

**The Artificial Intelligence in the judicial system: The predictive justice in Italy**

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**Statement of authenticity**

I confirm that the work within the completed assignment is all my own work, and does not include any work completed by anyone other than myself unless referenced. I have completed the assignment in accordance with the instructions provided by School of Advanced Studies Sant’Anna.

Faithful,

Diego Labriola

**Abstract**

Artificial Intelligence (AI) is an umbrella term which encompasses a variety of sciences, theories and techniques, whose presence into our daily life is fastly speeding up. Accordingly, the diverse applications of AI (i.e. automated data collection, biometrics, machine learning capacities, machine’s system of decision making) are having a growing impact, which may be positive or negative, on the exercise, enjoyment and protection of all human rights and fundamental freedoms.

One can foresee with any certainty what can be the potential improvements resulting from AI technologies, for instance, the gain in service’s performances, the extension of the access to information or the new solutions for environmental problems. At the same time, AI generates challenges for the protection, respect and fulfilment of human rights, by weakening individual autonomy and self-determination in terms of privacy costs, or through its chilling effect on the freedom of expression and other human rights.

It can be easily grasped that when it comes to the relation between AI and human rights the questions at stake are uncountable and, considering the AI’s development rates, most probably, even unpredictable. Will the impacts of the AI’s applications on human rights be positive or negative? Given this new context, should we rethink the content of human rights State’s obligations? Will AI help us to stem the bleeding of inequality around the world or will it contribute to inequality’s propagation? One things is for sure, the western governments and public opinion are perceiving the need to put this matter on the global agenda as urgent as never before. This work analyses one of the issues raised by the application of AI within the field of the judicial system, namely the use of new algorithms in the so-called “*predictive justice*” proceedings and its implications on the right to an effective remedy and to a fair trial and due process. My goal herein is to explore the potential developments of the Italian legislation in this domain, in the light of the White Book on Artificial Intelligence of the European Commission and the Council of Europe Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their environment.

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# **Introduction**

Artificial Intelligence (AI) is an umbrella term which encompasses a variety of sciences, theories and techniques, whose presence into our daily life is fastly speeding up. Accordingly, the diverse applications of AI are having a growing impact, which may be positive or negative, on the exercise, enjoyment and protection of all human rights and fundamental freedoms.

Among the comprehensive set of indivisible rights set out in international human rights law, there are some whose interpretation can be totally overturned by this technological wave. Will the impacts of the AI’s applications on human rights be positive or negative? Given this new context, should we rethink the content of human rights State’s obligations? Will AI help us to stem the bleeding of inequality around the world or will it contribute to inequality’s propagation? These questions do not find a definite answer, but what is clear is that it is necessary to investigate this field before it becomes necessary to put remedies to an established reality. As underlined by many international instruments, all non-binding to date, the objective is to maintain a human centered approach throughout the whole lifecycle of AI technologies. In particular, this study tries to analyze which are the AI tools currently in use and those that could be used in the field of justice, both by the State and by private actors. This issue is particularly sensitive because the very existence of human rights is based on the possibility and the way in which their violations are enforced. Are the guarantees arising from the right to a fair trial strengthened or weakened by the use of IA? And in this context how can the very concept of legal certainty or the independence of the judge change? Through the analysis of fundamental concepts in the legal field, such as the interpretation and predictability of law, the work tries to define answers to these questions consistent with the Italian legal system.

The aforementioned issue is addressed in the third chapter, while the first two chapters are purely introductory and try to clarify some essential concepts to tackle the main theme of the thesis. The analysis of the current trend of policies implemented at global and regional level on AI and brief reflections on the changing way of conceiving ethics in this digital world are what is contained in the first chapter. The second chapter, on the other hand, briefly sets out what the positive or negative effects of AI on human rights may have the greatest impact on human rights.

# **Methodology**

Conducted on the basis of the review of the relevant literature and the study of the documents and official statements of the major international actors on the impact of AI on fundamental rights, this study has made use exclusively of a qualitative research methodology and can be a starting point for those who want to reflect and analyze the potential developments of the international policies and, more specifically, of the Italian policy in this domain.

Notably, after the identification and study of the most recent and crucial political and legislative documents of the Council of Europe and the European Union, the focus is narrowed to the field of analysis of the Italian initiative.

The main limitation of this work is that the desk-research was not accompanied by an analysis based on the real perception of the limits and potential of predictive justice by all stakeholders involved, public and private.

The results obtained are therefore limited to highlighting the potential and hazards of the use of predictive software in courts, tribunals and law firms, from a structural and not case-based point of view. Moreover, the development of these technological applications is very recent and has not had, especially in European countries, such a strong reverberation that it has been the subject of specific studies evaluating their usefulness according to calculable parameters.

Finally, the study of the Italian perspectives on this issue, perhaps, would have deserved a more detailed analysis of the Italian legal system able to highlight all the possible contradictions that may arise from the implementation of AI technologies. However, if legal quibbles had been allowed, more general but fundamental considerations in order to understand the problem more comprehensively and to address the underlying issues, would have been omitted.

# **Chapter 1: An overview on the applications of AI**

## 1.1 The new European trend

Although argued differently, the assumption that technology - understood as a human means and means of survival - has always influenced and continuously changed our understanding about the world and about ourselves has been taken for granted by philosophers of different ages and modern anthropologists[[1]](#footnote-1).

However, if until a few decades ago it could still be considered with good caution that there was still an impassable limit for the technology and this limit was the nature - “Earth […] wears away to his own ends, […] as the plows weave to and for year after year” in the words of Sophocles[[2]](#footnote-2). Today this assumption no longer seems so obvious.

The longer the advancement of these technologies goes on, the better Artificial Intelligence technologies will be able to interpret our behaviors and then predict them. How many and what uses will be made of these technologies? What and how strong the impact that AI will have on the way we live and interact with the environment? Our material world is developing into an active and intelligent counterpart, rather than a mute, stable and functional environment. In other words, AI technologies will possess more and more agent-like characteristics.

The extremely rapid and no purposive development of these technologies with their countless applications capable of impacting multiple aspects of everyday life, makes it a very complex task to clearly define the boundaries by means of a definition. The first definition was coined by John McCarthy for the Dartmouth Summer Research Project of 1956. It is a phenomenological definition, in fact McCarthy defined AI as a machine that behaves “*in ways that would be called intelligent if a human were so behaving*[[3]](#footnote-3)”.

Other definitions have been adopted by international fora committed. Among the many[[4]](#footnote-4), it is worth mentioning the AI UNESCO’s smart definition based on the distinction between two aspects of the AI. The UNESCO’s experts heard that we can labelled one “*theoretical*” or “*scientific*” AI and a “*pragmatic*” or ”*technological*” ones[[5]](#footnote-5).

The theoretical AI is defined as “*using AI concepts and models to help answer questions about human beings and other living things*”, thus understood AI has more implications in the philosophical, ethical, psychological and sociological field than in the purely technical-informatics field”. The pragmatic AI, on the other hand, is “*engineering-oriented*”. In this meaning, all those technologies aimed at create “*machines or programs capable of independently performing tasks that would otherwise require human intelligence and agency*” are included in the concept of AI.

In spite of the lack of universally accepted definition[[6]](#footnote-6), individual States, several regional and international organizations are taking the first steps to regulate this matter. The imperative dominates the political dialogue in countries most affected by automation is that to prevent AI from widening social and economic inequality in a world already profoundly marked by unfairness.

Recently, in Tsukuba, Japan, on 9 June, the miniseries of trade, digital economy and foreign affairs of the world's twenty largest economies have adopted a statement on digitalization and the digital economy in which, *ça va sans dire*, particular attention is paid to AI technologies. With a view to pursuing “*common objectives for global growth”,* the participating governments have made common commitments and with regard to AI, particularly, the declared objective is to work towards the development of AI Human-centered[[7]](#footnote-7).

Special emphasis is placed on the potential that a responsible use of AI technologies can have in promoting inclusive economic growth, empower individuals and realizing a human-centered future society. The need to emphasize that the individual must remain at and be the center of society is due to the awareness that AI, like other emerging technologies, may present “*societal challenges, including the transitions in the labor market, privacy, security, ethical issues*”.

Another global initiative aimed to strengthening the multilateral dialogue and international cooperation in tackling the social, environmental and economic impact of the AI system has been undertaken by the United Nation. In July 2018 the Secretary-General convened High-level Panel on Digital Cooperation, a group of 20 independent experts and leaders from Governments, private sector, academia, technical community and civil society. The main output of the Panel’s work is contained in their final report to the SG published in June 2019 and named “*The Age of Digital Interdependence*” . It is supposed to be an instrument to foster the digital cooperation around the globe and indeed its 4th part is dedicated to “*Mechanism to global digital cooperation*. Recommendation 3c. focuses on AI stating that autonomous intelligent systems “*should be designed in ways that enable their decisions to be explained and humans to be accountable for their use*”. Indeed, otherwise it would be impossible to establish regulation and control mechanisms for compliance with any pre-established standard[[8]](#footnote-8).

The European Union (EU) is also taking several initiatives to cope with the digital transformed and spread of AI systems, especially through the work of the CONNECT Directorate General. Within DG CONNECT framework, the European approach to digital transformation has been developed[[9]](#footnote-9).

A crucial date is 19 October 2017. On that date the European Council met to address a number of issues, and Digital Europe was one of the point on the agenda. The European Council expressed a sense of urgency to address the emerging trend in AI technologies[[10]](#footnote-10) that undermine data protection, digital rights and ethical standards and invited the Commission to put forward a European approach to AI.

A few days after the Declaration of Cooperation on AI was signed by twenty-five Member States, on 10 April 25, came the Commission’s first response to the Council’s call.

The Commission Communication[[11]](#footnote-11) has set out an European initiative on AI hinged on the three main actions covered by the Declaration of cooperation, namely:

1. Boost the EU's technological and industrial capacity and AI uptake across the economy,
2. Prepare for socio-economic changes brought about by AI
3. Ensure an appropriate ethical and legal framework, based on the Union's values and in line with the Charter of Fundamental Rights of the EU[[12]](#footnote-12).

The Communication, moreover, put forward the European effort to increase public and private investment in AI to more than €20 billion per year over the next decade[[13]](#footnote-13).

A few months later, in June 2018, the committee established a High-Level Expert Group on Artificial Intelligence (AI HLEG) composed by 52 independent experts on AI from academia, civil society, as well as industry. The first deliverable requested by the Commission at the AI HLEG was ethic guidelines to promote a trustworthy AI, based on the work done by European Group on Ethics in Science and New Technologies.

Afterwards, the installation of the newly elected European Commission (EC), in December 2019, brought a confirmation of the EU policy line on AI, and also the first proposal for comprehensive binding regulation of AI. On February 19, 2020, the EC presented its proposal for comprehensive regulation of AI: the “*White Paper on Artificial Intelligence*[[14]](#footnote-14)” complemented by a “*Data Strategy*” and a “*Report on Safety and Liability*”.

This document represents the first truly concrete step towards the implementation of binding European AI lifecycle legislation. The white book is composed by two main parts, both of which intend to provide policy options to enable the safe and reliable development of the AI. Whilst the first part contains general policy proposals intended to steer the AI development, research and investment in the EU, the second part points out the pivotal components of a strategic regulatory framework at European level.

In order to fully understand the content of the Commission’s proposals, it must be said that the whole document is based on two well-defined ideas. On the one hand, the idea that the development of AI technologies is only possible because of the increased availability and capacity to store and manage immense amounts of data. On the other hand, the idea that although changes in European regulatory frameworks at sake when dealing with AI technologies may be subject to significant changes and adaptations, the creation of a single, unified EU regulatory framework for AI is essential[[15]](#footnote-15).

Starting from the 7 requirements that AI technologies must meet to be defined Trustworthy pursuant to the “*Ethics Guidelines for Trustworthy Artificial Intelligence*”, sets out 6 key features, which the upcoming AI legislation must consider to ensure legal certainty.

The Commission has cleverly circumscribed the problem by narrowing its scope of application down: what needs to be specifically and strictly regulated are not AI technologies *tout court* but only those AI applications that can be defined as “*high* *risk*”. Obviously, AI technologies not falling under the “*high* *risk*” category remain subject to existing EU law in other areas and, the Commission specifies, the criteria for “high risk” must be sufficiently clear and precise to be understood and identified by anyone.

If it meets two criteria cumulatively, an AI system should be considered to be high-risk. The first is built on the basis of the sector in which AI is applied. An AI application could be deemed at high risk if it is “*employed in a sector where, given the characteristics of the activities typically undertaken, significant risks can be expected to occur[[16]](#footnote-16)*”. The second criterion, instead, highlights the concrete use that is made of an AI application within one of the above mentioned critical areas. Then, the Commission identifies 6 key features which should only be refer to high-risk AI applications in one of the identified critical areas.

The Council of Europe (CoE) is also strongly active on this issue, mainly through his Committee of Ministers . The instruments adopted and the actions undertaken by the CoE on the AI issues are many. Lastly, on 11 September 2019, the Committee of Ministers of the CoE Set up the Ad hoc Committee on Artificial Intelligence – CAHAI[[17]](#footnote-17). The Committee has been charged with examine the feasibility and potential elements of a legal framework for the development, design and application of AI based on the CoE’s standards on human rights, democracy and the rule of law. In the third chapter there will be copious references to one of the instruments adopted, namely the European Ethical Charter on the use of AI in judicial systems[[18]](#footnote-18).

From this brief excursion on the latest global and regional strategic policies on AI one consideration and one question arise. First of all, the globalization, the increasing speed in the information’s transmission and thus the growing interdependence among States has led to the rapid spread of issues of global concern[[19]](#footnote-19). One of this issue is without any doubts, is the global impact of the AI on long series of certainties and freedoms that the rule of law has built up over the centuries. Therefore it will be and is necessary to work towards a binding regulation based on internationally shared standards. Otherwise, any individual effort would be futile and futile. On the other hand, the high-rate at which AI technologies are developed and the unpredictability of the type of impact that these technologies may have on our daily life lead to the question whether it is really possible to reconcile the existence of a global regulatory framework that regulates with clarity and respect for fundamental rights all AI lifecycle with the free development, production, sale and use of AI technologies. The point is whether multilateral dialogue, in the face of a global trend towards a Trustworthy AI, will be able to reduce the differences of views on the regulatory approach in this field.

## 1.2 Ethical consideration

What is the impact that the massive spread of AI technologies is having on the concept of social relations, on the notion of human being and, therefore, on the scope of the concept of morality? The analysis is divided into two parts, one focused on possible changing the scope of the concept of morality and the other on some of the possible future developments that may occur as a result of these changes.

Information technologies have made the boundaries between the social subject and the material object more porous than ever before. Our physical presence in concrete spaces and situations has been characterized for decades by the presence of passive machinery that need a human input to produce a specific service: vending machines, toll booths, or televisions. AI technologies are able to make decisions based on the information gathered and feedback received from the surrounding environment, are capable of storing so much data and have such a high computing power that they can make believe their choices are more appropriate than those made by a fallible human being. They will therefore supplant and replace the human being in different social functions.

There has always been an inextricable intertwinement between human being and technology, historically the man-technology relationship has always been understood in terms of subject-object. As AI’s are blurring the boundaries between human and technological agents, the response of ethics must accept this change and an alternative model for ethics needs to be developed.

Reasoning precisely on this, Peter-Paul Verbeek starts from Foucault’s observation about the Enlightenment understanding, still widespread, of the man-machine relationship in terms of subject-object[[20]](#footnote-20). Foucault believes that Western society is ethically anchored to the blackmail of the enlightenment, which is “*Anyone who dares to do open this discussion immediately raises the suspicion of being against rationality, democracy, and scientific inquiry*”. Verbeek develops this reasoning believing that in order to make an ethical discourse on technology possible, the first step to be taken is to overcome enlightenment blackmail and accept that the boundaries between human being and machine are now so blurred that the establishment of an ethics of technology is necessary[[21]](#footnote-21).

The crucial question is to stop evaluating technology from the outside, with the categories of our morals, but to accompany this development and participate in the creation of new moral paradigms that be aware of the ongoing intertwinement of humans and technologies and is developed in a responsible manner[[22]](#footnote-22). Now, this is a serious issue: What human life is, what humanity is, what human life and dignity mean and what the relationship to AI systems are when it comes to social interaction with corresponding machines.

Given the above, it becomes clear that it is not within our powers to set limits, mitigate in no way or even ban the use and dissemination of tools that are embedded AI. The next step is to reflect on how to change the paradigms of morality with a view to making it work in this new social reality.

An extremely practical vision is proposed by the article in the World Economic Forum white paper on AI governance[[23]](#footnote-23). In this paper a number of possible approaches for the integration of moral principles in AI technologies are enucleated. The first fundamental choice to be made in the process of integrating a morality into AI is between a bottom-up versus top-down approaches.

The top-down approaches provides for AI technologies setting and functioning to be based on predefined moral principles. However, one might observe that this vision is flawed in terms of assumptions and concrete application. In fact, taken for granted the existence of software capable of functioning on the basis of algorithms, so to speak, “*moral*” and assumed the permanence of the rule of law, only one possible future scenario come to mind: the increased tightening of market and civil regulators on the circulation and use of AI technologies according to the type of moral algorithm hinged within them with considerable recourse to legislative instruments.

On the other hand, following the bottom-up approach AI technologies should “*observe human behaviour in specific situations and learn how to make ethical decisions on that basis*”. A first glance, a flaw is obviously: AI technologies would learn what is common and not what is morally convenient and since human action is studded with bias[[24]](#footnote-24), the implementation of AI system would not be a step forward towards a fairer society.

However, this approach hides a possibility for a paradigm shift in the way we understand the relationship between man and technology and in the underlying ethic. In a near future intelligent technologies will carry out most, if not all, of the social and private tasks previously reserved for human beings, and will accompany the life of each of us from birth to death, it would not be so absurd to think that AI technologies will possess the same legal subjectivity of the individual to whom the device is legally connected.

It is possible that the actions of each private AI technology would be attributable to the legal sphere of the related legal entity in terms of public morality and civil and administrative liability[[25]](#footnote-25). In this respect, it could be argued that at least for one of the future AI applications that will replace human action in an area of legal liability, i.e. automatic guidance systems, legal frameworks are already in place to deal with this legal liability upheaval[[26]](#footnote-26). Nevertheless, in a reality where human action will be drastically reduced in terms of quantity, it is difficult to think that this change will not be followed by a substantial change in the interpretation of the legal relevance of AI actions. On the other hand, it would be inconceivable to think of a blanket assumption of responsibility by AI’s supply chain actors[[27]](#footnote-27). The alternative to a drastic change in the way of understanding legal liability is to leave people who have suffered damage caused by the involvement of AI systems without any chance of obtaining justice.

# **Chapter 2: Artificial Intelligence and Human Rights**

The opportunities offered by technologies are immense. AI systems aim to improve and are constantly changing the way in which people, companies and public authorities act all around the world. Indeed, AI increasingly continues to find its way into every individual’s life (from smart home appliances to social media applications), into several professional fields (like healthcare, education, scientific research, communications, transportation, security and art) and into public authority action (for evaluating people’s skills and personality, allocating resources and making decisions). As a pervasive technology, its potential to interfere with human rights gets more and more severe and this deserve our awareness.

So, if it is true that AI has the potential to revolutionize the world and transform the future of humanity for the better and in favour of sustainable development, it’s also true that there are risks and challenges associated with AI, especially in terms of inequalities and human rights implications. In order to best manage these risks it is important to understand how such technology works and how society is transformed by it. Human rights implications are not necessarily due only to AI, but AI ability to magnify the potential human rights abuses, in both scale and scope, is much greater than from technologies that came before.

Thereby, the point is to figure out how human rights can be enhanced by AI, not undermined and as underlined by the CoE in “*Unboxing AI: 10 steps to protect Human Rights[[28]](#footnote-28)*” one must find the right balance between technologies and human rights. This chapter analyses how current AI uses and future developments violate or enhance some of the human rights established in the “*International Bill of Human Rights[[29]](#footnote-29)*” and here defined as universal, indivisible, interdependent and interrelated.

## 2.1 The empowering AI

AI is a technology capable of revolutionising entire industrial sectors[[30]](#footnote-30), as well as the interaction of human beings with each other and with businesses, society and environment. The most-cited business benefits[[31]](#footnote-31) that corporate leaders attribute to AI include: increased productivity (40%), reduced operating costs (28%) and improved speed to market (21%).

AI also represents an important tool to enable extraordinary progress towards sustainable development. However, the result of such AI’s uses by business enterprises is an adverse human rights impacts due to business enterprise’s activities or relationships with other parties[[32]](#footnote-32).

Over and above the productive and economic benefits that AI entails for business leaders, AI capabilities, alone or combined with other technologies such as Internet of Things and biotechnology, can also alleviate some of the most serious problems in the world, from enabling advancements in diagnosis and treatment of disease, to revolutionizing transportation and urban living, to mitigating the effects of climate change. In order to do this, AI has to be humanity’s value-aligned, in practice, to be “*human-friendly*” and “*Earth-friendly*” AI systems must incorporate the health of the natural environment and human as a fundamental dimension[[33]](#footnote-33).

AI responds to the most pressing challenges on earth, which include several “*Sustainable Development Goal*” (SDG): combating climate change, monitoring weather and disaster resilience, using ocean and marine resources wisely, managing forests, combating desertification, developing sustainable cities and providing clean affordable energy, but also ensuring good health and education, decent work and more.

Starting with the mitigation of climate change, AI has immense potential to contribute in the developing of smart home and cities, smart transport options, it can also help for a sustainable production, consumption and land-use. Providing some examples, smart cities developed by AI, make public services more efficient and accessible. AI is also the key for autonomous connected electric vehicles (EVs), a smart transport system able to reduce greenhouse gas emissions and deliver cleaner air.

Even in weather forecasting and climate modelling, AI help to predict natural disasters and the effects of extreme weather events (like windstorms and floods), allowing a better risk management and a rapidly response to a natural disasters.

AI application are definitely improving access to healthcare, particularly in regions where there is a lack of access. There is also a large AI use in disease diagnosis and prevention as well as in the prediction of disease outbreaks which allow health providers to intervene early and contain an outbreak. AI, through image recognition, is able to help people who are visually impaired and enable them to navigate. As tool for better healthcare, AI improves patient and medical team outcomes; reduces costs, which could play an important role in countries were access to healthcare is limited by social and economic factors.

In recent years, health care filed has been significantly transformed due to several promising applications like more precision in robotic surgery, better care for autistic children[[34]](#footnote-34), more accurately diagnosis and management disease, more individualized patient treatment recommendations, more accessibility for specialist medical advice[[35]](#footnote-35). One of the most accurate and well-known AI example in health care is Watson by IBM which is used in cancer treatment[[36]](#footnote-36).

In the education field, AI has produced new teaching and learning solutions in different contexts worldwide, particularly in developing countries. This is in line with SDG 4, which aims for equitable and quality education for all. AI technologies are today used to ensure equitable access to education. Indeed, they enable access to learning opportunities for marginalised people and communities, for people with disabilities, for refugees, for those out of schools and for those living in isolated communities. AI can help developing a dual-teacher model composed by a teacher and a virtual teaching assistant, which can assume the teacher’s routine task, enabling human teachers to focus on student orientation and one-to-one communication. This collaboration between teachers and AI assistants has already started working with the best outcomes for students.

The education sector is both subject and object in the face of AI technology. On one hand, AI has potential for improving education systems, on the other hand, education systems are expected to form students with skills needed to thrive in a AI-based society[[37]](#footnote-37).

The impact of these technologies on the world of work lead to the disappearance of certain tasks and the creation of new ones. That is why education is also so crucial because it is the vehicle by which people are trained with digital skills and not only.

## 2.2 The disenfranchising AI

States and private companies all around the world have started to massively invest in utilizing AI and in order to do this they need access to huge volume of data from billions of people. Considering that these data are been used as input to feed AI system, it is evident that this profound influence of AI rises some concerns about freedom of expression, privacy and surveillance, ownership of data, manipulation of information and more generally transparency of algorithms and possibilities of trusting AI systems[[38]](#footnote-38).

In addition to the extraordinary opportunities it brings, AI, if misused or ill-conceived, can have detrimental consequences for society, economy and environment.

AI is not good or bad in itself: it depends on how it is used. So the more competent is the individual using AI as well as the more accurate and properly annotated are the data on which AI is based, the more useful and effective AI will be[[39]](#footnote-39). This could be a good statement to take under consideration while we will discuss some of the risks associated with AI’s development.

According to the WEF report “*Harnessing Artificial Intelligence for the Earth*” AI risks can be broadly divided into the following categories and produce impacts on individuals, organizations, society, and Earth:

1. Performance risks
2. Security risks
3. Control risks
4. Ethical risks
5. Economic risks
6. Societal risks

Briefly, performance risks is about inability to understand the logic behind AI outputs. It makes it difficult to check whether the performance or outputs of AI algorithms are accurate or desirable. AI algorithms work without a scientifically justified model that humans usually utilize to achieve scientific understanding of a phenomenon[[40]](#footnote-40). There is also a lack in transparency about data used to train the algorithms.

Regarding security risks, AI has a significant role in matters of peace-building and security, this involves a military use of AI. Indeed, AI could be a powerful instrument for conflict prevention and resolution. However, even if AI algorithms are developed with good intentions, for example autonomous vehicles, they could also be used for harmful purpose, an example is autonomous weaponry which is an AI-assisted decision-making machine able to implement its own attack and to make decisions of killing without human intervention[[41]](#footnote-41). A weaponized AI represent also a significant threat to society in terms of global safety[[42]](#footnote-42).

From an economic point of view, AI may revolutionize the economy quickly with consequence for workers. It may happen that companies decide to replace their workers with AI systems even when the advantages in terms of quality do not exist[[43]](#footnote-43). In such field, but on the social side, automation development risks to reduce employment in several sectors this, in turn, could lead to greater inequality in society[[44]](#footnote-44)”.

The use of big data; the reliance on algorithms to perform tasks and make decisions and the gradual reduction of human involvement in many processes are AI elements that raise issues linked to fairness, responsibility, equality and respect for human rights.

So, as far as social and ethical risks are concerned, AI can also facilitate the violation of fundamental rights and amplify forms of bias and discrimination. In a society like ours, already characterised by bias and inequality, the use of historical data, based on inequalities, even if correctly used, can lead to forms of discrimination, but this is just one of the main issues triggered by AI technologies.

AI has negative social implication also in facilitating mass surveillance as never seen before,with the creation of a constantly monitored society, similar to the one feared in George Orwell's 1984 book. For example facial recognition software can allows governments to monitor their citizens, facilitate profiling groups, and even identify, discriminate and locate individuals.

Below we investigate in more detail how AI negatively impact some human rights.

### 2.2.1 Equality and no discrimination

Non-discrimination and equality constitute a fundamental and general principle relating to the protection of human rights. The general right to equality and non-discrimination is recognised by Article 2 UDHR as well as in articles 2, 3 and 26 ICCPR.

Article 2 ICCPR obligates State Party *“to respect and ensure to all persons […] the rights recognized in the Covenant without distinction of any kind*”. Thus, prohibiting discrimination in the enjoyment of the rights on several grounds, like “*race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth and other status*”. This is an illustrative but not exhaustive list indeed, other status may also include age, gender, disability, nationality and sexual orientation.

Article 3 ICCPR, instead states the principle of equality between men and women into the enjoyment of the rights.

In addition, Article 26 provides that “*the law shall prohibit any discrimination and guarantee to all persons equal and effective protections against discrimination on any grounds*”.

General Comment (GC) No.18 of the Human Rights Committee gives us a more specific definition of discrimination: any distinction, exclusion, restriction or preference which is based on any ground (such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status) and which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise by all persons, on an equal footing, of all rights and freedoms.

GC 18 also provide that according to principle of equality and in order to diminish or eliminate conditions that cause or help to perpetuate discrimination a State should take affirmative action. Because of their fundamental and general character, the principle of non-discrimination, as well as that of equality before the law and equal protection of the law, are expressly referred to in other human rights articles. We can say that they represent a crosscutting element of all UN Human Rights instrument[[45]](#footnote-45).

However, discrimination and inequality may occur through the processing of data in machine learning. According to a study on Algorithms and Human Rights conducted by the CoE[[46]](#footnote-46) “*search algorithms and search engines by definition do not treat all information equally*” because search results will normally be ranked considering the perceived relevance even if processes used to select information are applied regularly. Thereby, “*different item of information will receive different degrees of visibility depending on which factors are taken into account by the ranking algorithm*”.

Also, “*search engines and search algorithms also do not treat all users equally*”. Indeed, different results may be presented to different users according to their behaviour or other features like personal risk profiles.

It would be fairer if individuals have the right to view an ‘unbiased’ results and not a personalized one so they can exit from their own “*filter bubble*”[[47]](#footnote-47) and see an untargeted version of the search content.

Lately, automated decision-making has been implemented in the labour sector. Algorithms are used to make decision about hiring and firing staff, staff organisation and management and individual evaluations of employees so new concerns, like the lack of transparency in the decisions that algorithms make, have also been raised.

For instance, LinkedIn was reported because its algorithms did not display as frequently highly-paid jobs for searches by women as they were for men. Such problem is due to how algorithms were written because at the beginning, man users of LinkedIn were predominantly looking for the high-paying jobs so machine learning proposed these jobs to men, discriminating women[[48]](#footnote-48).

As we will see in the third chapter, a dramatic breaches of human rights and in particular a discrimination issue may also result from the increasingly extended use of AI in the criminal justice system. Briefly, these AI’s applications aim to ease the decision-making process in different phases of a case, for example to inform decisions about pre-trial detention, sentencing and parole. They are used to predict a variety of outcomes and to provide estimates for violence, recidivism and failure to appear. Despite such tools may produce harmful effects on the rights of indicted or convicted persons, they are usually used in different legal systems such as U.S., Canada, and U.K.[[49]](#footnote-49).

In the end, studies have demostrated that using AI in such sector entails “*persistent racial disparities at every stage, a different kind of justice for the haves and the have nots, and a system that neither rehabilitates individuals nor ensures public safety*”[[50]](#footnote-50).

This is because, these tools rely on historical data that reflect just a portion of the real world, which can be unfair and discriminatory. Thus, if the data is not accurate or the algorithms are not “cleaned” of the waste such as discriminatory and flawed patterns, the use of such AI tools will produce more harm than benefit for the justice system and not only.

### 2.2.2 Right to Education

The right of everyone to education is recognized at Article 13 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) in terms of fundamental stages and whether or not they are compulsory, equal and free access and aim of education. This latter include, developing the “*human personality and sense of its dignity*”, strengthening “*the respect for human rights and fundamental freedoms*”, enabling “*all persons to participate effectively in a free society*” and promoting “*understanding among all nations*”, as well as ethnic, racial and religious groups.

According to CESCR GC n. 13, we can consider education an empowerment right: “*Education is both a human right in itself and an indispensable means of realizing other human rights*”. It is essential for promoting human rights and democracy as well as safeguarding most vulnerable people, like children and women, from a exploitative situations.

GC n. 13 CESCR identifies some interrelated and essential features of education:

* Availability, in terms of quantity and quality;
* Accessibility, educational institutions and programmes have to be accessible to everyone without discrimination;
* Acceptability, education has to be relevant, culturally appropriate and of good quality;
* Adaptability, education has to be flexible so it can adapt to the needs of changing societies.

All these aspects emphasized above, allow us to better identify the interference between AI and the right under consideration.

Actually, AI changes the role of education in society in many aspects. One of the main societal concerns regarding AI is labour displacement[[51]](#footnote-51)**.** In a continuous developing labour market, the educational system can no longer aim to educate people for one specific profession, but it should enable people to be versatile and resilient. This is line with the meaning of adaptability.

Moreover, AI can fundamentally violate the principle of equal access to education. An example is given by U.S. Universities which are using deterministic algorithmic systems to choose applicants they should admit. These algorithmic system are fed by historical data of previously admitted students and are based on the school’s preferences. This kind of model risks to perpetuate past trends since many elite universities have been always attended by wealthy white males[[52]](#footnote-52). Such a system would ignore the students that overcome adversity to achieve academic and professional success and it would consolidate existing educational inequalities.

Regarding availability an important specification is necessary. More and more resources are available on internet and AI can match them to those who are interested in but this is true for those who has the accessibility to such resources, guaranteed by indispensable technological instruments which are not yet available in some developing countries. If there are not these instruments, fair access is at risk.

This want to be an example of how the four features above are interrelated and also essential to guarantee the correct implementation of the AI in the educational system.

While AI can open numerous opportunities, like those mentioned, it can also be a disruptive technology and may accentuate the existing inequalities because the marginalised and disadvantaged population are more likely to be excluded from AI based education. The result is a new kind of digital divide. Concluding, equity and inclusion should be consider as core values when designing policies for AI in education.

### 2.2.3 Privacy and Data Protection

International Human Rights Law recognises the fundamental right to privacy set forth in Article 17 of ICCPR. To attach value to human dignity it is necessary to ensure data protection, which means protecting any personal data related to individual by unintended interference. Only by doing this it is possible to ensure the enjoyment of other fundamental rights, such as the right to freedom of expression and association (the main vectors of democracy).

Therefore, it is important to dwell on the inextricable relation that exists between privacy and data protection. Nowadays there is a growing issue about platforms that use personal information in ways that could compromise their users’ right to privacy.

Nowadays two major approaches about informational privacy can be identified. First, the access approach in which privacy is about the ability to “*limit or restrict others from information about* *oneself”.* Second, the control approach in which privacy is the ability to have “*control of personal information*”. In both cases, people’s ability to enjoy privacy is linked to their ability to control the flow of their personal information[[53]](#footnote-53).

The biggest worldwide ICT companies, like Google, Facebook, Twitter and Microsoft play an important role in how users form and express their opinions, reach information and debate with respect for the sense of privacy. AI applications are based on generation, collection, processing, and sharing of large amounts of data about individual and collective behaviour. This data can be used to profile individuals, predict future behaviour, create feedback mechanisms and to online tracking. Such a collection of these data interferes with right to privacy and data protection because from the analysis of these data AI is able to reveal private information about individuals. For example, existing ML models can accurately estimate a person’s age, gender, occupation, and marital status just from their cell phone location data, they are also able to predict a person’s future location from past history and the location data of friends[[54]](#footnote-54).

On the basis of the HRC’s work[[55]](#footnote-55) today the discourse has moved on how to extends online the application of human rights that individuals enjoy offline. Individuals’ ability to enjoy their human rights is related to whether States decides to encode them into national regulation applicable to companies. EU has been the first to recognize and effectively protect the online privacy right. It enjoys protection under the new EU General Data Protection Regulation[[56]](#footnote-56) whether the data processing is carried out by a public institution or a private company[[57]](#footnote-57). Data protection law is the pivotal means to safeguard transparency and accountability and to mitigate the worst effects of AI on right to privacy*[[58]](#footnote-58)*.

### 2.2.4 Right to freedom of opinion and expression

The right to freedom of opinion and expression are a pillar of democratic societies.

Article 19 ICCPR recognizes the right of “*Everyone*” to “*hold opinions without interference*”. Thus, the first component is the possibility for everyone to form an opinion which requires “*freedom from undue coercion in the development of an individual’s beliefs, ideologies, reactions and positions*”[[59]](#footnote-59). These coercions come from the intersection between technology and content curation. AI enhances, with more efficient tools, the content curation and personalization for the users on Internet[[60]](#footnote-60).

Paragraph 2 of Article 19 ICCPR establishes the right to freedom of expression, which encompasses the “*freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers […]*”. Paragraph 3 establishes the criteria for permissible restrictions on freedom of expression. These restrictions must be “*provided by law and are necessary for respect of the rights or reputations of others*” and “*for the protection of national security or of public order, or of public health or morals*”. Thus, although within certain limits, the right to freedom of expression entails the right to access to information[[61]](#footnote-61). In the processing and provision of such information, AI has an important role.

Automated journalism and the algorithmic provision of news on social media are just some of the examples that are raising issues of access to information, disinformation, discrimination, freedom of expression and privacy. AI is able to strengthen the free flow of information but, as we have seen for other AI’s applications, it can also be used to spread disinformation, the so-called “*fake news*”. Social media algorithms work on amplification of contents via “likes”, “shares” and other forms of online recommendations, resulting in so-called “*filter bubbles*” and “*echo chambers*” instead of generating a debate. In this regard, persons that share the same information may be exposed to filtered content of information and in return, there would be more and more homogenized opinion groups.

However, not all evil comes to harm. Sometimes, the moderation of content can be justified to avoid the spread of disinformation and content that incites violence, hatred and discrimination. Such moderation can be done by humans, but is often done via automated AI algorithms, paying attention on offending content and avoiding accusations of automated censorship and restriction on legitimate speech.

### 2.2.5 Right to health

The World Health Organization (WHO) has defined health as “*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity[[62]](#footnote-62)*”.

The right to health is a fundamental human right recognized at article 12 ICESCR as “*the right of everyone to the enjoyment of the highest attainable standard of physical and mental health[[63]](#footnote-63)*”.

GC N° 14 of the CESCR specifies important characteristics of the right to health. It is an inclusive right as it includes factors that can help us lead a healthy life, such as the access to safe and potable water and healthy occupational and environmental conditions. It also contains both freedoms, like the right to be free from non-consensual medical treatment, and entitlements, like the right to a healthcare system which provides equal opportunities for people to enjoy the highest attainable level of health.

According to the same GC, health services, goods and facilities must be provided to all without any discrimination and must be characterized by:

* Availability, such as in sufficient quantity;
* Accessibility, which includes economic, physical and information accessibility to everyone without any discrimination.
* Acceptability, such as respectful of medical ethics and culturally appropriate.
* Good quality, meaning for example, skilled medical personnel, scientifically approved hospital equipment.

The right to health is probably the human right for which AI provide more opportunities in terms of empowerment. At the same time, however, AI in healthcare raise some concerns, such as their cost within a context of scarcity of resources in the health care system and the transparency they should bring in order to respect the autonomy of patients[[64]](#footnote-64). Moreover, AI could endanger the right to health because AI system may result in discriminations. For example an AI system could recommend, if so programmed, different treatments considering the insurance level of the patient or how much he or she is able to pay, in this way lifesaving care would be denied to someone because of the socioeconomic status.

Another potential issue is about how such systems learn. Indeed, an automated machine learning could memorize that certain diagnoses are nearly always fatal so it could recommend doctors to not treat them, even if in some cases treatment may be effective. Moreover, AI system can be programmed in ways that place outcomes like cost reduction, over the wellbeing of the patient[[65]](#footnote-65). This also raise doubts about responsibilities of human doctors working with the system.

The use of internet sites and the development of mobile phone health applications for self-diagnosis changes doctor-patient relationship as it provides to people the opportunity to generate health diagnoses without doctor’s advice. This might have important implications such as the risks resulting from self-medication. Even assistive social robots for elderly, which are based on AI technologies, raise some concerns because they can be very useful for patients with dementia but they also reduce human care and the resulting social isolation[[66]](#footnote-66).

In the healthcare sector most of the data are personal and sensitive as they are about patients and consumers health. This obviously raises new issues compared with those mentioned above like responsibility and liability of health provider. Such new issues are about personal data protection as well as concerns over the trustworthiness of algorithm diagnosis ad transparency and ethical use of AI.

AI systems can significantly interfere with human rights and nowadays, more work is still necessary to safeguard human rights against the sophistication and development of AI technologies. One of the best practices to integrate AI opportunities and human life is a human rights based-approach to draft AI’s policies. Also, a multi-stakeholder governance within the public and private sector would be a best way to involve various actors with a different cultural and moral perspectives to elaborate a comprehensive set of AI’s principles[[67]](#footnote-67).

# **Chapter 3: AI in the judicial system**

Traditionally one of the three fundamental functions of the state is to administer the judiciary. Juridical power is part of sovereignty, thus it depends on the institutionalisation of the monopoly of violence and its functions are to maintain the public order and to guarantee effective protection of fundamental rights[[68]](#footnote-68).

Some essential limits to the exercise of judicial power are dictated by International Human Rights Law, which identifies the right to a fair trial as a fundamental right[[69]](#footnote-69). Article 14 ICCPR sets out a number of safeguards underpinning the exercise of the right to a fair trial, first the respect of the principle of non-discrimination and the right to a public hearing before a competent, independent and impartial tribunal established by law. The presumption of innocence, the right to appeal, specific procedural guarantees during criminal proceedings, the rehabilitation function of the sentence for juvenile justice, the reparation of judicial errors and the principle of *ne bis in idem* are also prescribed. Then Article 15 expressly lays down the principle of legality in criminal matters[[70]](#footnote-70). Therefore, Articles 14 and 15 define the limits and minimum requirements necessary to be able to speak of a fair trial.

The purpose of this chapter is to analyse the potential of AI technologies to ensure a better exercise of the right to a fair trial. In order to embark on this path, however, one important aspect must first be clarified: legal certainty. It’s obvious that in order to ensure the smooth functioning of society, each legal system must possess a certain degree of certainty and predictability[[71]](#footnote-71).

After all, the predictability of the law is a question that goes beyond the respect of the fundamental rights, the scheme of the calculability of the law is the sociological one identified by Weber, who saw in this case an essential instrument of the modern market economy[[72]](#footnote-72). After the entry of the principle of constitutional rigidity, legal predictability becomes legal certainty[[73]](#footnote-73).

The predictability or certainty of the law is an intrinsic question of the concept of law itself. It goes without saying that this is not guaranteed by the mere preparation of a set of well-coordinated rules governing all legally relevant areas of society, but also requires a certain stability in their practical application, i.e. in the interpretation adopted by the judicial authorities[[74]](#footnote-74).

Today, the proliferation of sources of law, the very high number of laws and regulations in force in modern states and the excessive stratification of jurisprudential interpretations make the task of interpreters very difficult, so much so as to jeopardize the entire coherence, reliability and certainty of legal systems. Indeed, a law whose application is totally uncertain would become useless or, if not worse, dangerous[[75]](#footnote-75).

In this context, new AI technologies can provide a unique opportunity to simplify the work of judges, lawyers and legal practitioners, helping to build a stable legal reality capable of preserving the fundamental rights of each individual. In recent years, many countries seem to have understood the potential of new technologies in the legal field and, although in a non-uniform way, have put in place or are in the process of developing concrete approaches to the use of particular types of software[[76]](#footnote-76).

The term predictive justice is used to date to cover all AI technologies used in the field of justice. In truth, it is an umbrella term that is not very appropriate to identify all the different applications that new technologies are bringing to courtrooms and lawyers’ offices. In addition, this term can also be misleading, precisely because it refers to algorithms with very different functions. The technologies labelled with the term predictive justice, indeed, can have applications for both analytical/inductive purposes, aimed at identifying decision-making or behavioural patterns, and anticipatory purposes, which aim to calculate the probability that a judge will make a certain decision[[77]](#footnote-77).

In order to analyse the state of the use of AI algorithms in the judicial systems of its Member States, the European Commission for the Efficiency of Justice (CEPEJ) of the CoE has classified them according to their actual use[[78]](#footnote-78). For illustrative purposes only, the CEPEJ identifies the following categories of AI tools within the juridical system:

1. Advanced case-law search engines;
2. Online dispute resolution;
3. Assistance in drafting deeds;
4. Analysis (predictive, scales);
5. Categorisation of contracts according to different criteria and detection of divergent or incompatible contractual clauses.
6. “Chatbots” to inform litigants or support them in their legal proceedings.

The case-law search engines are the oldest digital application in the field of justice administration[[79]](#footnote-79), nonetheless, today the increasingly refined management of Big Data makes possible the development of technologies such as Natural language processing and machine learning. These two technologies applied to case-law search engines are a good tool for the improvement of the efficiency of justice and the case-law enhancement. The correct implementation of advanced case law search engines can have positive repercussions in terms of uniformity of jurisprudential guidelines and reduction of time, costs and difficulties in case management. Regardless of any observation on how these databases are implemented[[80]](#footnote-80), their usefulness remains undisputed; indeed, this AI application is the most widespread worldwide in the field of justice. However, there is no lack of doubts and questions about the real value of the change that these new technologies bring. With reference to civil law systems, one wonders what impact the greater ease in finding case-law similar to the one being judged and in identifying precise standards of jurisprudential guidelines may have on the relationship between norms and case-law and on the value of the *stare decisis[[81]](#footnote-81)*. Furthermore, considering that the contents of court and tribunal decisions are closely linked to the evolution of society and the values it expresses, is there a risk of moving towards the standardisation of the juridical decision even beyond compliance with the principle of non-discrimination which requires different solutions to be applied to different cases?

Another interesting application of AI in the judicial system is Online Dispute Resolution. (ODR). These applications are mainly aimed at facilitating the use of Alternative Dispute Resolution (ADR) (above all mediation and conciliation) and then to better regulate the flow of new proceedings through the courts and reduce the caseload of the courts. the use of ODR does not depend on the use of AI technologies, in fact long ago some countries[[82]](#footnote-82) have adopted automated systems to resolve minor civil disputes. The EU has also launched a tool for online consumer dispute resolution in 2013[[83]](#footnote-83). However, the combination of ODR and AI technologies makes it possible to discover new fields of application that extend as far as the regulation of status-citizen relations, think about the possibility of solving simpler administrative or tax appeals via an online system[[84]](#footnote-84). A characteristic trait of ODR, like all ADRs, is its bivalent effect on effective access to justice. On the one hand, the access to justice could be significantly improved by a broad solution combining ODR and AI. The idea is to provide citizens with faster and more effective tools that respond promptly and effectively to demands for justice. On the other hand, however, one must be careful that the ODR should not affect the right of access to a court[[85]](#footnote-85) by constituting a formal or substantive limitation on the right to apply to a court established by law. Other doubts concern the methods by which the information is processed by these algorithms and the transparency regarding the mechanisms for calculating the disputed amounts. On this subject, it is opportune to highlight some fundamental guarantees of the EU placed to protect the right to privacy. Indeed, Article 22, paragraph one of EU Regulation 2016/679 states that “*The data subject shall have the right not to be subject to a decision based solely on automated processing*”[[86]](#footnote-86).

In any case, the application of the AI in the field of justice which deserves further inquiry are the analysis software. Big data, Natural Language Processing and machine learning are the techniques at the heart of this tools whose function is to provide for the content of a future legal decision. It should be made clear that these AI systems do not claim and are not yet able to reproduce the logical-legal path followed by the interpreter of the law[[87]](#footnote-87), but simply identify existing correlations between the different parameters of the decision and, through the use of statistical modelling of previous decisions, are able to propose a series of possible solutions to the trial[[88]](#footnote-88). Such software predictive of juridical decisions[[89]](#footnote-89) are today developed and designed primarily for the use of law firms and lawyers as an aid to the preparation of the legal strategy to be adopted, but there are no unknown cases of the use of certain applications by judges[[90]](#footnote-90).

In 2016, the University College of London developed an algorithm capable of predicting the judicial decisions of the European Court of Human Rights with a 79 % reliability rating[[91]](#footnote-91).

Nevertheless, when it comes to analysing or imagining the application of such predictive software by the State in the exercise of its judicial power, the question is much more delicate. In particular, it will need to be analysed and understood what the judge's interpretation process and the current capabilities of AI instruments are.

Generally speaking, interpretation is defined as the activity aimed at understanding the meaning of a word or set of words[[92]](#footnote-92). Applying this definition to the legal field[[93]](#footnote-93) it appears that interpretation is the understanding of the laws in order to apply them to the concrete case. This procedure of bringing the concrete fact within the limits of the abstract case defined by the rule is called subsumption. This is a complex operation that does not necessarily lead to a unitary result. Even in the presence of an incontrovertible assessment of the facts, the possible interpretations of the law may still be greater than one. Hence the question of how to reconcile legal certainty with the plurality of possible interpretations of the law arises.

Three different theories face the problem. First, the objective theory for which the outcome of the trial can be calculated with mathematically certain[[94]](#footnote-94). According to this positivist theory, provided that the written law is clear, knowable and unequivocal, it is possible to calculate through an algorithm the legal consequences arising from a certain conduct[[95]](#footnote-95). The predictability or certainty of the law is based on the assumption that the rules can be interpreted unambiguously since they are described according to the scheme of the case[[96]](#footnote-96). Second, the subjective theory, *ex adverso*, considers that the law has no objective meaning thus placing the responsibility for giving meaning to the law entirely on the interpreter's shoulders. Finally, an intermediate theory that considers that subjectivity and objectivity are not alternatives to each other, but are articulated in a continuous dialectical tension proper to every interpretative process[[97]](#footnote-97).

Of course, accepting objective theory makes it much easier to accept the idea that a software can admit judgment. However, this position appears the least acceptable as it does not take into account that the law is studded with so-called value-driven terms[[98]](#footnote-98) and that after the constitutional wave of the twentieth century, law, at least in continental Europe, can no longer be traced back only to the legal case[[99]](#footnote-99).

Indeed, with the appearance of the constitution formulated in the form of principles, the law renounces to specifically define the limits within which the protection of the law is granted, in other words, there is no longer a legalistic limit to the enforceability of subjective claims[[100]](#footnote-100). Therefore it is up to the interpreter to reconstruct the meaning of the rule applicable to the specific case, balancing the constitutional values involved in the specific case. As R. Dworkin reminds us[[101]](#footnote-101), The balance of principles must be balanced within the limits of the principle of proportionality, this means that the applicable principles do not lie in a relationship of prevalence or succumbance to each other, making it particularly difficult to apply binary logic in this field[[102]](#footnote-102).

Secondly, the copious presence in the law of value-drive terms or “*open texture of law[[103]](#footnote-103)*” such as (best interest of the child, good faith, rationality, common decency, etc.), very general and that are evaluated according to the individual sensitiveness del trial judge, preclude the assumption that it is possible to calculate the legal consequences of a certain conduct by means of a mathematical calculation.

What has been said on the subject of interpretation allows us to understand how much, to the state of the art of existing AI technologies, the use of analysis software by the State in the exercise of jurisdictional power is really limited. Current AI technologies do not produce intelligence per se and operate using an inductive approach. They are only capable of creating connections “*between the different lexical groups composing judicial decisions*[[104]](#footnote-104)”, Therefore they are not able to reproduce the legal reasoning and replace the balance of principles and values made by the judge. In addition, it is appropriate to dispel the myth that more data means greater certainty about the decisions taken by these predictive software. Indeed, as observed by mathematicians Cristian Sorin Calude and Giuseppe Longo: “*the larger a database used for correlations, the greater the chances of finding recurrent patterns and the greater the chances of making errors*”[[105]](#footnote-105).

Having made it clear that state of the art AI technologies do not allow to reach reliable results regarding the “prediction” of judicial decisions, but still wanting to analyze in more detail the main applications that these technologies have in the field of judicial process, a distinction should be made between civil jurisdiction on the one hand and criminal jurisdiction on the other.

With regard to civil jurisdiction, the main use of AI is aimed at harmonizing decisions in various civil matters by using scales. In practice, these algorithms are able to detect the correlations of linguistic sequences among several judgments in order to evaluate the scale of assess certain amounts in a uniform manner - for instance, compensation for body injury or compensatory allowance - through machine learning[[106]](#footnote-106).

In matters of criminal jurisdiction, on the other hand, the relevant applications of AI can be studied by tracing a further distinction between applications that operate before the process and applications that operate during the process.

The term predictive policing refers to that systemic and systematic process of colleting, analyzing, and responding to data intended to “predict” who will commit a crime, or where and when a crime may be committed, in order to ensure more effective law enforcement operations[[107]](#footnote-107). The application of AI tools to the described predictive policing is more and more frequent and now known also to the general public, think, for example, of biometric identification software or more simply of no fly list, which is actually a big data analytics application. Overall, there are multiple techniques for assessing the risk of offences being committed and they are calibrated according to the type of offence analyzed (Risk assessment for individual criminal behavior, for organized crime behavior, for domestic violence, for mental health)[[108]](#footnote-108).

Forecasts are based on the processing of a wide range of information: from the movements and activities of suspects, to the places and characteristics of places where a major crime is detected, to period of the year or weather conditions, to information on ethnic origin, level of schooling, economic conditions and somatic characteristics. It is immediately apparent that the widespread use of these technologies could lead to the creation of a vicious circle, the more preventive police activity is concerted in areas considered to be at risk, the higher the likelihood of crimes being committed in those areas, thus leading to a further increase in police surveillance[[109]](#footnote-109).

Moving on to the analysis of AI applications during the criminal trial, we note that the main use of predictive tools is the one aimed at speeding up and make it easier for the judge to assess the social dangerousness of the offender and the likelihood of future crimes being committed. The use of such algorithms is practically non-existent within the EU[[110]](#footnote-110), in the face of their copious spread in the USA[[111]](#footnote-111). The evidence-based assessment of criminal dangerousness presupposes the prior identification of a number of more or less static risk factors (age, gender, ethnic origin, family and work situation, etc.) associable with criminal behavior. These data are combined to produce a certain objective score reflecting the probability that the convicted person will commit a crime again. If we consider that today the assessment of the possibility of recidivism and social dangerousness is entrusted solely to the personal experience of the judges or, at best, to the clinical assessments made by court experts, one wonders whether the prognostic evaluations of an algorithm, based on an immense amount of data and information, do not produce more reliable results than the desecration of an individual. Certainly it is that this line of thought inevitably transcends into a reontology of the suspect as an informational entity[[112]](#footnote-112), thus necessitating a redefinition of the traditional terms of the criminal law guarantee[[113]](#footnote-113).

## 3.1 Impact on the right to a fair trial

The AI tools developed to date to achieve what is briefly referred to as “predictive justice” can have a strong impact on the right to a fair trial as enshrined in Article 14 of the ICCPR and Article 6 of the European Convention on Human Rights[[114]](#footnote-114).

A first and significant impact that can be caused by the use of AI applications in the judicial process concerns the principle of non-discrimination[[115]](#footnote-115). The use of AI, as mentioned above, can be understood on the one hand as an aid to the harmonization of decisions, for example in civil courts by using scales in the quantitative determination of certain sums, on the other hand, it may lead to an unjustified reproduction of existing discrimination or new forms of discrimination caused by the type and quality of information with which the device is fuelled. There is a risk of “*performative*” effect, i.e. the risk that a system will progressively produce the same results, thus compromising the independence of information producers[[116]](#footnote-116).

Perhaps less blatant is another effect that the use of AI technologies in the justice system has on the respect of the principle of non-discrimination in a substantive sense and on the right to counsel as well. Indeed, the use of AI technology by law firms could have important repercussions in two ways. Suffice it to say about the advantages derived from the application of predictive justice tools for lawyers and the possibility of providing their clients better legal assistance. Such applications will have a cost proportionate to their usefulness, thus will be very expensive. The competitive advantage of the most important law firms would be enormous, so much so that it would undermine the principle of a fair trial going to increase the distortion of competition and inequality of arms between law firms. A corollary of this competitive advantage could be an increasing recourse to the forum shopping practices, caused by the possibility of judge profiling through the use of legal databases[[117]](#footnote-117). Still, it does not seem absurd to imagine that in the near future the decision of a lawyer to assist a client will be left to the calculation of the probability of success made by an algorithm. This would seriously jeopardize a citizen’s ability to see his or her right to legal assistance satisfied.

Another aspect to be taken into account is the impact that such technologies may have on the principle of impartiality of the judge[[118]](#footnote-118). As previously clarified, the interpretative process followed by the judge often does not evolve in a linear manner, has a certain degree of discretion and is often not incontrovertible, as is the case for the exacts silences’ empirical law[[119]](#footnote-119). AI instruments process a large amount of information in order to identify the most frequent correlations, without however understanding the reasoning really common to them. At present, therefore, it is not possible to delegate responsibility for the choice to the machine alone, as an active role of the judge is necessary, which requires that the principle of impartiality be guaranteed.

The risk to the impartiality of the judge arising from the application of predictive software is twofold. First, as said, a risk in the input, i.e. the “performative” effect capable of influencing the judge, who is the one who enters the information into the decision-making mechanism. Second, a risk in the output, resulting from pressure on the judge if he chooses to overturn or deviate from the solution proposed by the algorithm. It does not seem unrealistic to believe that, especially in systems where judges have an elective seat, a judge is more reluctant to take responsibility for a decision contrary to the machine.

To be fair, a judicial process must take place, not only before an impartial, but also before a competent and independent judge, and in the course of a public hearing[[120]](#footnote-120). In practice, what is required is that the judicial process be conducted in accordance with the principle of transparency and competence. The fact that, to date, most of the algorithms that can be traced back to predictive justice are developed by private firms, which take great care not to disclose information on the functioning of the algorithms covered by patents[[121]](#footnote-121), certainly generates a feeling of lack of transparency. Furthermore, considering that the data that are included in such predictive software are provided by the public authority, further doubts arise as to respect for the right to privacy and the very functioning of a democratic order[[122]](#footnote-122). The private companies, in fact, would thus acquire a very delicate position within the management of the *res publica*, as part of the balancing operation between public order and respect for fundamental rights.

## 3.2 Ongoing reflection on predictive justice in Italy

In Italy the justice system has been the subject of intense debate for years and there have been many attempts at reform aimed at speeding up the duration of trials and reducing the use of the statute of limitations[[123]](#footnote-123). The last planned reforms provides for a series of important interventions in civil and criminal matters, the judicial system and reform of the self-governing body of the judiciary[[124]](#footnote-124) with the aim of making the Italian justice system faster, more efficient and effective, especially by limiting the duration of trials.

There are currently 3,329,436 civil proceedings pending in Italy and 1,494,926 criminal proceedings, which are still very high, although down by 3.3% and 0.1% respectively compared to the previous year[[125]](#footnote-125). However, more than a reduction in the overall number of trials (e.g. through the promotion of ADR), it is the urgency to reduce the length of trials by ensuring timely responses to citizens’ questions , in compliance with the Italian Constitution and Article 6 of the ECHR[[126]](#footnote-126), that seems tremendously clear if we consider that the average duration of the criminal trial is almost 1,600 days from the preliminary investigations to the Supreme Court ruling[[127]](#footnote-127), while for the civil trial the first degree of judgment alone lasts on average 514 days, up to 1,442 days for the third degree of judgment[[128]](#footnote-128). This circumstance has also led our country to be condemned several times by the European Convention on Human Rights (ECHR) for violation of Article 6 of the Convention in relation to the reasonable length of the trial[[129]](#footnote-129).

Faced with this general picture, the different AI applications in the field of justice described above could be a formidable tool to address the Italian situation. AI can help on at least three fronts: the response to the demand for justice; timeliness; consistency. Although it is clear from the data that they should be the first two to receive the due attention from the Italian legislator, Italy instead seems to be moving in the direction of using AI in order to increase the overall consistency of judiciary[[130]](#footnote-130).

As pointed out above, some AI tools are among the most useful to support the work of judges in order to make the whole judicial system more coherent, namely the advanced case-law search engines. In Italy today some useful tools are already active to respond to the demand for greater consistency of the legal system, but not all of them are related to AI or ICT technologies in general. For example, at the legislative level, Article 47-*quater* of the judicial system regulation[[131]](#footnote-131), in the list of the various tasks of the President of the Section, it identifies the task of ensuring the exchange of information on case-law experience within the Section, in order to achieve more consistency in case law orientations. Furthermore, Law No. 83 (2015) introduced the so-called telematic civil process which allows the dematerialization of certain documents from the civil trial.

It is interesting to note that Italy can be considered a pioneer in the use of ICT in the field of justice. Since the late 60’ the “Centro elettronico di documentazione” (Ced) of the Supreme Court of Cassation has the task to improve the implementation, management and availability for consultation of the archives of case law and legislation[[132]](#footnote-132). Since 2004 the CED manages the ItalgiureWeb database[[133]](#footnote-133) which collects legal documentation in civil and criminal matters relating to the activities of the Court of Cassation[[134]](#footnote-134). However, the case law of the lower courts does not appear in ItalgiureWeb’s archives and, moreover, it has not been fed since 2004-2005[[135]](#footnote-135).

Still on the subject of legal databases, a concrete application of the AI was implemented by the Court of Appeal of Brescia. This is the first Italian pilot project in the direction of using predictive justice applications[[136]](#footnote-136). The project aims to create a transparent database useful to all stakeholders (judges, lawyers, companies and users) in making their decisions about the beginning or continuation of a civil case, being able to evaluate in advance the possible fate of a lawsuit. However, data on the results of the project have not yet been officially made public.

In any case, Italy is far from regulating the use of predictive justice instruments by the public administration[[137]](#footnote-137), so much so that in the White Book on AI “*al servizio del cittadino*” published by the Agenzia per l’Italia Digitale, published in March 2018 in order to analyse the impact of AI in our society and in the Public Administration, there is no mention of predictive justice[[138]](#footnote-138). However, it would be wrong to say that Italy is too far behind the Europe trend in this sector. Truly, on the basis of the study carried out by CoE’ CEPEJ[[139]](#footnote-139) Italy has an overall development index of ICT in the justice sector that ranges from 6 to 8 out of a maximum of 9. However it does not measure the actual degree of use of ICT, but only the different types of technologies available and their degree of diffusion throughout the national territory. In any case, although in Italy there are all the tools to improve the quality of justice through the application of AI, the budgetary effort to support the development of information technology in the courts is one of the lowest in the Member States of the CoE[[140]](#footnote-140).

Nonetheless, the State is not the only actor on the scene in the implementation of AI technology in the justice sector, an important role is also played by the legal-tech industry that provides products and services for lawyers and law firms. Major law firms increasingly resort to legaltech solutions featuring AI capabilities to tackle the growing competition in the sector. Globally, legaltech AI market is expected to grow at an annual grow rate of More Than 37.7%[[141]](#footnote-141). Notwithstanding, the legaltech start-up sector in Italy is still very small and does not seem to be moving towards large numbers. Despite the small numbers, the sectors covered by the technological solutions offer are many and the number of law-tech companies is increasing, from 13 in 2018 to 21 in 2019. A low number, however, even compared to European countries, in fact in Europe counts 235 legal tech start-ups, most of which are in UK[[142]](#footnote-142).

The sector in question could find in ODR an important lever for development[[143]](#footnote-143). Like arbitration, mediation, unlike traditional justice, is not the sole responsibility of the State. ADRs are based on the freedom of enterprise of private actors and the contractual freedom of the parties. Despite the difficulties and the long time taken by the Italian justice system, recourse to mediation has historically never been very successful. The Italian legislator, with the Legislative Decree No. 28 (2010) introducing some cases of compulsory civil mediation[[144]](#footnote-144) to be able to file suit in court, tried to speed up the use of such institutions in order to deflate the workload of the courts and tribunals. Since 2012, the number of registrations to compulsory mediations has more than doubled, although the peak was reached in 2015 and the numbers have been falling ever since[[145]](#footnote-145). It would, therefore, be a waste not to deploy the digital tools that also make one of AI technologies to relaunch this challenge.

In addition to the use of advanced case-law search engines and platforms for ODR, it is interesting to reflect on what could be the concrete use of predictive software in the Italian justice sector, evaluating how their implementation is consistent with Italian legislation and the respect of the guarantees given to protect the right to a fair trial[[146]](#footnote-146). In the Italian context there are some proposals that go in the direction of the application of mathematics and the use of technological applications to study and solve legal problems[[147]](#footnote-147). A path is proposed by Luigi Viola, who has identified an equation that summarizes the process of interpretation of the law on the basis of universal criteria of interpretation, defined in Italy by Article 12 of the provision of the law in general[[148]](#footnote-148) (in short, preliminary provisions)[[149]](#footnote-149). The aim is to provide a useful tool to increase juridical certainty and avoid *extra legem* interpretations by reducing the interpretation process to an algorithm, a sequence of predefined rules and operations in order to obtain resolution to a defined problem. Therefore, Viola describes article 12 of the preliminary provision as an algorithm that prescribes that in order to understand the meaning of a law “*we must start from what is written* (literal interpretation), *together with the reason for which it was written*” (teleological interpretation or *voluntas legis*, i.e. the why of the law). Only if the process of interpretation of what is written in the law, based on literal and teleological analysis, does not lead to a certain result, as for example in the case of coexistence of two literal interpretations of opposite sign, it is possible (and necessary) to reconstruct the meaning of the law by analogy.

The Italian legal system, specifically, admits two types of analogy in the process of interpretation of the law. First, *analogia legis*, i.e. the use of provisions already present in the legal system and similar to the one being interpreted, in order to clarify their meaning. Second, *analogia iuris*, which consists in applying the general principles of the legal system to the specific case. Well, attributing a positive or negative sign to each interpretative argument found in the legal system according to the rules described above, as well as a different value to each interpretation (based on whether it's literal, teleological or analogy)it is possible to construct a mathematical equation to follow in the course of the interpretative process.

Luigi Viola highlights the limits of the equation clarifying that it is not applicable in the presence of the so-called value-driven terms. However, he argues that, formally speaking, the algorithm in question can be used not only in civil law but also in criminal law. In particular, since Article 14 of the Preliminary Provisions prohibits the application to criminal law rules of the interpretation by analogy[[150]](#footnote-150), it would be enough to remove this kind of interpretation from the equation.

Actually there are at least two observations that can be made in opposition to this idea. First, Article 533(1) of the Italian Code of Criminal Procedure states that the rule of judgment in criminal proceedings is based on the concept of “*beyond reasonable doubt*”. Therefore, from all that is exposed in this thesis about the functioning of predictive software, it seems impossible to expect from an algorithm the ability to understand and apply such a rule because it is not referable to the probabilistic binary logic but it is full of irreducibly human factors[[151]](#footnote-151).

Second, Article 27(3) of the Constitution requires the following to be taken into account: the re-educational function of the sentence and even if Article 220 (2) of the Code of Criminal Procedure expressly rules out the use of an expert opinion to establish habitual or professional criminal features and the tendency to commit a crime, this judgment also seems to be impossible to make based on mathematical calculations.

# **Conclusion**

The analysis carried out has highlighted that the impact of AI on the whole international system of human rights protection is due to the figure of the two-faced Janus, i.e., according to how these technologies are developed, fed with data and used, their application may consist in an empowering or disenfranchising of human rights. In particular, it has been pointed out that the use of AI tools in the judiciary can help to better understand the procedures and their flaws, speeding up the procedure, facilitate the exchange of documents and information and relieve legal practitioners from unnecessary and time-consuming tasks. Nevertheless, the risks underlying the use of these applications in the field of justice on the right to a fair trial and other human rights should not be overlooked, so it is important to tread lightly this field.

Therefore, in the name of certainty, consistency and expediency of the law, in order to prevent the content of the right to a fair trial from being annihilated, it is essential that future regulations on this are based on the five principles of the Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their environment, elaborated by CEPEJ (Principle of respect for fundamental rights; Principle of non-discrimination; Principle of quality and security; Principle of transparency, impartiality and fairness; Principle “*under user control*”). Moreover, it will be necessary to proceed with a high degree of cooperation and coordination between the various states because of the presence in this scene of private actors who reason according to the laws of profit and who therefore do not care so much about national borders.

As noted, Italy has an excellent basis to integrate ICT and AI technologies in the justice sector, having also implemented some experimentation, although it still seems reluctant to approach the issue from a legislative point of view. But it is precisely from the study of legislative regulation that it will be possible to assess whether compliance with the CEPEJ principles is guaranteed. In this regard, I believe that it will be essential to monitor the development of Italian legal-tech start-ups and their relationship with the government, as the private sector is the real driving force behind the development of AI technologies. It is not absurd to believe that if private investment in this sector increases significantly and, therefore, the real use of AI tools becomes more concrete and widespread throughout the country, the legislator finds itself having to regulate in a hurry a complex reality already formed and delicate mechanisms, which would require the adoption of a very precise strategic approach. The digital wave of recent decades has taught us that if the State turns a blind eye to the development of civil technology applications, the risk is to leave the definition of the strategic line to follow in the hands of software developers. And, as is clear, respect for human rights is not one of the main concerns of these actors. Thus the key point is to beat the clock and use all the tools, political, academic, legal and IT, to imagine and implement a human-right based AI also in the field of justice.

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35. AccessNow, Human rights in the age of Artificial Intelligence, Nov. 2018. [↑](#footnote-ref-35)
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37. Currently, most of the AI developments in education come from the private sector. Companies such as Pearson, McGraw-Hill, IBM, Knewton, Cerego, Smart Parrow, Dreambox, LightSide or Coursera are developing intelligent algorithms that use Big Data to personalise learning. UNESCO, Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development, Paris, 2019. [↑](#footnote-ref-37)
38. UNESCO, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of artificial intelligence, Paris, March 2019. [↑](#footnote-ref-38)
39. MISE, Proposte per una strategia italiana per l‘intelligenza artificiale, July 2019. [↑](#footnote-ref-39)
40. UNESCO, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of artificial intelligence, Paris, March 2019. [↑](#footnote-ref-40)
41. Idem. [↑](#footnote-ref-41)
42. World Economic Forum, Harnessing Artificial Intelligence for the Earth, January 2018. [↑](#footnote-ref-42)
43. MISE, Proposte per una strategia italiana per l‘intelligenza artificiale, July 2019. [↑](#footnote-ref-43)
44. For example, “*Goldman Sachs estimates that the US alone will lose an estimated 300,000 jobs per year when AV saturation peaks.* World Economic Forum, Harnessing Artificial Intelligence for the Earth, January 2018. [↑](#footnote-ref-44)
45. Some example: Article 7(a)(i)(c) ICESCR guarantees equal conditions of work between men and women; equal opportunity for everyone to be promoted in his/her employment and requires equal remuneration for work of equal value; Article 10(3) prohibits any discrimination in the protection and assistance for all children and young persons; Article 13(2)(c) guarantees equal accessibility in higher education. In the same vein, Article 23(4) ICCPR requires states to take adequate steps to ensure equality of rights and responsibilities of spouses as to marriage, during marriage and at its dissolution; and Article 24 ICCPR prohibits any discrimination against children based on race, colour, sex, language, religion, national or social origin, property or birth. Article 14(1)(3), provides that all persons shall be equal before the courts and tribunals, and also in the determination of any criminal charge against him, everyone shall be entitled, in full equality, to the minimum guarantees enumerated in subparagraphs (a) to (g) of paragraph 3. Similarly, article 25 provides for all citizens equal access to public service, equal opportunity to vote and be elected and to take part in the conduct of public affairs, without any of the distinctions mentioned in Article 2. [↑](#footnote-ref-45)
46. Council of Europe, Algorithms and Human Rights, Study on the human rights dimensions of automated data processing techniques and possible regulatory implications, Strasbourg, March 2018. [↑](#footnote-ref-46)
47. Idem. [↑](#footnote-ref-47)
48. L. Stanila, Artificial Intelligence and Human Rights: A Challenging Approach on the Issue of Equality, Journal of Eastern-European Criminal Law, vol. 2018 no. 2,2018, HeinOnline. [↑](#footnote-ref-48)
49. For example, when someone is arrested in U.S., he or she will be usually subjected to a pre-trial risk assessment tool, this will help the judge to decide whether to incarcerate him or her pending trial or to release him or her. Such pre-trail risk assessment tools are used to predict if the accused will fail to appear in court or will be rearrested, but in some US States, they have also been used at the sentencing and parole decision stage in order to predict the likelihood that someone will commit a new offense if released from prison. A striking example of racial bias due to AI’s use in the U.S. criminal justice system is linked to COMPAS, a risk assessment tool used by U.S. courts to making bail and sentencing decisions. According with COMPAS African-American offenders were labelled as "high-risk" at twice the rate of Caucasians. L. Stanila, Artificial Intelligence and Human Rights: A Challenging Approach on the Issue of Equality, Journal of Eastern-European Criminal Law, vol. 2018 no. 2,2018, HeinOnline. [↑](#footnote-ref-49)
50. Idem. [↑](#footnote-ref-50)
51. UNESCO, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of artificial intelligence, Paris, March 2019. [↑](#footnote-ref-51)
52. AccessNow, Human rights in the age of Artificial Intelligence, November 2018. [↑](#footnote-ref-52)
53. S. Braman, R. F. Jorgensen, Human Rights in the Age of Platforms, The MIT Press Cambridge, Massachusetts London, England, 2019. [↑](#footnote-ref-53)
54. L. Stanila, Artificial Intelligence and Human Rights: A Challenging Approach on the Issue of Equality, Journal of Eastern-European Criminal Law, vol. 2018 no. 2,2018, HeinOnline. [↑](#footnote-ref-54)
55. Research Paper, Freedom of Expression and Elections in the Digital Age, UN human rights special procedures, June 2019. [↑](#footnote-ref-55)
56. EU Regulation n. 679 (2016). [↑](#footnote-ref-56)
57. S. Braman, R. F. Jorgensen, Human Rights in the Age of Platforms, The MIT Press Cambridge, Massachusetts London, England, 2019. [↑](#footnote-ref-57)
58. L. Stanila, Artificial Intelligence and Human Rights: A Challenging Approach on the Issue of Equality, Journal of Eastern-European Criminal Law, vol. 2018 no. 2,2018, HeinOnline. [↑](#footnote-ref-58)
59. United Nation, Promotion and protection of the right to freedom of opinion and expression, Oct. 2018. [↑](#footnote-ref-59)
60. Idem. [↑](#footnote-ref-60)
61. Idem. [↑](#footnote-ref-61)
62. World Health Organization, Constitution of the World Health Organization, July 1946. [↑](#footnote-ref-62)
63. Moreover, article 12 ICESCR suggests to achieve the full implementation of this right through: “*the provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child; the improvement of all aspects of environmental and industrial hygiene; the prevention, treatment and control of epidemic, endemic, occupational and other diseases; the creation of conditions which would assure to all medical service and medical attention in the event of sickness*”. [↑](#footnote-ref-63)
64. UNESCO, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of artificial intelligence, Paris, March 2019. [↑](#footnote-ref-64)
65. AccessNow, Human rights in the age of Artificial Intelligence, November 2018. [↑](#footnote-ref-65)
66. UNESCO, Preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the ethics of artificial intelligence, Paris, March 2019. [↑](#footnote-ref-66)
67. Idem. [↑](#footnote-ref-67)
68. Antonyms to the Middle Ages “rex lex loqui”, Let’s invoke Montesquieu’s often misunderstood maxim: *iudex—non rex—lex loqui*. Schönfeld, K. M., Rex, Lex Et Judex: Montesquieu and La Bouche De La Loi, Revisted European Constitutional Law Review 4:274–301, 2008. [↑](#footnote-ref-68)
69. See Article 14 of the International Covenant on Civil and Political Rights, article 7 of the African Charter on Human and Peoples’ Rights, article 8 of the American Convention on Human Rights, and article 6 of the European Convention on Human Rights [↑](#footnote-ref-69)
70. “*No one be held guilty of any criminal offence on account of any act or omission which did not constitute a criminal offence, under national or international law, at the time when it was committed*.” [↑](#footnote-ref-70)
71. The famous image of Judge Bridoye, created by Rabelais’ imagination, who, not without first strictly respecting all the canons of the contradictory procedure, retires to the Council Chamber and decides the case by rolling the dice can make one smile and even arouse sympathy. Rordorf R., Editoriale in Questione Giustizia 4, 2018. [↑](#footnote-ref-71)
72. Weber M., Wirtschaft und Gesellschaft, Mohr, Tubingen. Trad. It. Economia e società, P. Rossi, 4 voll. P. 17, Comunità, Milano, 2000. [↑](#footnote-ref-72)
73. Scoditti E., Giurisdizione per principi e certezza del diritto, Questione Giustizia 4, 2018. [↑](#footnote-ref-73)
74. In Europe the leading case on the certainty of the law is ECtHR *Sunday Times v. United Kindom*, 26 April 1979, §§ 49 ss.. “*In the Court’s opinion, the following are two of the requirements that flow from the expression "prescribed by law". Firstly, the law must be adequately accessible: the citizen must be able to have an indication that is adequate in the circumstances of the legal rules applicable to a given case. Secondly, a norm cannot be regarded as a "law" unless it is formulated with sufficient precision to enable the citizen to regulate his conduct: he must be able - if need be with appropriate advice - to foresee, to a degree that is reasonable in the circumstances, the consequences which a given action may entail. Those consequences need not be foreseeable with absolute certainty: experience shows this to be unattainable. Again, whilst certainty is highly desirable, it may bring in its train excessive rigidity and the law must be able to keep pace with changing circumstances. Accordingly, many laws are inevitably couched in terms which, to a greater or lesser extent, are vague and whose interpretation and application are questions of practice*”. [↑](#footnote-ref-74)
75. Viola L., Interpretation of the Law through mathematical models. Trial, A.D.R., predictive Justice, Volume I, English Version transalted by Jasana Geric, edizioni Centro Studi Diritto Avanzato, September 2018. [↑](#footnote-ref-75)
76. “In the United States, “robot lawyers” are already at work and seem to converse in natural language with humans. Legal tech start-ups aim to predict judges’ decisions with “predictive justice” tools. The inherent risks in these technologies may even transcend the act of judging and affect essential functioning elements of the rule of law and judicial systems”. Medvedeva M., Using machine learning to predict decisions of the European Court of Human Rights, Springer, 2019. [↑](#footnote-ref-76)
77. Castelli C. e Piana D., Giustizia predittiva, la qualità della giustizia in due tempi, Questione Giustizia 4, 2018. [↑](#footnote-ref-77)
78. European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Adopted at the 31st plenary meeting of the CEPEJ, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-78)
79. Search databases for legal data, such as Westlaw and LexisNexis have existed since the early 90s. Today computers are attempting automatic summarization of legal information and information extraction (e.g., *DecisionExpress*), categorization of legal resources (e.g., *BiblioEx- press*), and statistical analysis (e.g., *StatisticExpress*) Medvedeva M., Using machine learning to predict decisions of the European Court of Human Rights, Springer, 2019. In Italy there is ItalgiureWeb, a database of Court of Cassation rulings, managed by “Centro elettronico di documentazione” (Ced). According to art. 1 of Presidential Decree no. 195 of 17 June 2004, the CED “provides a public service of legal information technology, in order to disseminate knowledge of legislation, jurisprudence and legal doctrine”. [↑](#footnote-ref-79)
80. “Collection of all judicial decisions eligible for publication is not necessarily well-coordinated between all levels of courts” European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-80)
81. Even in the civil law systems it is possible to find the application of the principle stare decisis. Scoditti E., Giurisdizione per principi e certezza del diritto, Questione Giustizia 4, 2018. [↑](#footnote-ref-81)
82. Great Britain, the Netherlands and Latvia are examples of countries that have already implemented or are about to implement these types of more or less automated solution. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-82)
83. EU Regulation n. 524, (2013). [↑](#footnote-ref-83)
84. “However, the scope of these online dispute resolution (ODR) services seems to have gradually extended. They have gone from restricted online services to alternative dispute resolution measures before the complaint is brought before the court, and are now being introduced” […] “They do not only concern low-value disputes, but also tax disputes or disputes relating to social security services, or divorce proceedings”. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-84)
85. Article 6 ECHR and in 2015, the Parliamentary Assembly of the Council of Europe adopted a resolution on “*Access to justice and the Internet: potential and challenges*” in which it called to ensure that “*parties engaging in ODR procedures retain the right to access a judicial appeal procedure satisfying the requirements of a fair trial pursuant to Article 6 of the Convention*”. [↑](#footnote-ref-85)
86. See, in the same sense, the Council of Europe Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, as amended by the Protocol adopted in May 2018 when the latter enters into force. Article 9(1)(a) provides the principle that “*Everyone has the right not to be subject to a decision affecting him significantly, which shall be taken solely on the basis of automatic processing of data, without his point of view being taken into account”.* [↑](#footnote-ref-86)
87. It should also be noted that the logic of the operation of predictive justice software is essentially based on either generative (commonly referred to as Bayesian) or discriminative methods which eventually try to estimate the current or future range of values of a variable (e.g. the outcome of a trial) from the analysis of past examples. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-87)
88. This is true about the so-called weak AI, which unlike strong AI is not “capable of automatically comprehending the world in general, in all its complexity”. Idem. [↑](#footnote-ref-88)
89. A platform was launched in France in 2017 to predict juridical outcomes. It calculates the probability that a settlement will be reached, the amount of compensation obtained in similar litigations and identifies the best convincing argument. Morelli C., Giustizia Predittiva: in Francia online la prima piattaforma europea, Altalex.com, 2017. [↑](#footnote-ref-89)
90. I.e. to assess the risk of recidivism by individuals in the United Kingdom the software HART, in turn inspired by a software in use in the United States, COMPASS. [↑](#footnote-ref-90)
91. University college of London web-site https://www.ucl.ac.uk/news/2016/oct/ai-predicts-outcomes-human-rights-trials. [↑](#footnote-ref-91)
92. Viola L., Interpretation of the Law through mathematical models. Trial, A.D.R., predictive Justice, Volume I, English Version transalted by Jasana Geric, edizioni Centro Studi Diritto Avanzato, September 2018. [↑](#footnote-ref-92)
93. Giurisdizione per principi e certezza del diritto di Enrico Scoditti, in Questione Giustizia [↑](#footnote-ref-93)
94. Borruso G., The impact of Information technology on legal professions, paper given at the AIGA Conferance of Bari, on 1st December 2006. [↑](#footnote-ref-94)
95. For Weber, this rationalization of the law responded to the logic of the means, the law being functional to the modern capitalist economy. Economia e società. Weber M., Wirtschaft und Gesellschaft, Mohr, Tubingen. Trad. It. Economia e società, P. Rossi, 4 voll., Comunità, Milano, 2000. [↑](#footnote-ref-95)
96. According to Kelsen's pure doctrine of law, the legal world is a world of legal facts, organized in a pyramidal way and of which the judgments of the judges, placed at the bottom of the hierarchy, represent a mere execution. Scoditti E., Giurisdizione per principi e certezza del diritto, Questione Giustizia 4, 2018. [↑](#footnote-ref-96)
97. SCALISI V., Per un ermeneutica giuridica veritativa orientata a giustizia, Riv. Dir. Civ. 2014, 6, 11249. [↑](#footnote-ref-97)
98. Viola L., Interpretation of the Law through mathematical models. Trial, A.D.R., predictive Justice, Volume I, English Version transalted by Jasana Geric, edizioni Centro Studi Diritto Avanzato, September 2018. [↑](#footnote-ref-98)
99. Scoditti E., Giurisdizione per principi e certezza del diritto, Questione Giustizia 4, 2018. For the difference between principle and rule: R. Dworkin, *I diritti presi sul serio*, Il Mulino, Bologna, 1982, pp. 90 ss. [↑](#footnote-ref-99)
100. Scoditti E., Giurisdizione per principi e certezza del diritto, Questione Giustizia 4, 2018. [↑](#footnote-ref-100)
101. Dworkin R., *I diritti presi sul serio*, Il Mulino, Bologna, 1982, pp. 90 ss. [↑](#footnote-ref-101)
102. However, it must be stressed that research in the field of AI is going in the direction of the development of real artificial neural networks capable of functioning following the so-called fuzzy logic. Such technologies do not work according to pure binary logic, but introduce intermediate truth values between 0 and 1. Fiammella B., Intelligenza artificiale ed etica, tra progresso ed evoluzione, May 2018, [altalex.com](http://altalex.com). [↑](#footnote-ref-102)
103. Herbert L. A. Hart, *Le concept de droit*, Saint-Louis university departments, Brussels, 1967. [↑](#footnote-ref-103)
104. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-104)
105. Calude C.S., Longo G., “Le déluge des corrélations fallacieuses dans le big data”, in Bernard Stiegler (dir.), *La toile que nous voulons*, FYP editions, 2017, p.156. [↑](#footnote-ref-105)
106. The performative or selfrealisation effect is the risk that a system will produce the same output progressively by influencing the producers of input information; this effect is often mentioned with regard to judicial scales which, when informed by decisions based on these scales, tend to be representative only of themselves. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-106)
107. Perry W. L., McInnis B., Carter C. Price, Smith S. C., Hollywood J. S., PREDICTIVE POLICING, The Role of Crime Forecasting in Law Enforcement Operations, RAND Safety and Justice Program, 2013. [↑](#footnote-ref-107)
108. Idem. [↑](#footnote-ref-108)
109. “Vicious circles” and “self-fulfilling prophecies”: neighborhoods considered at risk attract more police attention and police detect more crime, which leads to excessive police surveillance of the communities living in them. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-109)
110. The EU Directive 680/2016, despite encouraging the use of profiling and data processing and combination tools during the investigation, requires that “a decision based solely on automated processing, including profiling, which produces adverse legal effects or significantly affects the data subject [should be] prohibited The only exception is the presence of an authorization by the law of the Member State or the European Union, subject to the granting of adequate safeguards for the data subject, including the ineligible "*right to obtain human intervention by a data controller*”. [↑](#footnote-ref-110)
111. By far the most famous predictive algorithm used in the United States is, however, that of COMPAS - Correctional Offender Management Profiling for Alternative Sanctions, a software developed and marketed by a private company, Equivant. [↑](#footnote-ref-111)
112. Floridi L., La quarta rivoluzione. Come l’infosfera sta trasformando il mondo, Cortina Editore, Milano, 2017. [↑](#footnote-ref-112)
113. Basile F., Artificial intelligence and criminal law: four possibleresearch leads, Diritto Penale e Uomo, 2019. [↑](#footnote-ref-113)
114. Another human right that may be potentially adversely affected by the use of AI technologies is undoubtedly the right to privacy. For a detailed analysis of the implications of AI on the right to privacy in the field of justice. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-114)
115. Article 14.1 ICCPR states “*All persons shall be equal before the courts and tribunals*”. [↑](#footnote-ref-115)
116. Also affecting in this sense the principle of impartiality of the judge. [↑](#footnote-ref-116)
117. This tactic has already been observed for a long time in the United States and in France for press offences and violations of privacy in the press, where plaintiffs have already been known to choose the court which appears to award the highest amounts of damages and interest,. For an in-depth analysis of the need or possibility to include the names of judges in the operation of software based on the use of legal banks. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-117)
118. Article 14.1 ICCPR and Article 6.1 ECHR. The case of the European Court of Human Rights relevant to the issue of the impartiality and objectivity of the ECHR Judge Previti v. Italy, No. 45291/06, §§ 257 et seq. [↑](#footnote-ref-118)
119. This is because the famous legal syllogism is more a way of presenting legal reasoning than its formal translation. The legal reasoning “cannot be formalized a priori”. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-119)
120. Articles 14.1 ICCPR; Articles 6.1 ECHR. [↑](#footnote-ref-120)
121. In Europe, software can be protected by patent or copyright *“Article 52 of the European Patent Convention (Convention on the Grant of European Patents 1973) excludes software from patentability to the extent that a patent application relates to a computer program as such. A distinction shall, however, be made between “software patents” which are excluded according to Article 52 EPC and so-called computer-implemented inventions which are accepted at the European Patent Office. In this respect, “computer-implemented inventions” can be defined as inventions whose implementation involves the use of a computer, a computer network or other programmable apparatus, having one or more features realized by means of a computer program. It seems, therefore, that patentability must not be denied merely because a computer program is involved. You could seek a patent protection, provided that the subject matter of your invention as a whole, i.e. a machine with related software, has a technical character - this technical character must be present in all variants covered by the patent claim”*. European IP help desk, https://iprhelpdesk.eu/Copyright%20or%20Patent%20–%20how%20to%20protect%20my%20software%3F. [↑](#footnote-ref-121)
122. In terms of the lack of accountability of government institution. European Commission for the Efficiency of Justice (CEPEJ), European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment, Strasbourg, 3-4 December 2018. [↑](#footnote-ref-122)
123. We recall the so-called Orlando reform, Law 23.06.2017 (OJ 04.07.2017), which makes changes to the substantive criminal law, the procedural-penalistic one, and to the prison system in order to eliminate downtime in the trial and give a faster response to the citizens demand for justice. [↑](#footnote-ref-123)
124. Consiglio Superiore della Magistratura is a constitutional body pursuant to Articles 104, 105, 106 and 107 Italian Constitution. [↑](#footnote-ref-124)
125. Italian Ministry of Justice website, <https://www.giustizia.it/giustizia/it/homepage.page>. [↑](#footnote-ref-125)
126. In this respect, it can be noted that since the Middle Ages it was clear that if the time for the exercise of judicial power were to expand to excess, a late decision would amount to a denial of justice, Magna Charta Libertatum, §40, 1215. [↑](#footnote-ref-126)
127. Maglione V. and Mazzei B. L., “Il processo penale dura sei anni a Roma. La media italiana è di 1.600 giorni”, 27 December 2019, Ilsole24ore.com, <https://www.ilsole24ore.com/art/la-maratona-penale-perche-processi-italia-durano-1600-giorni-ACIpbZ7>. [↑](#footnote-ref-127)
128. The data refer to 2016 and have been processed by Truenumbers on the basis of the “European judicial systems - Efficiency and quality of justice - CEPEJ Studies No. 26” 2018. Truenumbers website <https://www.truenumbers.it/durata-processo/>. [↑](#footnote-ref-128)
129. European Court of Human Rights, case of MARCELLO VIOLA v. ITALY (Application no. [45106/04](https://hudoc.echr.coe.int/eng#%7B%22appno%22:%5B%2245106/04%22%5D%7D)) Judgment of the Court, Strasbourg, 5 January 2007. [↑](#footnote-ref-129)
130. Castelli C. and Piana D., Giustizia predittiva. La qualità della giustizia in due tempi, Questione Giustizia 4/2018. [↑](#footnote-ref-130)
131. Royal Decree 30 January 1941 No. 12 [↑](#footnote-ref-131)
132. Source: <http://www.cortedicassazione.it/corte-di-cassazione/it/ced.page> [↑](#footnote-ref-132)
133. Similar tools can be found in many states of the European Union and the same Union has implemented “European Case Law Identifier” portage e-justice a new search engine for national and European jurisprudence. [↑](#footnote-ref-133)
134. Italgiure currently includes: about 510,000 civil maximums and 162,000 criminal maximums, as well as 400,000 civil judgments and 531,000 criminal judgments (SNPEN archive); over 750,000 references to doctrine and almost 40,000 judgments for each of the two European Courts (Luxembourg and Strasbourg). [↑](#footnote-ref-134)
135. Castelli C. e Piana D., Giustizia predittiva, la qualità della giustizia in due tempi, Questione Giustizia 4, 2018. [↑](#footnote-ref-135)
136. This project is the result of an agreement signed on 6 April 2018, between the Court of Appeal of Brescia, the Court of Brescia and the University of Brescia. [↑](#footnote-ref-136)
137. As stated by the Undersecretary General at the Ministry for Economic Development, Andrea Cioffi, who coordinates the group of experts set up to draw up guidelines for a national strategy for Artificial Intelligence. Morelli C., Giustizia Predittiva: il progetto (concreto) della Corte d’appello di Brescia, Altalex.com, 2019. [↑](#footnote-ref-137)
138. AGID, Libro Bianco sull’Intelligenza Artificiale al servizio del cittadino, Version 1.0 March 2018. [↑](#footnote-ref-138)
139. European Commission for the Efficiency of Justice (CEPEJ), European judicial systems Efficiency and quality of justice, CEPEJ Studies No. 26, 2018 Edition, 2016 data. [↑](#footnote-ref-139)
140. It is - 4.7% compared to e.g. +7.6 in France or +9.1 in Switzerland. European Commission for the Efficiency of Justice (CEPEJ), European judicial systems Efficiency and quality of justice, CEPEJ Studies No. 26, 2018 Edition (2016 data). [↑](#footnote-ref-140)
141. Some of the players in the global LegalTech Artificial Intelligence market includes Blue J Legal Inc., Casetext Inc., Catalyst Repository Systems, Cision. PR Newswire website “Global LegalTech Artificial Intelligence Market is Expected to Grow at a CAGR of More Than 37.7%” 4 February 2020, <https://www.prnewswire.com/news-releases/global-legaltech-artificial-intelligence-market-is-expected-to-grow-at-a-cagr-of-more-than-37-7-over-the-forecast-period-owing-to-digitalization-trend-in-traditional-law-practices-and-practioners-says-absolute-markets-insights-300998297.html> [↑](#footnote-ref-141)
142. Morelli C., Legaltech, un affare per pochi, Altalex.com, 2019. [↑](#footnote-ref-142)
143. In some Northern European countries the level of development of ODR applications is already very advanced. In the Netherlands there is Rechtwijzer a device developed by the Hague Institute for the Internationalisation of the Law. This tool creates a two-way interaction between user mediator and legal assistant, in a totally digital way and provides services of triage, counseling, mediation in the proper sense, monitoring of the executive phase. [↑](#footnote-ref-143)
144. On the issue of the obligatory use of civil mediation in order to bring a case in court, the European Court of Justice (ECJ) of the European Union has clarified that these mechanisms are compatible with respect for the right to a fair trial, as they do not constitute a limit to access to court. ECJ Section IV, 18 March 2010, Alassini and others c. Telecom Italia Spa (C-317/08, C-319/08, C-320/08) and Califano c. Wind Spa (C- 318/08), Ecli:Eu:C:2010:146. [↑](#footnote-ref-144)
145. Source: website of Italian Ministry of Justice https://www.giustizia.it/giustizia/it/mg\_1\_14\_1.page?contentId=SST162184&previsiousPage=mg\_1\_14. [↑](#footnote-ref-145)
146. Prescribed not only by the international treaties on human rights ratified by Italy, but also by the Italian Constitution, Article 111 Constitution. [↑](#footnote-ref-146)
147. The mathematical approach to legal problems is not a recent idea. As early as 1949, Lee Loevinger, a US magistrate, coined the term jurimetrics to refer to this approach. Loevinger L., Jurimetrics. The next step forward, in Minnesota, L. Rev., 1949. [↑](#footnote-ref-147)
148. Royal Decree 16 March 1942, No.262. [↑](#footnote-ref-148)
149. According to Viola, the universality of the interpretation criteria is confirmed “by the wording of [Article 31 of] The Vienna Convention of the Law of Treaties […] which reads “*A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose*”. Viola L., Interpretation of the Law through mathematical models, Trial, A.D.R., predictive Justice, Volume I, pp.55 e ss, English Version transalted by Jasana Geric, edizioni Centro Studi Diritto Avanzato, September 2018. [↑](#footnote-ref-149)
150. According to the majority view, the prohibition of analogy in criminal law is relative, limited to analogy only *in malam partem.* [↑](#footnote-ref-150)
151. For a contrary opinion Costanzi C. “The mathematics of the trial: beyond the columns of Hercules of criminal justice” in Question giustizia 4, 2018. In Milan in 2015, the Court has verified by adopting a Bayesian method in the assessment of exclusion of evidence from the criminal trial, you get an error of less than 99.9%. [↑](#footnote-ref-151)