Gatt L, Caggiano IA, Gaeta MC, Aulino L, Troisi E, 'The possible relationships between law and ethics applied to AI' (2023) 2 EJPLT, 111 - 120.
DOI: https://doi.org/10.57230/EJPLT232GCG

EJPLT
ISSN 2704-8012



The possible relationships between law and ethics applied to AI*

Le possibili relazioni tra legge ed etica applicate all'IA

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Abstract

The paper aims to critically analyse and compare legal rules and ethical principles in order to understand their possible relationships in the regulation of artificial intelligence systems. Indeed, the purpose of the work is to identify the interaction of law with ethics to guarantee an adequate regulation of AI, also in terms of sustainability, defining the measuring methodologies of the impact of AI on individuals under an *ex ante* and *ex post* perspective.

Il lavoro si propone di analizzare e confrontare criticamente le norme giuridiche e i principi etici per comprendere le loro possibili relazioni nella regolamentazione dei sistemi di intelligenza artificiale. Lo scopo del lavoro è infatti quello di individuare l'interazione tra diritto ed etica per garantire un'adeguata regolamentazione dell'IA, anche in termini di sostenibilità, definendo le metodologie di misurazione dell'impatto dell'IA sugli individui in una prospettiva ex ante ed ex post.

The work was presented at the IEEE International Conference 'Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering' (MetroXRAINE), held at National Research Council, Milan, October 25-27, 2023.

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Keywords: E&L; regulatory perspectives; ethical-legal compliance by design; risk analysis.

Summary: 1. Introduction: Law & ethics. – 2. The regulation of Artificial Intelligence through two types of rule sets: legal and ethical. – 3. Identification and analysis of tools on the impact of AI. – 4. First conclusions on how to measure the impact of AI on individuals.

1. Introduction: Law & ethics.[1]

The starting point of the paper is the relationship between law and ethics, then deepened with regard to the artificial intelligence (AI) domain, where the interaction between law and ethics is of particular relevance.

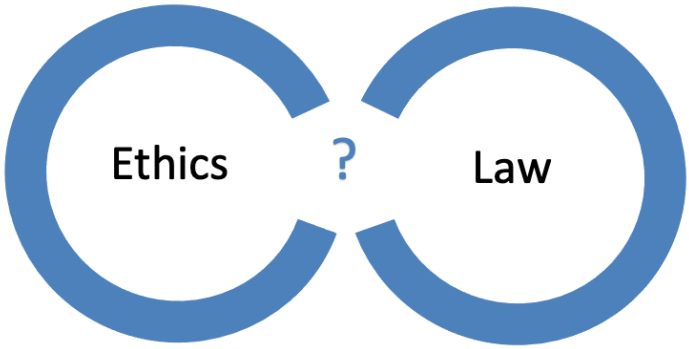


Figure 1: The difficult relationship between law and ethics

Legal positivists are used to study and apply binding law but, sometimes, the issue of identifying the applicable law in some specific field (e.g. artificial intelligence) has highlighted the need to resort to other sources of regulation, such as ethical principles. This need has been a consequence of a lack of *ad hoc* binding legal regulation for many years in a specific domain and the proliferation of ethical principles with the function of guiding individuals, companies, and institutions in the regulation of a specific phenomenon.

The legal system is not incomplete, but it cannot regulate every single phenomenon, being possible to apply the principles of *analogia legis* or *analogia iuris*, or just the extensive interpretation of the existing legislation

[1] The paper is the result of the work of a selected team of researchers of the Research Centre in European Private Law (ReCEPL) coordinated by the ReCEPL Director Prof. Lucilla Gatt and ReCEPL Vice-director Prof. Ilaria A. Caggiano. The author of paragraphs 1, 2 and 4 is Maria Cristina Gaeta, Ph.D., Lecturer in Private Law and Scientific Secretary of the Research Centre in European Private Law (ReCEPL), Università degli Studi Suor Orsola Benincasa; the authors of paragraph 3 are Livia Aulino, Ph.D., Senior Researcher of the Research Centre in European Private Law (ReCEPL), Università degli Studi Suor Orsola Benincasa, and Post-doc in Private Law, Università degli Studi di Napoli Federico II, and Emiliano Troisi, Ph.D., Junior Researcher the Research Centre in European Private Law (ReCEPL), Università degli Studi Suor Orsola Benincasa.

(according to art. 12 of the preliminary provisions to the Italian civil code), when an *ad hoc* legislation is missing.

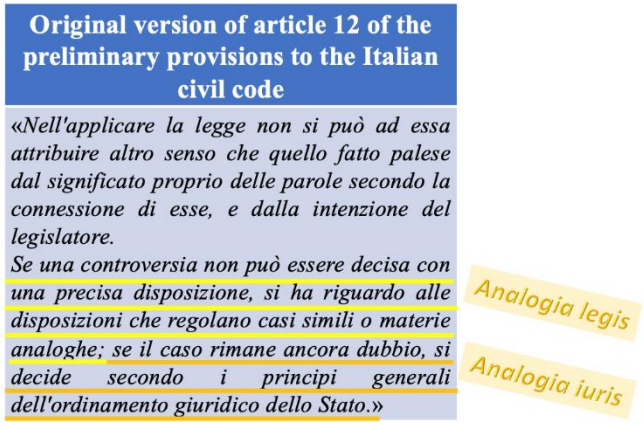


Figure 2: Quotation of the article 12 of the preliminary provisions to the Italian civil code

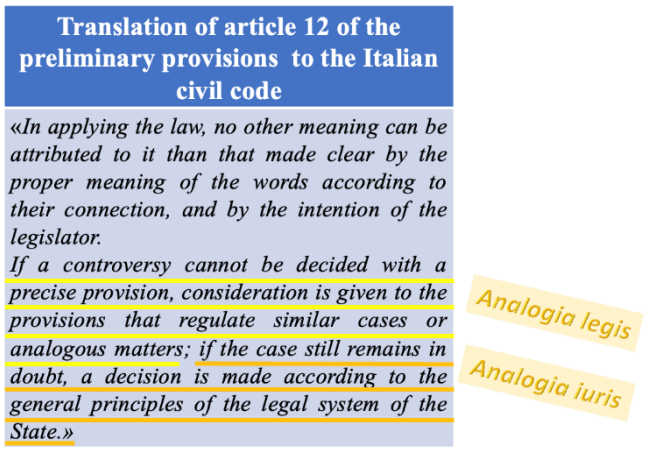


Figure 3: English translation of the quotation of the article 12 of the preliminary provisions to the Italian civil code

In this context of interpretation of the law, it is important to understand the role of ethics.

The academic literature[2] has already underlined that it is not possible to interpret the law according to ethical principles, otherwise, the interpretation of the law would involve discretionary choice arising from the ethical values. For example, on issues such as abortion or medically assisted procreation (MAP), which are widely debated by ethical scholars, the interpretation of the law cannot be based on such values, which could be absolutely against abortion or MAP. On the contrary, the interpretation of the law according to criteria of

[2] G Iudica, 'Etica versus diritto', in LA Bianchi, F Ghezzi, M Notari (eds.), *Diritto, mercato ed etica. Dopo la crisi. Omaggio a Piergaetano Marchetti* (Bocconi University Press, 2010), 157 ff.; P Schlesinger, 'Morale e diritto', in LA Bianchi, F Ghezzi, M Notari (eds.), *Diritto, mercato ed etica. Dopo la crisi. Omaggio a Piergaetano Marchetti* (Bocconi University Press, 2010), 903 ff.; D Plunkett, 'Legal Positivism and the Moral Aim Thesis', in Oxford J. Legal Studies, 2013, 563 ff.; HLA HART, 'Positivism and the Separation of Law and Morals', in [1958] Harv. L. Rev., 593 ff.. V Cariello, *Paradigmi e linguaggi intepretativi* (Giappichelli, 2022), XIX ff.

the first and second paragraphs of art. 12 of the preliminary provisions to the Italian civil code, would ensure an objective application of the law, through the elaboration of a legal norm that does not consider ethical choices. In this case, indeed, abortion or PMA can be allowed, under certain conditions and within certain limits.

At the same time, however, other part of the academic literature[3] considers that ethical principles can be also a criterion for the interpretation of the law, but only if ethical values are in compliance with hard law (*secundum legem*), even if in this scenario the role of ethics would be very much limited, like that of a custom[4] because in this case, ethical values would have the function of strengthening the reason of the law (so-called *ratio legis*), making it explicit in the interpretation/application phase of the law.

Indeed, private law has to be interpreted in the light of art. 12 of the preliminary provisions to the Italian civil code, in particular, systematic and evolutionary interpretation are of great relevance to guarantee the application of the law in line with the evolution of contemporary society, and ethical values can have a role in the interpretation of the law only if they are *secundum legem*. According to authoritative doctrine, the theory of interpretation under art. 12 of the preliminary provisions to the Italian civil code, then, cannot be kept separate from the theory of interpretation in compliance with the constitutional rules, considering that the idea of society and of ethics underlie the Constitution.[5]

Having thus identified the relationship between ethics and law at the stage of interpretation of the law, it is important to consider this relationship when ethical principles are transposed into law[6]. More precisely, this means that ethical values have been positively underpinned by certain legislative choices, being transposed into binding law, and becoming binding rules themselves. Indeed, ethical considerations can ground legal norms, even the most fundamental ones: constitutional rights and international treatises. In this way, social sciences (law and philosophy) influence one another, even though each domain maintains its specificities.[7]

The third possible scenario concerns the integrative role of ethics in cases of lack of specific legislation of a phenomenon. This is that hypothesis in which the law has to be applied to a new legal case according to the principle of *analogia* (*legis* or *iuris*), but in itself is not sufficient for an efficient and effective regulation of the phenomenon. In this circumstance, other rules can supplement the regulation. First and foremost, soft law acts (from guidelines to codes of ethics), which, although not binding, have a strong power to

[3] L Green, 'Positivism and the Inseparability of Law and Moral' [2008] New York Univ. L. Rev., 1040 ff.
[4] A Bertolini, Regulating UncertAInty, Description of the Conference of EURA Jean Monnet Centre of Excellence, 8-9 april 2021.
[5] P Perlingieri, *Il diritto civile nella lergalità costituzionale* (3rd ed., ESI, 2006), pp. 560 ff.
[6] European Parliament Report with Recommendations to the Commission on Civil Law Rules on Robotics, 24.01. 2017, (2015/2103(INL)), letter W of the General principles, p. 6.
[7] A Bertolini, G Aiello , 'Robot companions: A legal and ethical analysis' (2018) 34(3) The Information Society, 130 ff.., see also A Bertolini, 'Governare il potenziamento umano attraverso i principi di dignità e uguaglianza. Appunti per un quadro teorico-dogmatico di riferimento'(2022) 3 Politica del diritto, 435 ff.

orientate citizens and Institutions.[8] To these soft law acts must then be added the technical regulation (i.e. standards), which are also applicable through express referral by law, as well as techno-regulation. By techno-regulation is intended the possibility of using technologies also as instruments of regulation and not only as objects of the regulation (e.g. data protection and security by design and by default).[9]

2. The regulation of Artificial Intelligence through two types of rule sets: legal and ethical.

The latest academic discussion has focused on the potential and risks associated with new technological systems. In this perspective, defining a set of legal rules, that properly regulates these technologies, could be the priority, but this action appears extremely difficult and, therefore, in the last years, only a set of ethical principles contained in many different documents has been published by European and International Institutions, before the publication of the most recent European regulatory proposals on AI (the Proposals of Artificial Intelligence Act - AIA, Artificial Intelligence Liability Directive - AILD, and Product Liability Directive revision - PLD revision)[10].

For this reason, starting from the current state of the art, the paper is based on the legal and ethical challenges arising from the development of new technologies, with particular regard to AI, in order to define how to measure the AI Impact on individuals, elaborating the steps necessary to evaluate its risks, according to preventive and remedial analysis. Only after a proper analysis of the impact of AIs will be possible to provide an effective and efficient regulation according to the level of the risk of the AI system.

The need to analyse the impact of AI is a consequence of the fact that new technologies development has not only entailed benefits for the human being but also multiple risks ranging from a data breach to a cybersecurity breach, as well as a physical injury or psychical manipulation. For this reason, it is necessary to verify AI's impact and consequently intervene by regulating AI to limit the legal and ethical risks for human beings related to the use of technological systems and, instead, to fortify their benefits. This idea is currently foreseen by the Artificial Intelligence Act proposal, which classifies AIs based on the

[8] A Iannotti della ValIE, 'L'età digitale come "età dei diritti": un'utopia ancora possibile?' (2019) 16 Federalismi 10; E Mostacci, *La soft law nel sistema delle fonti: uno studio comparato* (Wolters Kluwer, 2008), 117 ff; A Somma, 'Soft law sed law: diritto morbido e neocorporativismo nella costruzione dell'Europa dei mercati e nella distruzione dell'Europa dei diritti' (2008) 3 Rivista critica del diritto privato, 437 ff..

[9] European Union Agency for Fundamental Rights and Council of Europe, Handbook on European data protection law, 2018.

[10] Proposal for a Regulation of the European Parliament and of the Council Laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain union legislative acts, Brussels, 21.4.2021, COM(2021) 206 final, and following revisions; Proposal for a Directive of the European Parliament and of the Council, on adapting non-contractual civil liability rules to artificial intelligence (Artificial Intelligence Liability Directive), 28.9.2022, COM(2022) 496 final; Proposal for a Directive of the European Parliament and of the Council on liability for defective products (Revised Product Liability Directive), 28.9.2022, COM(2022) 495 final.

possible risks (high risk, low risk and prohibited), so that different regulation can be envisaged according to the level of risk of the AI system for individuals.

Such a risk-based classification of AI systems, and the consequent different regulation, ensures a fair balance between the need to foresee and prevent the risks associated with the development of AIs, on the one hand, and the non-excessive restriction of the design and production of AIs that have a positive impact, on the other. In fact, the provision of too restrictive legal rules could constitute a limitation for the development of AI (as for instance in the case of some provider/producer objective liability schemes), which, however, may be the best possible solution for preventing risks to individuals. This is why it is necessary to adequately classify the levels of AI to enable providers/producers to act within the regulatory framework of reference for that level of AI involved, guaranteeing their necessary autonomy but within the limits laid down by the regulations for the protection of individuals.

Concerning the AI regulation, the introduction of ethical principles has proceeded that of the legal ones. Ethics does not provide binding legal rules, but has social and moral value and is of particular importance in relation to new technologies for two reasons: (i) firstly because of the impact of AI on human beings; (ii) secondly, because initially (before 2021) the European legislator was not ready to regulate the phenomenon through binding regulation able to really understand new technologies and being able to keep up with its development. During the last years (2021 and 2022), instead, the European Union started to translate these ethical principles into legal rules, that now constitute regulatory proposals but which will become binding rules in the near future. Ethical principles would remain to complement and supplement the law but would largely be transposed into these binding rules. In this way, the ethical principles implemented in European regulations would become binding rules.

More in detail, the International Institutions, the European Union, and its Member States have always been founded on the values of human dignity, equality, solidarity, freedoms, and respect for human rights,[11] and this approach is being applied also regarding robotics and artificial intelligence. The legislators are now called to intervene to guarantee the protection of human beings in relation to new technologies also with binding rules. In fact, AI technologies are not neutral and, in addition to entailing a series of advantages, it also implies serious risks for individuals who have a structural condition of vulnerability in relation to them.[12] Therefore, new technology, especially when equipped with AI, must be properly regulated, to put these new technologies at the service of humans.

In this light, at all levels of regulation, the awareness of the need for a concrete strategy and regulation of AI has matured. In particular, in May 2019, the Council of Europe adopted some recommendations aimed at maximising the potential of AI systems and preventing a negative impact on human

[11] Universal Declaration of Human Rights of the United Nation (UDHR) of 10 December 1948; European Convention on Human Rights (ECHR) of 4 November 1950; Charter of Fundamental Rights of the European Union of 18 December 2000 (FREU); National Constitutional Charters.

[12] L Gatt, IA, Caggiano, 'Consumers and digital environments as a structural vulnerability relationship' (2022) 2 EJPLT, 8 ff.; L Gatt, "Legal anthropocentrism between nature and technology: the new vulnerability of human beings" (2022) 1 EJPLT, 15 ff.

rights.[13] Its primary interest is to verify the impact of AI systems on human rights in the public and private sectors, by imposing on Member States to guarantee human rights through accurate information, transparency, and independent and effective oversight of technology compliance, but without creating obstacles to the identification of liabilities and remedies in case of the violation of these human rights.

In the same direction, the Council of Europe appointed an ad hoc committee for Artificial Intelligence (CAHAI), in September 2019, that aims to assess the impact of AI on the individual and the society, as well as on existing soft law and hard law instruments that deal with AI. In this light, in December 2020 the CAHAI published a feasibility study that examines,[14] based on broad multi-stakeholder consultations, the potential elements of a legal framework for the development, design and application of AI, based on the Council of Europe standards in the field of human rights, democracy and the rule of law.

Also, the EU initiatives have been developed over the last years, from the European Parliament Resolution on civil law rules on Robotics,[15] until today. The protagonists of the debate are the European Parliament and the European Commission. While the former seemed certain from the outset of the need to intervene to provide specific rules for automation and AI, the European Commission initially considered completely effective the existing regulation also applied to new technologies and then, since 2021, evaluated the possibility of intervening to regulate this phenomenon (AI Act Proposal, AILD Proposal, Proposal for the revision of the PLD [16]).

3. Identification and analysis of tools on the impact of AI.

Recently, there has been a proliferation of self-assessment tools (e.g., ALTAI, 2020; RAII, 2022[17]), AI classification models (e.g., NIST-AI RFM, 2023[18]), and certification programs (such as ISO and IEEE standards; notably the IEEE CertifAIEd program[19]) aimed at evaluating the legal, ethical, and social implications of AI devices and applications. These initiatives translate established ethical and legal principles from various sources (EU AI HLEG, 2019;

[13] Council of Europe, Unboxing artificial intelligence: 10 steps to protect human rights, 2019.
[14] Ad Hoc Committee on Artificial Intelligence (CAHAI), Feasibility study, 17.12. 2020, CAHAI(2020)23
[15] European Parliament Resolution on Civil Law Rules on Robotics, of 16.02.2017 (2015/2103(INL).
[16] See note no. 10.
[17] High-Level Expert Group on AI (AI HLEG), The Assessment List for Trustworthy Artificial Intelligence (ALTAI) for self assessment, 17.07.2020, https://futurium.ec.europa.eu/en/european-ai-alliance/pages/welcome-altai-portal; Responsible Artificial Intelligence Institute (RAII), The Responsible AI Certification Program. White paper, October 2022, https://www.responsible.ai/how-we-help.
[18] National Institute of Standards and Technology (NIST), U.S. Department of Commerce, Artificial Intelligence Risk Management Framework (AI RMF 1.0), January 2023, https://doi.org/10.6028/NIST.AI.100-1
[19] IEEE Standard Association, IEEE CertifAIEd certification program, https://engagestandards.ieee.org/ieeecertifaied.html; see also IEEE Standard Association, IEEE 7000™-2021 Standard - Addressing Ethical Concerns During Systems Design, https://engagestandards.ieee.org/ieee-7000-2021-for-systems-design-ethical-concerns.html

OECD, 2019; or NIST[20]) into practical 'checklists', guiding developers and deployers of AI in assessing systems and implementing these principles effectively.

Broadly speaking, the Assessment List for Trustworthy Artificial Intelligence (ALTAI), as the pioneering and most renowned among these tools, along with others, is fundamentally rooted in safeguarding the fundamental rights of individuals, drawing from human rights frameworks embedded in EU Treaties, the Charter of Fundamental Rights, and international human rights law.

Ethics, as delineated by the EU High Expert Group in their 'Ethics guidelines for trustworthy AI',[21] assumes a distinctive role and functionality. Ethical reflection is understood to expand the reach of fundamental rights, functioning both as an argument for (ethically aligned) law interpretation and as an incentive for its voluntary integration, i.e., the voluntary compliance to more stringent ethical standards by developers and deployers of AI systems. This extension aims to steer AI development and use not only towards what is legally permissible, but also towards what is morally imperative, ensuring maximum human well-being.

Furthermore, ethics, from a forward-thinking perspective, should foster the incorporation of ethical values contributing to the attainment of the United Nations' Sustainable Development Goals[22] (UN Agenda 2030[23]). The UN SDGs, encompassing the environmental, economic, and social dimensions of sustainability, provide a crucial paradigm for considering the impact of the development, deployment, and use of AI systems. An AI system should be considered trustworthy (or responsible, as defined in the NIST AI Risk Management Framework[24]) when it not only prioritizes human-centricity but also considers the impact on future generations, respecting the Planet's biophysical conditions and resources, essential and irreplaceable factors for both economic growth and the well-being of humans and the environment.

Consequently, models intended to provide guidance for the ethical and social self-assessment of AI development should consider the growing societal attention to environmental concerns and the increasing preference for an ecological economy, which tends to reward eco-friendly and sustainable development models, as well as responsible consumption practices (a Global Green New Deal[25]). Therefore, AI impact assessment tools should also encompass (and promote) sustainability and ecological responsibility as essential parameters.

This problem is even more significant now, following the very recent approval of the AI Act which, within the framework of (limited) compliance obligations (cf. for example, article 40) and transparency/documentation duties (cf. article 53), or within the scope of voluntary application regulatory

[20] High-Level Expert Group on AI (AI HLEG), Ethics Guidelines for Trustworthy AI, 8.04.2019; OECD, Recommendation of the Council on Artificial Intelligence, 22.05.2019, OECD/LEGAL/0449.
[21] Ethics Guidelines for Trustworthy AI, AI HLEG, cit.; OECD Recommendation of the Council on Artificial Intelligence, cit; AI RMF, NIST, cit.
[22] United Nations, Department of Economic and Social Affairs, Sustainable Development Goals (SDGs), https://sdgs.un.org/goals.
[23] United Nations, General Assembly, Transforming our world: the 2030 Agenda for Sustainable Development, 25.09.2015, A/RES/70/1.
[24] AI RMF, NIST, cit.
[25] J Rifkin, *The Green New Deal* (New York Times, 2019).

tools (e.g., codes of conduct, cf. articles 56, 59), explicitly invokes a principle of sustainable artificial intelligence.

However, a notable gap in most current evaluative tools lies right in the (effective) measurement of AI sustainability, requiring assessments that go beyond mere evaluations of energy consumption or carbon emissions - even though they may extend throughout the entire production cycle and the relevant supply chain, as well as the product lifecycle (see ALTAI, p. 19).

It is crucial, for example, to establish a connection between the ethical and trustworthy (or responsible) "label" associated with AI and the obligation for professionals engaged in AI design, development, or deployment to adhere to organizational practices that align with circular, green, and socially beneficial economies. Standards such as ISO/IEC TR 24368:2022 notably emphasize this aspect.

Moreover, both the production cycle and the utilization of AI products should not only refrain from causing 'significant harm' to the environmental goals (UN 2030 Agenda; EU Green Deal) but also actively contribute to ecological transition, economic and social progress, and the well-being of future generations (cf., e.g., EU Taxonomy Regulation) and, ultimately, the future of AI itself.

The forthcoming interpretations and applications of the AI Act – its compliance obligations and accountability mechanisms (especially the more versatile tools such as the risk management system and the Fundamental rights impact assessment for high-risk AI systems) – present a significant opportunity to actualize societal attention towards sustainability issues and integrate guiding principles for sustainable AI development into regulatory frameworks, thereby safeguarding the interests of current and future generations.

4. First conclusions on how to measure the impact of AI on individuals.

In the previous paragraphs, the possible relationships between law and ethics have been investigated, as well as the current state of the art on the regulation of AIs, and the main existent tools that try to verify the impact of AI. As a result of this research study had been identified the necessary steps to really measure AI's impact on individuals and consequently provide a specific regulation.

Step 1: *How to classify AI based on legal and ethical values – Legal and ethical AI.*

Verification of compliance of AI technology with legal rules and ethical principles, conduct through a measuring tool integrated according to the observations already made, in line with the giuri-ecodinamic approach[26], intended as an ecodynamic analysis of the law or of the legislative policy

[26] PP Franzese, A Riccio, A Scopa, 'Valutazione della sostenibilità ambientale: verso un approccio ecodinamico' (2003) 7 Biologi italiani, 58 ff.

foreseen for the need to not maintain only a legal perspective, since new technologies to be regulated presuppose an interaction between different sciences (from the humanities to the technical sciences). In this way it will be possible to establish the level of AI risk, resulting in differentiated regulation.

Step 2: *Legal and ethical assessment – Lawful AI.*

Specific regulation (legal rules and ethical principles) of AI technologies according to the risk level of AI, with a focus on the main possible issues that may arise from the development of AI (security, privacy, cybersecurity and again ethics).

Step 3: *Empirical analysis – Robust AI.*

Assessment by empirical tests, that should be conducted primarily for high-risk technologies, before they are placed on the market; as well as periodic analysis of the same high-risk technologies after they have been placed on the market.

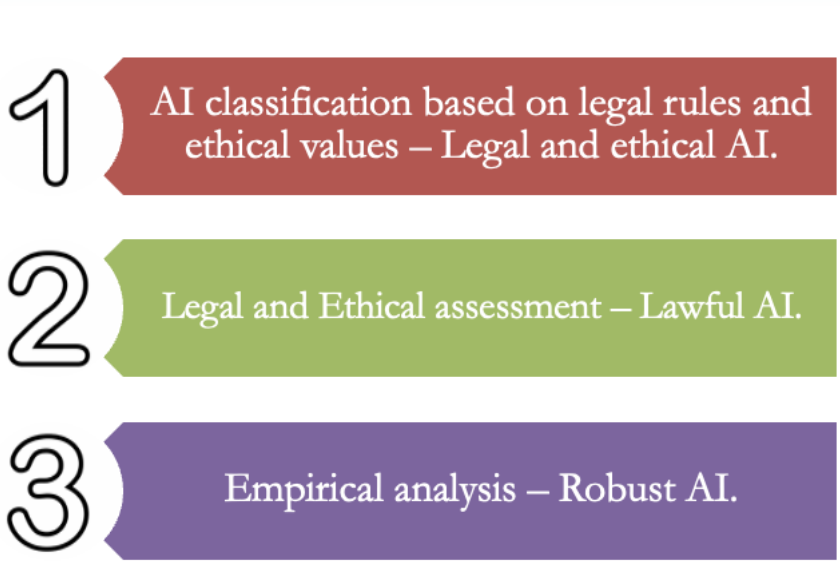


Figure 4: The steps for assessing AI impact on individuals.