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# New Technologies between Law and Ethics: Some Reflections

**Abstract:** This article proposes a reflection on the relationship between ethics, law and new technologies. The relevance of the debate is testified by numerous initiatives and measures, both European and international, which aim to offer answers, necessarily not definitive but evolving, to phenomena such as the development of the internet of things, the incessant extraction and use of big data and, more generally, advances in artificial intelligence and robotics. From this perspective, issues such as respect for privacy and human dignity are raised, to be balanced with the right to inform and be informed as a sign of an effectively shared knowledge. What emerges is the need for a deep critical consideration of the guarantee of individual and collective spheres of action, removed from the domination of market interests, in the affirmation of prevailing and non-negotiable rights. Equally indispensable is the critical attention given to the limits to be placed on human manipulation and alteration, and on the relationship between human being and machine. This assumes a particular ethical, legal and prescriptive meaning aimed at guaranteeing the pluralism of values and dialogue typical of every democratic society.
**Keywords:** artificial intelligence, knowledge, new technologies, privacy, roboethics

## Introductory notes

The increasingly pervasive intelligence of data focuses reflection on the relationship between ethics and law, shifting the centre of the discussion from what is legal to what is morally acceptable. The relevance of this debate is shown by numerous initiatives,[1] and these issues have been significantly highlighted by the

1 We can remember, among others, the 40th International Conference of Authorities for the Protection of Personal Data (ICDPPC) on 'Debating Ethics: Respect and Dignity in Data-Driven Life', held in Brussels from 22 to 26 October 2018 and having as its theme ethics linked to digital

Covid-19 pandemic,[2] which has highlighted the need for effective balancing between state-mandated restrictions and individual autonomy. After all, the centrality of human beings and the guarantee of their dignity represent the direction indicated by the European Community, ensuring an adequate ethical and legal framework as well as demonstrating the two resolutions of the European Parliament, *Civil Law Rules on Robotics* and *A Comprehensive European Industrial Policy on Artificial Intelligence and Robotics*,[3] by the many communications of the Commission on this issue and, not least, by the guidelines of the independent group of 52 experts set up by the Commission in 2018, the High-Level Expert Group on Artificial Intelligence.[4] Significantly, however, in the current state of European Union law, there is no consolidated definition of artificial intelligence capable of defining a phenomenon that increasingly requires new and different regulatory responses to those already in force, which crosses ethical and legal rules that will be applied, just like artificial intelligence, to the most diverse fields of human experience, and which overcomes the classic distinction between public and private in many respects.[5]

In this debate, the right to privacy seems to emerge as a prerequisite for the exercise of any other fundamental rights, as affirmed by the UN Declaration of Human Rights, by the International Covenant on Civil and Political Rights and in many other international and regional treaties, such as in states' constitutions.[6]

development. This assembly provided for the establishment of a permanent working group on ethics and the protection of personal data in artificial intelligence contexts. These issues were taken up and deepened by the 41st International Conference of Authorities for the Protection of Personal Data on 'Convergence and Connectivity Raising Global Data Protection Standards in the Digital Age', which was held in Tirana (Albania) from 21 to 24 October 2019.

2 On ECtHR judgments concerning the right of a patient to have his or her privacy respected, and the corresponding duty of doctors to keep medical confidentiality, see A. Wnukiewicz-Kozłowska, The Right to Privacy and Medical Confidentiality – Some Remarks in Light of ECtHR Case Law, "Białostockie Studia Prawnicze" 2020, vol. 25, no. 2, pp. 185–197.

3 Resolution of the European Parliament of 16 February 2017, Civil Law Rules on Robotics, https://www.europarl. europa.eu/doceo/document/TA-8-2017-0051_EN.html?redirect (accessed 19.10.2020); Resolution of the European Parliament of 12 February 2019, A Comprehensive European Industrial Policy on Artificial Intelligence and Robotics, https://www.europarl.europa.eu/doceo/document/TA-8-2019-0081_EN.html (accessed 19.10.2020). On the relationship between fundamental rights and artificial intelligence in the approach of the European Union, see M. Zanichelli, Affidabilità, diritti fondamentali, centralità dell'essere umano: una strategia europea per l'intelligenza artificiale, 'i-lex' 2019, vol. 12, pp. 1–23, http://www.i-lex.it/articles/volume12/fascicolo1-3/zanichelli.pdf (accessed 19.10.2020).

4 AI HLEG, https://ec.europa.eu/digital-single-market/en/artificial-intelligence (accessed 08.10.2020).

5 A. Longo and G. Scorza, Intelligenza artificiale. L'impatto sulle nostre vite, diritti e libertà, Milan 2020, pp. 194–195.

6 Universal Declaration of Human Rights, https://www.ohchr.org/en/udhr/documents/udhr_translations/eng.pdf (accessed 09.11.2020); International Covenant on Civil and Political Rights, https://www.ohchr.org/Documents/ Professionalinterest/ccpr.pdf (accessed 09.11.2020).

Equally essential is a dialectical reflection on the possible developments of artificial intelligence and the necessary respect for ethical principles in the legal framework of modern and pluralist democracies.

## 1. Knowledge and Privacy

In the *new economy*,[7] the possibility of collecting, processing and comparing personal information leads to a redefinition of individual self-determination capable of placing knowledge and the effectiveness of its guarantee at the centre of attention. In this line of reflection, also indicated by Opinion 8/2014 *On the Recent Development on the Internet of Things* of the Article 29 Data Protection Working Party (WP29) (replaced in 2018 by the European Data Protection Board (EDPB) under the EU General Data Protection Regulation),[8] it is evident how the pervasiveness of information technologies, mainly the *internet of things* (IoT),[9] has facilitated digital surveillance practices, making anyone using a computer device connected to the network easily traceable and monitored. In fact, the convergence and the heterogeneity of the tools connected to the network, as well as the multiplicity of subjects who revolve around the world of IoT, make the dissemination of personal information increasingly significant. In a world increasingly connected globally, there are more and more data available that can provide information capable of describing the world and people, making the interpretative algorithms more and more efficient. To this is often added the individual's lack of control of the data flow generated by the device used, frequently caused by its sudden activation,[10] and anonymity is even more difficult to maintain on the Web where identification is almost automatic. In

7 J. Rifkin, The Age of Access. The New Culture of Hypercapitalism Where All of Life is a Paid-For Experience, New York 2000. Italian translation: L'era dell'accesso, Milan 2001, p. 65.

8 The General Data Protection Regulation 679/2016 (GDPR).

9 The internet of things (IoT), an expression coined by the British researcher Kevin Ashton in 1999, expresses the transition from a network of interconnected computers to a network of connected objects of everyday life, facilitated by the development of wireless and satellite technology; S. Palanza, Internet of things, big data e privacy: la triade del futuro, Istituto Affari Internazionali, October 2016, p. 2, http://www.iai.it/sites/default/files/iai1612.pdf (accessed 19.10.20). The identification of interconnected objects occurs mostly through a unique identifier, recognizable by radio frequency (RFID); M. Iasselli, Privacy e nuove tecnologie, (in:) M. Iasselli (ed.), Diritto e nuove tecnologie. Prontuario giuridico ed informatico, Milan 2016, p. 153ff. RFID is accompanied by the use of Near Field Communication (NFC) technologies that provide two-way and short-range wireless connectivity; S. Palanza, Internet of things, *op. cit*., p. 18 ff.

10 *Ibidem*, p. 15.

this regard, an efficient use of information, mainly of big data,[11] using data mining[12] or the latest business analytics,[13] tools both paid – through the use of a particularly high number of variables that sometimes makes it difficult even to reconstruct the logic of the decision-making process[14] – to find hidden patterns and predictive rules,[15] represents an undoubted competitive advantage for companies just as it represents a new threat to privacy for individuals. It also highlights how the evaluation of the freedom and awareness of consent to processing, provided for by GDPR Art. 4, concerns only personal data, while big data tends to work on anonymous data,[16] although these data can, through appropriate correlations, become referable to very specific people.[17] In any case, the European legislative framework, while not

11 In the OECD definition, all content generated by users on the Internet is big data, including blogs, photos, videos, behavioural data, social data, geolocation data, demographic data and identification data in general: content that allows individual identification or that provides information on typical patterns of individual behaviour; M. Delmastro and A. Nicita, Big data. Come stanno cambiando il nostro mondo, Bologna 2019, p. 35. Big data can be described by means of the so-called 4Vs, that is, *volume*, *variety*, *velocity*, and *value*. For an up-to-date delineation of big data requirements, see M. Palmirani, Big data e conoscenza, "Rivista di filosofia del diritto" 2020, vol. 1, p. 77 ff. The peculiarity and potential of big data, capable of leading to a paradigm shift in the analysis of information, are found in its not having been extrapolated from representative samples by complex procedures but from the whole observed population, so that in terms of predictive efficacy, the quantity of the data prevails over the accuracy of the analysis procedure, A. Simoncini and S. Suweis, Il cambio di paradigma nell'intelligenza artificiale e il suo impatto sul diritto costituzionale, "Rivista di filosofia del diritto" 2019, vol. 1, p. 92; A.C. Amato Mangiameli, Algoritmi e big data. Dalla carta sulla robotica, "Rivista di filosofia del diritto" 2019, vol. 1, p. 112.

12 An analysis of the problems of data mining is in C. Sarra, Business Intelligence ed esigenze di tutela: criticità del c.d. Data Mining, (in:) P. Moro and C. Sarra (eds), Tecnodiritto. Temi e problemi di informatica e robotica giuridica, Milan 2017, pp. 41–63. On the use of neural networks and supervised and unsupervised learning algorithms, see A.C. Amato Mangiameli, Algoritmi, *op. cit*., p. 108.

13 Business analytics can be defined in summary as the set of tools and software applications for accessing, analyzing and viewing data that helps management quickly grasp the relevant information and control company performance in making the most effective decisions.

14 M.F. De Tullio, La privacy e i big data verso una dimensione costituzionale collettiva, "Politica del diritto" 2016, vol. 4, p. 640.

15 *Ibidem*, pp. 639, 650. A possible solution has been identified in the limitation of the maximum number of variables to be used in big data analysis, but the problem of unexpectedly extracted data, as well as additional data, would remain open, even with this hypothetical information obtained thanks to the predictive effectiveness of the algorithms used; F. Casi, Big Data ed etica dei dati, https://www.consultadibioetica.org/big-data-ed-etica-dei-dati-di-fiorello-casi/ (accessed 19.10.2020).

16 G. Della Morte, Big Data e protezione internazionale dei diritti umani. Regole e conflitti, Naples 2019, p. 161.

17 G. De Minico, Big Data e la debole resistenza delle categorie giuridiche. Privacy e lex mercatoria, "Politica del diritto" 2019, vol. 1, p. 95.

directly contemplating big data,[18] establishes some fundamental principles about the collection and use of personal information and, as recent judgments of the European Court of Justice remark, the need for effective data protection which should, in principle, prevail over economic interests,[19] considering privacy as an inviolable and essential right both of the individual and of the development of relationships.[20] The European Guarantor, too, in various opinions and initiatives, underlines the importance of a consistent regulatory application, stressing the need to seize the opportunities offered by new technologies without allowing them to determine the social values of reference.[21] The debate on privacy – which started from the protection of individual privacy towards the guarantee and control of one's own information[22] – then becomes very heated when it comes to monetization of data, that is, when it is privacy itself that becomes an economic resource and when users sell it in exchange for free services,[23] even more so considering the current indispensability of some of the data in interpersonal communications.[24] So it is possible to understand how the term 'personal data' should be interpreted in an evolutionary and extensive way,[25] passing from an individual to a collective dimension of privacy in which the subject of information self-determination becomes the concern of the whole community.[26] The challenge to be grasped – and for which the traditional rules and principles that can be deduced from international and national law often appear inadequate and obsolete – is to harmonize conflicting interests and needs, such as data protection

18 The GDPR does not make direct mention of big data, excluding from consideration data capable of profoundly affecting the expression of fundamental rights.

19 Resolution of the European Parliament of 14 March 2017, On fundamental rights implications of big data: privacy, data protection, non-discrimination, security and law-enforcement, https://www.europarl.europa.eu/doceo/document/ TA-8-2017-0076_EN.html (accessed 19.10.2020).

20 M.F. De Tullio, La privacy, *op. cit*., p. 653. We can here only mention an exemplary ruling of the German Constitutional Court of 15 December 1983, with which a real theory on informative self-determination is elaborated, built on the assumption that if the individual cannot be the exclusive owner of his/her data – which, representing social reality, are considered as neutral information – s/he has the right to control over it, representing the same manifestation of the right to the full development of his/her personality and attributing to the legislator the role of balancing assumptions and contexts that make it possible to limit the right to privacy; Bundesverfassungsgericht, 15.12.1983, 1, BvR 209/83; G. Della Morte, Big Data, *op. cit.*, p. 166.

21 European Parliament, Plenary Session of 2 March 2017, Fundamental rights implications of big data, https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_ATA(2017)599312 (accessed 19.10.2020).

22 G. Pascuzzi, Il diritto dell'era digitale, Bologna 2020, pp. 77–111.

23 S. Palanza, Internet of things, *op. cit*., p. 9.

24 M. Delmastro and A. Nicita, Big data, *op. cit.*, p. 24.

25 M. Orefice, I Big Data e gli effetti su privacy, trasparenza e iniziativa economica, Canterano 2018, p. 100. The ePrivacy Regulation, published in January 2017 as a proposal text, includes in the category of metadata all data other than content, but only those processed on the network and not on devices, as also noted by the Opinion of the European Privacy Guarantor 6/2017.

26 M.F. De Tullio, La privacy, *op. cit*., p. 641.

and global security,[27] obtaining an adequate balance between market logic and the essential guarantee of prevailing and non-negotiable rights.[28]

It is clear how, on these issues, the future of world competition, the stability of social structures and, finally, the maintenance of existing democratic principles are at stake. The protection of personal information in fact raises pressing ethical and legal questions which concern the protection of the fundamental rights of the person[29] and which reflect on the long-term consequences of the profiling activity and on the impacts caused by this in our lives: more and more authors, and from different research perspectives, are wondering if the risk taken by an increasingly dated profiled and automated society is not also the loss of the ability to experiment, to make mistakes, to innovate.[30] Groping for new paths means leaving the door open to error in order to change course, that is, to progress: on reflection, the ultimate risk concerning the incessant collection and processing of individual information is that of outlining a predictable and, therefore, less free society, in which the margins of individual choice, not corresponding to the interests of those who control the flow of data and recommendation algorithms, are greatly reduced.[31]

## 2. Polarization of Information

The participatory use in the public sphere of some types of information can have a strong social interest; just think of the sharing of information in a smart city, of the monitoring of data aimed at implementing environmental protection and, above all, of the scientific context, where pooling knowledge opens up the sharing of scientific research and its results.[32] In these cases, the collection and monitoring of information take on an extremely positive value, seeing the information rejected in favour of knowledge and equality,[33] as the basis of democratic participation that would like – as

27 On the possibility of global surveillance, see G. Ziccardi, Il libro digitale dei morti. Memoria, lutto, eternità e oblio nell'era dei social network, Milan 2017, p. 88.

28 S. Rodotà, Il mondo nella rete. Quali i diritti quali i vincoli, Rome/Bari 2019, p. 21 ff. On the balance between constitutionally protected values on the Web, see M.C. De Vivo, Comunicare in Internet. Con che diritto? "Informatica e Diritto" 2000, pp. 125–158.

29 On the link between big data and human rights, see F.A. Schreiber and L. Tanca, Etica e big data, sette principi per proteggere i diritti umani, https://www.agendadigitale.eu/cittadinanza-digitale/data-management/etica-e-big-data-sette-principi-per-proteggere-i-diritti-umani-fondamentali/ (accessed 19.10.2020).

30 A. Longo and G. Scorza, Intelligenza artificiale, *op. cit.*, pp. 136–139.

31 *Ibidem*.

32 S. Palanza, Internet of things, *op. cit.*, p. 128.

33 On the potential of big data for the prevention of human rights violations, see L. Nosari, Potenzialità e problematiche afferenti l'utilizzo dei Big Data in materia di diritti umani, https://www.cyberlaws.it/2018/big-data-e-diritti-umani/ (accessed 18.10.2020).

recalled by Art. 19 of the Universal Declaration of Human Rights – free and legally guaranteed access to knowledge and culture.[34]

In addition to the aforementioned economic and social advantages, some critical issues that pose ethical and legal challenges should be noted. A pressing factor is given by the progressive concentration of information in the hands of a few operators, a phenomenon that is reflected in the full expression of the right to inform and to be informed, consequently in the full implementation of the right to freedom and, finally, in the future of democracy. In this field, in fact, the digital platforms, called 'over the top' (OTT) or *digital giants*, having the possibility to collect and accumulate a vast amount of information released by users, give rise to a marked polarization of information power in a few private groups,[35] standing against the principle of substantial equality[36] as well as against the protection of competition and the legal construction of a transparent data-given market,[37] to the detriment of the consumer[38] and to the disadvantage of full personal and social development.

The ability of online platforms to influence the user appears effective in the political context too, as they can influence the choices of citizens, even reaching, and in some cases distorting, the *ranking* of the news in searches. The amount of information available online also corresponds to a greater amount of disinformation strategies based on *fake news*,[39] so the quality of knowledge ultimately depends on the critical and discerning ability of the end user.[40] This highlights the ethical and legal need, for the digital user, to recognize reliable information, aided by the sites themselves by providing tools to select independently.[41] Individual profiling, determined by the application of appropriate algorithms,[42] contributes to selecting crucial content for public opinion, to be reported to the individual as well as to the

34 J. Drexl, Economic Efficiency versus Democracy: On the Potential Role of Competition Policy in Regulating Digital Markets in Times of Post-Truth Politics, "Max Plank Institute for Innovation and Competition Research Paper", December 2016, no. 16, pp. 1–28.

35 M. Delmastro and A. Nicita, Big data, *op. cit*., p. 125.

36 G. De Minico, Big Data, *op. cit*., p. 113.

37 The right to the portability of personal data, structured and unstructured, enshrined in Art. 20 GDPR, seems to correspond to this logic; M. Delmastro and A. Nicita, Big data, *op. cit*., p. 31, pp. 129–130.

38 M. Orefice, I Big Data, *op. cit*., p. 11.

39 D. Talia, La società calcolabile e i big data. Algoritmi e persone nel mondo digitale, Catanzaro 2018, p. 13.

40 M. Delmastro and A. Nicita, Big data, *op. cit*., p. 93. The Control Authority for Communications Guarantees has launched a monitoring table on the self-regulation put in place by search engines and social networks, anticipating the work started by the European Commission with the establishment of the High-Level Group on Fake News and Online Disinformation.

41 L. Palazzani, Tecnologie dell'informazione e intelligenza artificiale. Sfide etiche al diritto, Rome 2020, p. 21.

42 A.C. Amato Mangiameli, Algoritmi, *op. cit*., p. 109.

political agenda.[43] In the creation of a *filter bubble*,[44] aimed at showing the user the information that the algorithm has calculated for him as potentially interesting,[45] all the asymmetry between the provider of the information service and the user is shown. Obviously, in fact, the abstract communicative symmetry on the Web does not imply an effective parity in sharing knowledge, but rather confirms the social disparity between those who hold information power and those who do not. Thus 'despite the enormous capacity that the digital medium has in distributing data and information to everyone, indiscriminately and at the same instant, everyone ends up amplifying themselves and does not contribute to the collective amplification of criticism and protest'.[46]

This condition is aggravated by the frequent lack of transparency of the criteria set underlying the functioning of the algorithm.[47] Therefore, the importance of the *explainability* of the results produced by artificial intelligence algorithms should be put in evidence, in addition to the *knowability* of the automated decision-making process and of the data used in it,[48] avoiding any possible lack of responsibility attributed to the interpretative capacity of the algorithms used[49] since 'it is the principle of equality that claims responsibility'.[50] The principle of *transparency*, which in this case concerns the possibility of knowing the logic behind every decision taken with the help of artificial intelligence, tracing the calculations to a humanly understandable form,[51] is particularly relevant in fully automatically decided proceedings, producing legal effects and significantly affecting personal rights and freedoms,[52] and raising pressing ethical questions about the possible dangers of algorithmic discrimination against individuals or social groups that are external to the algorithmic logic and so marginalized through self-fulfilling predictions.[53] In fact, the risk that artificial intelligence could

43 M. Delmastro and A. Nicita, Big data, *op. cit*., p. 91.

44 E. Pariser, The Filter Bubble. What the Internet Is Hiding From You, New York 2011; Z. Bauman and T. Lyon, Liquid Surveillance. A Conversation, Cambridge 2013. Italian translation: Sesto potere. La sorveglianza nella modernità liquida, Rome/Bari 2015, pp. 118–119.

45 A.C. Amato Mangiameli, Algoritmi, *op. cit*., p. 109.

46 D. Talia, La società calcolabile, *op. cit*., p. 11.

47 *Ibidem*, p. 97.

48 M. Palmirani, Big data e conoscenza, *op. cit*., pp. 73–92.

49 S. Rodotà, Il mondo, *op. cit*., p. 39. In this regard, the USACM Statement on Algorithmic Transparency and Accountability, 12 January 2017, https://www.acm.org/binaries/content/assets/public-policy/2017_usacm_statement_ algorithms.pdf (accessed 19.10.2020), is very significant, as is the Resolution of the European Parliament of 16 February 2017, *op. cit*.

50 G. Teubner, Digitale Rechtssubjekte? Zum privatrechtlichen Status autonomer Softwareagenten, 'Archiv für civilistiche Praxis' 2018, pp. 155–205. Italian translation: Soggetti giuridici digitali? Sullo *status* privatistico degli agenti *software* autonomi, Naples 2019, p. 84.

51 A.C. Amato Mangiameli, Algoritmi, *op. cit*., p. 120.

52 M. Palmirani, Big data e conoscenza, *op. cit*., pp. 73–92.

53 M.F. De Tullio, La privacy, *op. cit*., p. 662.

discriminate against minorities and weak subjects – through the so-called *bias*, that is, algorithmic prejudices that can be introduced right from the planning stage of the collection and automated processing of information – constitutes one of the main ethical problems analyzed by the scientific community.[54] This could represent a counterintuitive concept, given that machines and algorithms have no prejudices or conflicts of interest nor make mistakes, yet this reasoning has in many cases shown a flaw, since the algorithms were always designed by men and trained on personal data, and it is therefore possible that they have incorporated prejudices and social discrimination with the possible aggravation of not subsequently being subjected to human scrutiny and correction.[55] Special attention has been paid to these problems by the Treaty on European Union, expressing the criteria of non-discrimination, autonomy and justice (Art. 2), and by the Charter of Fundamental Rights of the Union which underlines the relevance of principles such as human dignity, justice, non-discrimination and informed consent. On these issues, the European Commission for the Effectiveness of Justice of the Council of Europe adopted, in December 2018, a *European Ethical Charter for the use of artificial intelligence in justice systems and related environments* aimed at promoting a prescriptive approach targeted at securing information and the free choice of social actors.[56] The central question, ethical and at the same time legal, becomes how to balance the prescriptive function of law with the logic underlying policies based on the detailed collection of information, endorsing economic interests or state social control.[57] From this perspective, the protection of constitutionally guaranteed values,[58] such as respect for the dignity of the human person and the guarantee of moral and juridical equality, appears to prevail over the identification of any market models.[59] This would mark an important step towards a properly interactive world, inaugurating an effective model of digital citizenship and generating a new form of civil solidarity fuelled by information.[60]

54 A. Longo and G. Scorza, Intelligenza artificiale, *op. cit*., p. 123.

55 *Ibidem*, p. 119.

56 G. Pascuzzi, Il diritto, *op. cit.*, p. 296–299.

57 G. Della Morte, Big Data, *op. cit*., p. 9. The subjects able to carry out an effective concentration of information are represented not only by OTT but also by authoritarian governments and government security agencies on an anti-terrorist mission: on the numerous legislative initiatives, which multiplied mainly after 11 September 2001 and aimed at countering international terrorism, see S. Palanza, Internet of things, *op. cit*., p. 14.

58 A. Simoncini and S. Suweis, Il cambio di paradigma, *op. cit*., p. 103.

59 P. Perlingeri, Il diritto civile nella legalità costituzionale, Naples 1991, pp. 444–445.

60 M. Orefice, I Big Data, *op. cit*., p. 25.

## 3. Algorithms and Artificial Intelligence: Some Ethical and Legal Considerations

The growing use of personal information, as well as of the knowledge that can be extracted from big data, brings out a further ethical and legal problem determined by the fact that the procedures for extracting significant information from data are united by the use of increasingly sophisticated machines and complex algorithms, capable of 'learning' from information but often 'opaque', generating a *black box* effect that makes it difficult to understand the reasons for the decisions taken automatically.[61] In other words, the lack of transparency in the algorithm's operating criteria does not allow us to understand the mechanisms behind profiling, prediction and standardization calculations.[62] Consequently, analysts often make their own decisions not because they have fully understood the logic of the connection in the data they have found, but because they know well how the most recurrent correlations have a good chance of recurring even in future cases.[63] Sometimes, these decisions are not interpretable, that is, they cannot logically be understood, as the algorithms used employ a particularly large number of variables, too many for the calculation to be reconstructed a posteriori by a human mind: in these hypotheses, the very nature of the procedure expresses the impossibility of giving an account of the decisions, and this contrasts, as seen, with the interest of any subjects who suffer negative effects and who would have reasonable claims to oppose them.[64] So the algorithmic logic of the predictive model – which informs the process of extraction, collection and storage of big data – in addition to profoundly modifying the traditional mechanisms of power by introducing new decision-makers and new powers,[65] raises unprecedented ethical and juridical questions about the possible dangers of algorithmic discrimination against groups socially marginalized through self-fulfilling predictions,[66] demonstrating that predictive analysis can lead to detrimental effects regardless of the error or inaccuracy of the algorithmic forecast.[67] This problem is particularly relevant if one only thinks of the fact that today technology is no longer just a tool to achieve goals decided by a human subject, but itself makes decisions that are in some cases relevant to freedom and to individuals, so that it becomes essential to guarantee an explanation of *why* the machine has made that specific decision.[68] All the relevance of the principle of transparency is highlighted, which is realized

61 G. Pascuzzi, Il diritto, *op. cit.*, p. 273.
62 L. Palazzani, Tecnologie dell'informazione, *op. cit.*, p. 33.
63 M.F. De Tullio, La privacy, *op. cit.*, p. 639.
64 *Ibidem*, p. 640.
65 S. Rodotà, Il diritto di avere diritti, Rome/Bari 2015, pp. 394–395.
66 M.F. De Tullio, La privacy, *op. cit.*, p. 662.
67 G. De Minico, Big Data, *op. cit.*, pp. 93–97.
68 A. Simoncini and S. Suweis, Il cambio di paradigma, *op. cit.*, pp. 92–93.

in the possibility of knowing the logic behind each decision taken with artificial intelligence systems, bringing it back to a form understandable for humans.[69] In this sense, the functional transparency of the algorithm would seem partly satisfied in the presence of its selective disclosure, that is, suitable to cover only the main lines of the algorithm to allow interested parties to understand the ultimate goals of the predictive mechanism, without unjustifiably cancelling the intellectual property right of the legitimate owner of the algorithm.[70] This also seems to suggest an innovative criterion of liability, replacing or in addition to the criterion of civil liability for negligence, and having a justifying title in a business risk in the event of a harmful forecast as discriminatory towards certain categories of subjects, given that predictive analysis can have detrimental effects even regardless of the error or inaccuracy of the forecast. In other words, the inevitable factor of uncertainty which, paradoxically, characterizes algorithmic prediction should lead to an increase in responsibility for its user, having to respond regardless of fault or wilful misconduct, and underlining how the massive nature of information collection involves the damage in a new way of being, no longer limited to the single individual but widespread in the community.[71] Finally, it becomes essential that law and ethics move from the fundamental distinction between what can be programmed and what instead escapes any planning activity as it pertains to the most specific sphere of human choice and reflection.[72]

## 4. Technological Enhancement and Human Enhancement: Some Open Questions

There are many fields of the application of artificial intelligence to law – the analysis and preparation of deeds and documents, as well as predictive analysis, are just two examples – and some of these raise pressing ethical as well as legal questions, as in the case of automated legal decision-making. By broadening our gaze, we can discover the many sectors in which artificial intelligence unfolds:[73] we have sophisticated machines which, thanks to complex algorithms, are able to learn and decide independently,[74] although artificial intelligence is generally still 'restricted', that is, capable of achieving only very specific purposes.[75] On the other hand, technological cognitive enhancement, supported by the phenomenon of technological

69 A.C. Amato Mangiameli, Algoritmi, *op. cit*., p. 120.
70 G. De Minico, Big Data, *op. cit*., pp. 93–98.
71 *Ibidem*.
72 A. C. Amato Mangiameli, Algoritmi, *op. cit*., p. 123.
73 G. Pascuzzi, Il diritto, *op. cit.*, p. 303.
74 *Ibidem*, p. 307.
75 M. Tegmark, Life 3.0. Being Human in the Age of Artificial Intelligence, London 2017. Italian translation: Vita 3.0. Esseri umani nell'era dell'intelligenza artificiale, Milan 2018, p. 113.

convergence,[76] is developing not only on the information level, but also in the more properly human field, taking on a relevant regulatory significance.[77] Obviously, these research perspectives are necessarily interdisciplinary and still uncertain due to the partiality of information and, in some cases, the lack of experimentation on humans, but they proceed rapidly, united by a deep consideration of the possible technological transformations of humans.[78] So philosophical, ethical and juridical reflection, without prejudice to the guarantee of the pluralism of values that constitutes democratic and modern societies, is called into question in developing an effective conceptual framework and interpretation of these problems, with particular attention given to the limits to be placed on human manipulation and alteration, in the double sense of the artificialization of the human and the humanization of technology.[79]

We speak of *roboethics* to indicate the study of the interactions between intelligent machines and between them and human beings, and we show an *ethical approach by design* to counter the lack of an ethical dimension in IT tools and the freeing of their actions from any ethical evaluation, placing the necessary respect for human dignity at the centre of reflection, both moral and juridical, instead.[80]

In this field, some value charts have been developed with the aim of incorporating core values into algorithms, created in such a way that robots conform to them;[81] first of all human dignity, transparency (understood as the control and predictability of autonomous systems), responsibility (prudence in the face of potential dangers), justice and solidarity (to guarantee equal access to resources and democratic participation). This is also the direction of the Recommendation CM/Rec (2020) 1 of the Committee of Ministers to Member States on the human rights impacts of algorithmic systems, which advocates the diffusion of guidelines and ethical standards concerning the design, development and implementation of algorithmic systems that guarantee respect for the rights recognized by the European Convention on Human Rights.[82] The risk of the autonomy of self-learning algorithms is particularly incisive, and it opens up from individual law to collective law, from

76 G. Pascuzzi, Il diritto, *op. cit.*, pp. 59–66.

77 L. Palazzani, Il potenziamento umano. Tecnoscienza, etica e diritto, Torino 2015, pp. 122–139.

78 *Ibidem*, p. 126.

79 *Ibidem*, p. 127.

80 P. Perri, Sorveglianza elettronica, diritti fondamentali ed evoluzione tecnologica, Milan 2020, p. 133.

81 European Parliament, Robotics Charter of 16 February 2017, and the European Group on Ethics in Science and New Technologies at the European Commission, March 2018, Statement on Artificial Intelligence, Robotics and Autonomous Systems, http://ec.europa.eu/research/ege/pdf/ege_ai_statement_2018.pdf (accessed 19.10.2020).

82 Recommendation CM/Rec (2020) 1 of the Committee of Ministers to Member States on the human rights impacts of algorithmic systems, https://search.coe.int/cm/pages/result_details.aspx?objectid= 09000016809e1154 (accessed 09.11.2020).

civil liability to social security:[83] pressing unknowns weigh on the so-called 'ethical choices' of artificial agents and on the configuration of innovative hypotheses of responsibility to attribute to the acts they commit.[84] Just think of the 'ethical choices' of automatic pilots, which essentially translate the definitions of the algorithms through which the manufacturers of automatic vehicles set the means of transport, for the management of the most unpredictable and complex driving situations. In these cases, a proactive rather than a reactive approach is to be preferred, investing in safety research aimed at preventing the occurrence of even a single accident.[85] It is essential that the more we rely on technology the more it must be 'robust', that is, trustworthy in its manifestations.[86] In fact, if society attributes new decision-making spaces to autonomous decision-makers, it is obliged to introduce *new* forms of responsibility, detached from mere considerations of efficiency, the reduction of transaction costs and utilitarian evaluations, but specifically tailored to the decision-making risk of such autonomous agents.[87] These short reflections show all the complexity of the relationship between technology, ethics and law, such that the dimension of values is found not only in the definition of the purposes that technology should help to pursue but also in the production of the technology itself.[88]

## Conclusions

The pervasiveness of information technologies as well as the use of sophisticated techniques for the extraction of knowledge from data – fundamental tools in the information society – have facilitated digital surveillance practices, making anyone using a computer device connected to the network easily traceable and monitored, which raises pressing ethical and legal questions in respect to the right to privacy, today rightly considered as a fundamental right of the person.

Further unknowns, which mainly come from the increased ability to extract and interpret big data, derive from the progressive concentration of knowledge in the hands of a few 'digital giants', giving rise to pressing ethical and legal problems in order to respect the principles of equality and sharing of knowledge at the foundation of an effective democratic society. The central question, then, becomes how to balance the prescriptive function of law with policies based on the diffused collection

83 G. Teubner, Soggetti giuridici, *op. cit.*, p. 14.

84 G. De Anna, Automi, responsabilità e diritto, 'Rivista di filosofia del diritto' 2019, vol. 1, pp. 125–142.

85 M. Tegmark, Vita 3.0, *op. cit.*, p. 129.

86 *Ibidem.*

87 G. Teubner, Soggetti giuridici, *op. cit.*, pp. 84–94.

88 B. Bisol, A. Carnevale and F. Lucivero, Diritti umani, valori e nuove tecnologie. Il caso dell'etica della robotica in Europa, "Metodo. International Studies in Phenomenology and Philosophy" 2014, vol. 1, p. 248.

of information and, from this perspective, the protection of constitutionally guaranteed values – primarily respect for the dignity of the human person; moral and legal equality; freedom of opinion, press, assembly, association and religion. Here the right to participate in the choices that affect everyone appears to prevail over the identification of any market models.

Finally, the link between ethics, law and information technologies becomes particularly delicate when the latter are addressed to so-called 'human enhancement', taking on a relevant regulatory significance that requires a necessarily interdisciplinary perspective of analysis and discussion which is capable of guaranteeing, promoting and enhancing justice, social solidarity and the pluralism of values that constitutes modern democratic societies. It is evident, in fact, that developments in artificial intelligence and digital technology are not just technical issues but closely affect people, their lives and social relationships: for these reasons, they oblige us to ask ourselves about the ever-changing balances between automation and human decision, control and privacy, efficiency and security that a society is ready to accept. These are fundamental themes of common living, the regulation of which cannot be left either to the market or to technocracy alone, as it requires the essential intermediation of democratic institutions which can consider how, in a pluralist society, the different positions of social actors should be protected as much as possible, even when they can be strongly discordant or even incompatible with each other.[89] It therefore seems necessary to start an ethical and juridical reflection, inserted into the framework of democratic debate, which is capable of enhancing every different perspective without imposing any of them, and to dynamically define the field of acceptability of emerging technologies.[90]

REFERENCES

Amato Mangiameli A. C., Algoritmi e big data. Dalla carta sulla robotica, "Rivista di filosofia del diritto" 2019, vol. 1.

Bauman Z. and Lyon T., Liquid Surveillance. A Conversation, Cambridge 2013. Italian translation: Sesto potere. La sorveglianza nella modernità liquida, Rome/Bari 2015.

Bisol, B., Carnevale, A. and Lucivero F., Diritti umani, valori e nuove tecnologie. Il caso dell'etica della robotica in Europa, "Metodo. International Studies in Phenomenology and Philosophy" 2014, vol. 1.

Casi F., Big Data ed etica dei dati, https://www.consultadibioetica.org/big-data-ed-etica-dei-dati-di-fiorello-casi/.

De Anna G., Automi, responsabilità e diritto, "Rivista di filosofia del diritto" 2019, vol. 1.

Della Morte G., Big Data e protezione internazionale dei diritti umani. Regole e conflitti, Naples 2019.

89 *Ibidem*, p. 236.
90 *Ibidem*, p. 237.

Delmastro M. and Nicita A., Big data. Come stanno cambiando il nostro mondo, Bologna 2019.

De Minico G., Big Data e la debole resistenza delle categorie giuridiche. Privacy e lex mercatoria, "Politica del diritto" 2019, vol. 1.

De Tullio M. F., La privacy e i big data verso una dimensione costituzionale collettiva, 'Politica del diritto' 2016, vol. 4.

De Vivo M. C., Comunicare in Internet. Con che diritto? "Informatica e Diritto" 2000.

Drexl J., Economic efficiency versus democracy: on the potential role of competition policy in regulating digital markets in times of post truth politics, "Max Plank Institute for Innovation and Competition Research Paper", December 2016, no. 16.

Iasselli M., Privacy e nuove tecnologie, (in:) M. Iasselli (ed.), Diritto e nuove tecnologie. Prontuario giuridico ed informatico, Milan 2016.

Longo A. and Scorza G., Intelligenza artificiale. L'impatto sulle nostre vite, diritti e libertà, Milan 2020.

Nosari L., Potenzialità e problematiche afferenti l'utilizzo dei Big Data in materia di diritti umani, https://www.cyberlaws.it/2018/big-data-e-diritti-umani/.

Orefice M., I Big Data e gli effetti su privacy, trasparenza e iniziativa economica, Canterano 2018.

Palanza S., Internet of things, big data e privacy: la triade del futuro, Istituto Affari Internazionali October 2016, http://www.iai.it/sites/default/files/iai1612.pdf.

Palazzani L., Il potenziamento umano. Tecnoscienza, etica e diritto, Torino 2015.

Palazzani L., Tecnologie dell'informazione e intelligenza artificiale. Sfide etiche al diritto, Rome 2020.

Palmirani M., Big data e conoscenza, "Rivista di filosofia del diritto" 2020, vol. 1.

Pariser E., The Filter Bubble. What The Internet Is Hiding From You, New York 2011.

Pascuzzi G., Il diritto dell'era digitale, Bologna 2020.

Perlingeri P., Il diritto civile nella legalità costituzionale, Naples 1991.

Perri P., Sorveglianza elettronica, diritti fondamentali ed evoluzione tecnologica, Milan 2020.

Rifkin J., The Age of Access: The new Culture of Hypercapitalism, Where All of Life is a Paid-for-Experience, New York 2000. Italian translation: L'era dell'accesso, Milan 2001.

Rodotà S., Il diritto di avere diritti, Rome/Bari 2015.

Rodotà S., Il mondo nella rete. Quali i diritti quali i vincoli, Rome/Bari 2019.

Sarra C., Business Intelligence ed esigenze di tutela: criticità del c.d. Data Mining, (in:) P. Moro, C. Sarra (eds.), Tecnodiritto. Temi e problemi di informatica e robotica giuridica, Milan 2017.

Schreiber F.A., Tanca L., Etica e big data, sette principi per proteggere i diritti umani, https://www.agendadigitale.eu/cittadinanza-digitale/data-management/etica-e-big-data-sette-principi-per-proteggere-i-diritti-umani-fondamentali/.

Simoncini A. and Suweis S., Il cambio di paradigma nell'intelligenza artificiale e il suo impatto sul diritto costituzionale, "Rivista di filosofia del diritto" 2019, vol. 1.

Talia D., La società calcolabile e i big data. Algoritmi e persone nel mondo digitale, Catanzaro 2018.

Tegmark M., Life 3.0. Being Human in the Age of Artificial Intelligence, London 2017; Italian translation: Vita 3.0. Esseri umani nell'era dell'intelligenza artificiale, Milan 2018.

Teubner G., Digitale Rechtssubjekte? Zum privatrechtlichen Status autonomer Softwareagenten, "Archiv für civilistiche Praxis" 2018, Italian translation: Soggetti giuridici digitali? Sullo status privatistico degli agenti software autonomi, Naples 2019.

Wnukiewicz-Kozłowska A., The Right to Privacy and Medical Confidentiality – Some Remarks in Light of ECtHR Case Law, "Białostockie Studia Prawnicze" 2020, vol. 25, no. 2.

Zanichelli M., Affidabilità, diritti fondamentali, centralità dell'essere umano: una strategia europea per l'intelligenza artificiale, "i-lex" 2019, vol. 12, http://www.i-lex.it/articles/volume12/fascicolo1-3/zanichelli.pdf.

Ziccardi G., Il libro digitale dei morti. Memoria, lutto, eternità e oblio nell'era dei social network, Milan 2017.