolution in Administrative Justice*, Bristol, Policy Press, 2019, digital technologies have the potential to expand access to public services, but only if they are properly designed.

⁷¹ Available at <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr>.

⁷² Available at <https://ico.org.uk/media/for-organisations/guide-to-data-protection-1-1.pdf>.

⁷³ Available at <https://www.congress.gov/bill/116th-congress/house-bill/2231/all-info>.

⁷⁴ Available at www.legifrance.gouv.fr

⁷⁵ Available at <https://etalab.github.io/algorithms-publics/guide.html>.

⁷⁶ The situation in France is most interesting since they understand that algorithms are a form of public action. Therefore, they are subject to accountability, there must be transparency, and the functioning and objectives pursued with algorithms must be adequately explained. Thus, in order to make fair decisions using algorithms in the French system, four conditions must be met: transparency, which requires an accurate description of the process; intelligibility, as the interested parties must be able to understand the process; loyalty, which entails using the procedure comprehensively and with precision; and equal treatment, hence, nobody can be favoured more than another person.

⁷⁷ Available at www.accessnow.org.

⁷⁸ Available at www.fatml.org.

⁷⁹ Acronym of Fairness, Accountability and Transparency in Machine Learning.

⁸⁰ J. Gerards and R. Xenidis, *Algorithmic Discrimination in Europe: Challenges and Opportunities for EU Gender Equality and Non-Discrimination Law*, European network of legal experts in gender equality and non-discrimination, European Commission, 2020, available at www.equalitylaw.eu.

⁸¹ In particular requirement no. 5 refers to diversity, non-discrimination and equity.

⁸² It is worth mentioning the *EU Strategy on Artificial Intelligence* from 2018, and the *White paper on Artificial Intelligence - A European approach to excellence and trust* from 2020.

Secondly, the training of public officers, and society in general, for the ethical use of algorithms becomes essential. In third place is the importance of avoiding discrimination in the application of previous instruments, for instance, analyses, evaluations, auditing,⁸³ certifications, etc.⁸⁴ Moreover, the employment of other measures, such as the prohibition of certain uses of algorithms or the requirement of prior authorisation, should not be ruled out, in line with what the European Union has proposed in the “Artificial Intelligence Act”⁸⁵ aforementioned. Finally, transparency plays a crucial role in the use of algorithms. As it has been exposed by the French case, awareness regarding the relevance of this point is not enough; instead, it is necessary to understand its operation.⁸⁵ This consideration is essential from the perspective of accountability,⁸⁶ especially considering the obligation of reasoned decision-making imposed by our legal system, which must at least satisfy the *right to explanation*.⁸⁷

The last point deserves an express mention since its connection with the *rights to good administration* and *effective administrative protection* is apparent. Without knowledge of the reasons behind a decision from the Public Administration, it is difficult to determine whether it is discriminatory or not, if it has been adopted accordingly, or if it complies with the applicable rules. All of this leads to the impossibility of combating discrimination appropriately, thus affecting effective legal protection.

All of the above highlights the importance of the issue of transparency and access to the source code. However, this does not guarantee the removal of the doubts concerning the

possibility that the decision in question is biased since biases may come from the data itself.⁸⁸ In fact, some regulations have prohibited the use of algorithms in decision-making that entails the power of discretion, such as in Germany. In contrast, the general rule in France is the opening of source codes, which involves not only publishing but also explaining them.

Finally, some of the most controversial issues and risks of using algorithms in the field of Public Administration are transparency, motivation, and access to the source code. In order to fulfil the obligation of reasoned decision and not cause defencelessness, it is necessary to know the reasoning underlying the decision. Nevertheless, it is not yet clear from current regulations whether this condition entails granting access to the source code as the *Consejo de Transparencia y Buen Gobierno* seems to suggest.⁸⁹ Furthermore, it is worth mentioning the provisions of the *Carta de Derechos Digitales*, in particular section XVIII, which addresses the rights of citizens concerning artificial intelligence in the framework of administrative action, and expressly refers to comprehensible reasoning in paragraph 6. Similarly, it states the possibility of regulating access to the source code by law.

This issue is not simple and it would be advisable to advance toward its regulation in a clear and direct way,⁹⁰ such as in France. Some regulations of relevance to this topic are

⁸³ Article 41 of Law 40/2015 refers to this point regarding automatised administrative operations.

⁸⁴ For instance, New Zealand has an advisory board on data ethics, and the Dutch General Audit Chamber has investigated the use of algorithms in the public sector.

⁸⁵ “Transparency” and “explainability” are two key principles included in the OECD Council Recommendation on Artificial Intelligence from 22 May 2019.

⁸⁶ Nevertheless, the proposed rules for European Union regulation on artificial intelligence (Artificial Intelligence Act) do not require full transparency, but rather transparency that is sufficient and compatible with the fulfilment of the legal obligations of the user and the supplier (article 10), as has been indicated by A. Huergo Lora, *El proyecto de Reglamento sobre la Inteligencia Artificial*.

⁸⁷ As explained by P. Rivas Vallejo, *Discriminación algorítmica: detección, prevención y tutela*, 64.

⁸⁸ P. Rivas Vallejo, *Discriminación algorítmica: detección, prevención y tutela*, 64.

⁸⁹ S. Barocas and A.D. Selbest, *Big data’s disparate impact*, in *California Law Review*, vol. 104, No. 3, June 2016, 671, state that there is neither technological magic nor mathematical neutrality: algorithms are designed by humans and based on data that mirror human practices. This way, biases may be present in all stages of system development and implementation: from the intention underlying the development of the algorithm to the development of the computer code, including the executable code, execution, context of execution, and maintenance.

⁹⁰ See resolution 701/2018 from 18 February 2019, especially regarding the issue of access to the code source in the BOSCO case aforementioned. This decision has been confirmed in court by the ruling of the Central Contentious-Administrative Court No. 8 of 30 December 2021 (PO 18/2019), considering that access to the source code could in this case fall within the limits of letters d), g), j) and k) of art. 14.1 of *Ley 19/2013 de Transparencia, acceso a la información y buen gobierno*.

⁹⁰ Regarding this point see A. Huergo Lora and G. M. Díaz González (eds.), *La regulación de los algoritmos*.

article 22 of the European General Data Protection Regulation,^{91,92} and the *Ley de Contratos del Sector Público*. An important aspect to consider is intellectual property when the source code has been elaborated by a third party.⁹³ Hence it may be necessary to train public officers, not only in the application but also the design of algorithms, fostering their creation by the Public Administration itself.⁹⁴

It is worth mentioning the provision recently established in art. 23 of *Ley 15/2022, de 12 de julio, integral para la igualdad de trato y la no discriminación*, which supports impact assessment as a mechanism to prevent possible discriminatory biases in the use of algorithms by public administrations in decision-making, as well as transparency in the design, implementation and interpretability of the decisions adopted by them.

6. Conclusion

We are witnessing an authentic disruption in our society largely due to two different but converging factors. On the one hand, the new relationship between citizens and the public power, in particular the Public Administration, and, on the other, the digital transformation.

With regard to the first, the French notion of *administrative citizenship* stands out, as it accurately reflects the parameters of the rights of all citizens to participate in the Administration and decision-making processes implemented at this level.⁹⁵ Since this contributes to better decision-making, it appears inextricably linked to the concept

of *good administration* by providing a better response to society's demands and increasing the acceptability of its decisions.

Meanwhile, the digital revolution contributes to the effective realisation of this renewed citizenship by offering new tools that facilitate its exercise, although not without significant risks, such as the digital divide. There has also been an upsurge of another issue linked to new technologies in recent years, as is the use of artificial intelligence and, in particular, algorithms. Undoubtedly, this is a resource that can help in the aim of better decision-making and, therefore, the fulfilment of *good administration*, for example, by handling a quantity of data that would otherwise be impracticable.

Nonetheless, reality has shown that this is a controversial issue. Therefore, it is necessary to address its regulation and possess mechanisms capable of detecting and preventing algorithmic discrimination – such as a gender-sensitive perspective –, for instance, through auditing,⁹⁶ certifications, impact assessments, etc. Moreover, transparency and motivation are essential because, without knowledge or understanding of how decisions are made, effective judicial protection may be seriously compromised.

In conclusion, the use of algorithms in the public sector may contribute to the achievement of good administration and the effective exercise of administrative citizenship. However, this must be done adequately and prudently in order not to infringe fundamental rights by deepening intolerable pre-existing differences that only undermine and harm a genuine notion of citizenship.⁹⁷

⁹¹ 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.

⁹² Which states that interested parties shall have the right not to be subjects of a decision based solely on automated processing, including profiling, that produces legal effects on them or significantly affects them, except for a series of provided exceptions.

⁹³ Article 308.1 of LCSP states that unless otherwise stipulated in the administrative clauses or in the contract document, service contracts for the purpose of developing and making available products protected by an intellectual or industrial property right shall entail the cession of that right to the contracting Administration.

⁹⁴ Although this does not prevent all difficulties, as publicising the source code can make the system more vulnerable.

⁹⁵ In the words of F. Delpérée, *Rapport de synthèse sur la citoyenneté administrative*, in *Annuaire international de justice constitutionnelle*, issue 35, 2019-2020, 202.

⁹⁶ As proposed by the report elaborated by M. Sáinz, L. Arroyo and C. Castaño, *Mujeres y digitalización. De las brechas a los algoritmos*, Madrid, Instituto de la Mujer y para la Igualdad de Oportunidades, Ministerio de Igualdad, 2020, 74.

⁹⁷ As has been indicated by J. Tomlison, *Justice in the Digital State. Assessing the Next Revolution in Administrative Justice*, digital technologies have the potential to expand access to public services, but only if they are properly designed.