LAW AND ARTIFICIAL INTELLIGENCE: POSSIBILITIES AND REGULATIONS ON THE ROAD TO THE CONSUMMATION OF THE DIGITAL VERDICT

a Luis Alex Valenzuela-Fernández, b Yolvi Javier Ocaña-Fernández, c Miguel Angel Faustino Sánchez, d Yaneth Carol Larico Apaza, e Elena Zubieta-Romero, f Yrene Cecilia Uribe-Hernández

ABSTRACT

Aim: The continuous growing influence of technologies based on artificial intelligence will continue to have an increasingly strong impact on various fields of society, which is evident in the generation of a great expectation in continuous evolution that revolutionises many activities, including those of the legal sector.

Methodology: That is why this paper aims to shed light on those aspects of artificial intelligence in the legal field that are not very clear and on some of the most relevant implications that, despite not being well known, will have a considerable impact on society at various levels, such as the role of bots in law firms, algorithms to assist in the treatment of cases and dilemmas such as whether non-professional users can trust the decision(s) that such tools would recommend, among others.

Results: It also examines the ethical criteria linked to the application and its development.

Conclusion: It concludes with a critical exposition from an academic perspective, without neglecting the aspect of public access to artificial intelligence and how to bring together a process of globalisation of the regulatory framework of these technologies.

Originality/Value: this study highlites technologies based on artificial intelligence.

Keywords: artificial intelligence, judicial processes, big data, machine learning.

Received: 05/06/2023
Accepted: 01/09/2023
DOI: https://doi.org/10.55908/sdgs.v11i6.1202

a Doctor, Universidad Privada San Juan Bautista, Perú, E-mail: luisa.valenzuela@upsjb.edu.pe, Orcid: https://orcid.org/0000-0002-8743-4092
b Doctor, Universidad Privada San Juan Bautista, Perú, E-mail: yolvi.ocana@upsjb.edu.pe, Orcid: https://orcid.org/0000-0002-2566-6875
c Maestro, Universidad Nacional Mayor de San Marcos, Perú, E-mail: miguel.faustino@unmsm.edu.pe, Orcid: https://orcid.org/0000-0002-5445-4281
d Doctora, Universidad Nacional Mayor de San Marcos, Perú, E-mail: ylaricoa@unmsm.edu.pe, Orcid: https://orcid.org/0000-0001-6889-2234
e Licenciada, Universidad César Vallejo, Perú, E-mail: elena.zubieta@outlook.com, Orcid: https://orcid.org/0009-0009-7796-1022
f Doctora, Universidad Tecnologica del Perú, Perú, E-mail: c17126@utp.edu.pe, Orcid: https://orcid.org/0000-0001-5893-9262
RESUMO

Objetivo: A contínua influência crescente de tecnologias baseadas em inteligência artificial continuará a ter um impacto cada vez mais forte em vários campos da sociedade, o que é evidente na geração de uma grande expectativa em evolução contínua que revolucionou muitas atividades, incluindo as do setor jurídico.

Metodologia: É por isso que este artigo visa lançar luz sobre os aspectos da inteligência artificial no campo legal que não são muito claros e sobre algumas das implicações mais relevantes que, apesar de não ser bem conhecido, terá um impacto considerável na sociedade em vários níveis, como o papel de bots em escritórios de advocacia, algoritmos para ajudar no tratamento de casos e dilemas, como se os usuários não profissionais podem confiar na(s) decisão(ões) que tais ferramentas recomendariam, entre outros.

Resultados: Examina também os critérios éticos ligados à aplicação e seu desenvolvimento.

Conclusão: Conclui com uma exposição crítica de uma perspectiva acadêmica, sem negligenciar o aspecto do acesso público à inteligência artificial e como reunir um processo de globalização do marco regulatório dessas tecnologias.

Originalidade/valor: este estudo destaca tecnologias baseadas em inteligência artificial.

Palavras-chave: inteligência artificial, processos judiciais, big data, aprendizagem de máquina.

1 INTRODUCTION

The impact generated by technologies in the legal field is not new, as the increasing use of the internet, the use of e-mails and the storage of online legal databases have already been going on for quite some time (Chandra et al., 2020). According to Wischmeyer & Rademacher (2020) the omnipresence of so-called digitalisation in many spheres of human life is common; where artificial intelligence (AI), as part of intelligent information technology systems, has transcended in its role and impact on society. De Sanctis (2021) argues that the implementation of a technological ecosystem will be of strategic importance to extend economic and social development, which is why Brazil has proposed the development of a National Artificial Intelligence Policy.

What is behind the momentum in the advancement of AI? In this regard, Chandra et al. (2021) stated that, in order to increase the so-called effectiveness, various organisations worldwide, depending on their interests, have been increasing their support for the use of AI as a substitute for people as a workforce, i.e. the irreversible transition towards robotisation is being encouraged and, due to the current increase in
computerisation, a considerable legal gap is being created between commercial laws and the continued advance of the use of AI-based technologies in the labour field.

2 THEORETICAL FRAMEWORK

How did the adoption of machine learning technologies in the field of rule of law come about? Huq (2021), in his analysis, mentioned that this effect was a function of the socio-political context that induced such adoption and with it the dynamism of the technology in the face of disparities in power and resources; but that at the same time it is quite possible that such adoption would tend to exacerbate the social power and status differentials that would put the rule of law on the ropes. The rapid development of AI has the potential to provide an unprecedented opportunity to catalyse judicial modernisation by seizing the present historic opportunity with a strong awareness of strategy and opportunity through the appropriate use of AI to drive the desired judicial modernisation (Cui, 2020). Such an effect of AI can be found in "bots" or robots that function as communication platforms, automated vehicle assistance, medical diagnosis and therapy, web search engines, expert traffic control systems and not so recently in automated judicial or administrative decision-making and many more. AI has been geared towards changing the legitimate vocation in different ways since, among its many applications, it allows law firms to better manage their activities, which not so long ago were carried out by people, enabling better time and work management, aspects that are valuable in the business sector (Chandra et al., 2020; Dhyani et al., 2019; Armour & Sako, 2020).

Since their inception, say Atkinson et al. (2020), explanation has been the main feature of AI systems applied to legal reasoning. Nowadays, the issue of explanation of decisions has gained new relevance due to the increasing deployment of AI tools and the urgency for non-professional users to be able to rely on the decision(s) that such decision support tools would recommend. Therefore, the aforementioned researchers believe that the achievements of AI in the field of law, in which explanation has been a continuous concern over time, would be able to provide relevant indicators for the future development of an AI capable of providing a clear explanation.

For their part, Re & Solow (2019) are of the opinion that AI holds promise for actions with respect to aiding, modifying and also being able to replace humans in decision-making in court cases. On the other hand, what is the latest development or event that has catalysed the increased development of AI in the field of law? The answer is
provided by Chandra et al. (2020) that it has been the coronavirus pandemic that has accelerated the transition of law into the virtual workplace in order to maintain the familiar social distancing. AI is currently being developed through machine learning techniques (Huq, 2021; Yu 2020). This term refers to computer algorithms that can 'learn' based on records of previous or past behaviour. There are also more advanced applications in AI that are known as deep learning, which employ neural networks that are able to learn on their own and are sensitive to evolving without human programmer intervention. The enormous development of computing power, as well as the processing of increasingly voluminous amounts of big data and artificial intelligence algorithms, has catalysed computers to be able to perform tasks very close to human capabilities, in some cases surpassing them (Wischmeyer & Rademacher, 2020; Akata et al., 2020).

In recent years, research has been published on predicting the outcomes of some cases using algorithms to analyse large data sets; but most of this work in AI and law has been oriented more towards modelling the reasoning in order to explain the outcomes (and provide support for possible alternative outcomes) than on predicting the outcome itself. Therefore, AI applied to the field of law offers an interesting area to explore methods for explaining AI programs (Atkinson et al., 2020; Sidorenko & von Arx, 2020).

3 METHODOLOGY

3.1 THE ROAD TO THE DIGITAL JUDGE

AI is a powerful tool currently available for an interconnected world in need of quick and cost-effective solutions that, when applied to justice, can generate several benefits due to the high number of repeated civil cases (De Sanctis, 2021). According to Cui (2020), in order to promote a profound application of AI in the judicial field, the initiative of its adoption must prevail, as well as permanently guarding the limits of AI while strictly observing the law of justice and understanding the processes developed by AI in order to effectively promote the desired human-machine collaboration and make AI reach better standards of usefulness in judicial praxis.

As reported by Atkinson et al. (2020) one of the first programs of considerable importance in the field of AI and law was "Taxman" which was based on the reconstruction of the arguments of majority and minority opinions regarding a famous tax case of Eisner and Macomber from the last century in the United States on the tax liability of a stock dividend reimbursed as additional shares, where the majority (5-4) ruled in...
favour of Macomber. In this respect, the aim of the Taxman programme was to be able to generate arguments in favour of both litigants and not so much to evaluate and decide between the two opinions. AI promises to assist, transform and replace human court decision-making, as AI already supports various aspects of how judges usually decide or resolve cases, and thus the prospect of generating "robot judges" is taking an increasingly solid and even imminent path (Re & Solow, 2019).

For his part, Bryson (2020) mentioned that the process of automation, typical of AI, could facilitate the reduction of individuals who could be placed on the witness stand to describe their memories of events or motivations, in addition to record keeping; aspects that are very tedious in non-digital processes. But according to the author, it should be noted that not all AI-based systems in the legal field are programmed to handle such records, nor can they be maintained indefinitely, but that it is feasible that such media can be programmed to handle documentation. According to Chandra et al. (2020) there are two important aspects on which law is based: precedence and predictability. This is where AI has the enormous capacity to assist in the alignment of these processes and at the same time provide high quality analytical data, with the advantage of assisting the legal sector in other tasks, especially in reducing the amount of time spent on the monotonous mechanism of reviewing and managing legal documentation.

According to Chandra et al. (2020) there are two important aspects on which law is based: precedence and predictability. This is where AI has the enormous capacity to assist in the alignment of these processes and at the same time provide high quality analytical data, with the advantage of assisting the legal sector in other tasks, especially in reducing the amount of time usually spent on the monotonous mechanism of reviewing and managing legal documentation.

Meanwhile, Re & Solow (2019) are of the opinion that AI holds promise with respect to actions regarding assistance, modification and also being able to replace humans in decision making in court cases. The aforementioned researchers base their position on the fact that AI, among its achievements, contemplates various aspects of how cases are decided, i.e. a judge's ruling, which leads to the assumption of the existence of an automated judge, which, thanks to the training of its algorithms in equivalent cases, could perform such a function], an action that could be more than imminent. But not everything is so plausible or attractive, as the aforementioned authors highlight the possibility that an AI could greatly affect adjudicatory values and that such situations
could have a notable impact on criminal justice cases or appellate decisions, which consider discretionary moral judgement, also known as equal justice, to be paramount. Through machine learning, it is possible to use a computer to perform a quantitative analysis of the basis of the terms and phrases used in a given court case and then, based on this analysis, "teach" the computer to predict the decision that the court would make. In this regard, the following question arises: is it possible to predict the outcome of a legal judgment using AI-based processes? In this respect, Medvedeva et al. (2020) estimate the feasibility of such a process since, if it is possible to predict the outcomes adequately, it is also possible to identify and analyse which terms had the greatest impact on the decision; and based on this, it would be possible to identify which factors are the most relevant for the execution of court decisions. In this type of work, the computer is fed with (textual) information from various court cases and thus the actual judgments generated. In a first stage or training phase of the programme, it is provided with many case examples; thus, the programme is sensitive to be able to identify those patterns that are associated with each type of verdict (e.g. extortion versus non-extortion). In order to evaluate the performance level of the machine learning program, it is given a non-trial case (in the test phase) for which it must generate the most probable judgement. To execute this judgement (known as "classification"), the program uses the information it identified and categorised as important during the training phase.

The systematisation of data and the automation of processes have provided a multiplicity of ways to process case law, because legal information of any kind (most of which is relatively unstructured) is mostly written in so-called natural language, although its character is very specific. Consequently, in order to be able to process legal big data automatically, it is required to employ proprietary techniques derived from the field of natural language processing (Atkinson et al., 2020; Završnik, 2020). New legal simulated AI programming software such as Ross Intelligence and Catalyst, together with machine learning and natural language processing, provide viable fight targets, greater legal clarity and improved access to justice and new challenges for ordinary law firms offering legal assistance using a leveraged cohort correlation model.

The study conducted by Medvedeva et al. (2020) aimed to generate a machine learning-based system with the ability to automatically predict the category (verdict) associated with a new element (case). This work was aimed at compiling the potential of the use of language analysis and the automatic extraction of information in order to
empower statistical analysis in the legal field using the possibilities offered by natural language processing techniques to automatically predict judgments or judicial decisions generated by the European Court of Human Rights. This work was anchored in big data through large-scale statistical analysis of case law and machine learning, delimited by the domain of case law. Based on the data derived from the aforementioned court, it was possible to investigate the possibility of using natural language processing tools in the analysis of texts related to judicial processes. This analysis yielded a 75% predictive value for the transgression of nine legal provisions of the European Convention on Human Rights, highlighting the potential of developing processes based on machine learning in the legal field. On the other hand, the researchers found a significant fact that negatively affected the performance of the tool when it was subjected to the prediction of future cases, based on similar cases from the past, generating an accuracy in the range of 58% to 68%. Likewise, they achieved an accuracy of 65% when subjected to the prediction of sentences, based only on the surname of the judges referred to the cases.

A particular case in the region is reported by De Sanctis (2021), who mentions that at the initiative of the Brazilian Supreme Federal Court and in partnership with the Federal University of Brasilia, the largest, most complex and relevant academic project of the judiciary is being developed in relation to the application of the AI tool in the field of Brazilian law, called VICTOR, as a tribute to Victor Nunes Leal, former Supreme Magistrate; its purpose is to learn and deepen the discussion about the applications of AI in the justice system. This tool is currently developing its neural networks in order to learn from the data of thousands of judgments issued by the Supreme Court on various issues of wide repercussion, with the aim of achieving high standards of accuracy in order to assist servers in their analysis. The tool's functions include identifying the most constant and high-profile issues, assisting in the resolution of approximately ten thousand Supreme Court appeals per year, and breaking down and classifying the procedural parts, a task that used to take the servers thirty minutes before the tool, and that with VICTOR is resolved in just five seconds, which is a huge time-saver. Another remarkable aspect is that the tool is not designed to decide or judge, it is not intended to replace the servers, since the objective is to achieve a tool trained to act in layers or levels of organisation of the processes, making it easier for those responsible to be able to analyse the resources and identify those issues that are related in a clearer and more consistent way.
4 RESULTS AND DISCUSSION

4.1 AI-RELATED REQUIREMENTS FOR PUBLIC AND PRIVATE DECISION MAKING

The promising perspective expressed by Cui (2020) on the realisation of dreams needs the sum of tireless efforts generation after generation; such as the dream of many scientists and jurists to make justice a real science and to materialise the modernisation of the judicial field by combining justice, science and technology through the use of modern scientific and technological resources. AI has the capacity to bring benefits to legal practice as it can provide agility and accuracy; this is because judicial decisions will be the product of algorithms, the product of the development of systems based on machine learning (De Sanctis, 2021).

Due to the rapid development of AI, there have been worrying questions about how machines would make moral decisions and also the enormous challenge of quantifying societal expectations about the ethical principles that should govern or regulate machine behaviour (Awad et al., 2018). According to Robles (2020), there is a general consensus on the growing urgency of implementing ethical principles in AI, which is diametrically opposed to generating unified criteria on the importance of legal norms, due to various situations that differ from each other, as it is often argued that only ethical principles should be the most relevant and necessary; However, on different occasions, one senses the intention to make ethical aspects more forceful in order to attenuate or set aside legal requirements, or on other occasions the tendency is to organise ethical aspects as a kind of alternative way out of the pitfalls that arise when dealing with legal aspects. This is why Wagner (2018) stated that the recourse to ethics is the most practical or simple way to build and guide the initiatives that exist on self-regulation; but although there may be some congruence or coincidence between certain principles between ethics and the legal, this cannot be translated or assumed as similar elements with respect to their nature, scope and application that they may have.

On the other hand, in order to provide a glimpse of a solution to the ethical dilemma of AI implementation, Awad et al. (2018) conducted experimental work called "Moral Machine", which was an online platform designed to explore how autonomous technologies (in this case autonomous vehicles) should resolve moral dilemmas in various scenarios regarding collision trajectories with individuals (described from various contexts) or animals that were in danger, and also where others were spared. The platform
obtained data consisting of forty million decisions from individuals from 233 different nations and in ten languages. The data collected allowed a comparison of the attitudes of individuals according to their background, culture, religion and gender, and the results revealed marked variations in ethical attitudes, which were contingent on cultural traits and thus adherence to certain moral principles. Based on the results, the researchers highlight the fact that the compilation of preferences obtained could contribute to the development of a set of socially acceptable principles at a global level, which would help to improve the ethics of machines.

Digital technology allows so-called intelligent systems to be more accessible or inaccessible to understand using AI by design. On the other hand, the dimension of demanding transparency and accountability in legal outcomes is also assumed as a design decision, although at this point it is the legislators, courts and regulators who design and establish the regulatory framework; it is then feasible to assume the possibility that technology is designed to comply with laws, including those that ensure aspects such as traceability and accountability of human actions engaged in the design, operation and maintenance of the generated intelligent systems. Furthermore, due to the limiting nature of "machine nature", which happens to be more malleable than human nature, it may be possible to minimise the amount of change in laws and instead maximise the required compliance scopes and facilitation of existing laws (Bryson, 2020).

On the other hand, it must be borne in mind that each area of the legal system faces different challenges, which require not only general rules but also area-specific responses (Wischmeyer & Rademacher, 2020). Huq (2021) raises two general questions regarding the rule of law arising from the implementation and development of machine learning in the legal field: the compatibility or conflict of such technologies with the rule of law. Depending on which conception of the rule of law is implemented, the replacement of human judgement in decision-making by machines may become the core generator of tense objections based on the criteria of transparency, predictability, bias and procedural fairness.

The ethical issues and legal effects related to AI, mentioned by King et al. (2020), have generated multiple academic papers, where most of them refer to specific aspects such as its implications in the medical field or those referring to the use of autonomous lethal weapon systems, as two totally contrasting examples. In this regard, the researchers reported that such trends lead to two consequences: firstly, specific questions about the
analysis of huge volumes of data and the environmental cost that this generates due to the release of considerable amounts of carbon dioxide by the continuous work of computers or the use of such technology towards possible terrorist targets; and secondly, which is highly worrying, it focuses on the limited research on the various dimensions of ethical or legal problems in which AI would be involved, since there is no holistic approach that manages to cover such challenges.

4.2 ON THE ASSOCIATED RISKS

According to King et al. (2020), due to its potential, in the future AI could play an increasingly essential role in possible acts bordering on criminality; as it is possible, as an unintended consequence, to redirect the generation of AI tools to commit criminal acts, i.e. criminal AI could be gestated, an idea that is not at all alien to the facts, as automated fraud experiments have been carried out through the bombardment of mass messages applied to users of social networks by stealing their personal information or phishing and thereby committing fraud. Such actions can also affect trading through market manipulation processes driven by similar technologies that were able to learn and execute pseudo-profitable market campaigns through a series of fraudulent orders. However, the authors are uncertain about the extent to which a criminal artificial intelligence could cause this.

According to Bryson (2020), expectations about the overestimated capabilities of AI are assumed to be either excessively beneficial or negative for humanity, but there are also many other so-called predatory applications based on AI technology that are partially ignored or at best barely noticeable in terms of potential harm. On the other hand, he argues, what are recognised as underestimates of possible AI risks are just as problematic from an ethical perspective, as are disproportionate exaggerations of possible threats that do not exist.

One type of underestimated risk in the application of AI relates to so-called predictive justice, justice that aims to institute sanctions based on the risk of recidivism with respect to the law. According to the guidelines used, such applications could turn out to be unjust and thus also tend to deny the relevance of contrition and redemption. This leads to fundamental questions about the nature of the legal sanction, which in principle should be based on the objective infringement of the law and not on a possible potential infringement, in order to avoid that an AI-based application dictates guilt based
on the likelihood of a crime that has not been committed but is likely to be committed (Bryson, 2020).

Some time ago, there were predictions that automation processes would lead society towards mass unemployment in industries that require manual labour; but the evolution of the field of robotics and AI leads us to a challenge equivalent to the previous one, only now what is at risk is no longer manual labour but intelligent jobs, among which are not exempt those related to the justice administration system, such as judges and lawyers (Flood, 2019). Meanwhile, Chandra et al. (2020) mentions AI-based bots that are used in some law firms, which are very useful as they are performing tasks that are typical of lawyers and also require human intellect; therefore, the researcher raises the question of whether lawyer bots could replace human lawyers in the not too distant future? This question takes on greater relevance due to the Covid-19 pandemic, where the use of such resources has been developing to the present day.

Being able to recognise and moderate the trend in AI-based systems is elementary to building trust from people towards machine learning. As AI systems elucidate and understand human irregularities in social dynamics, they would also be able to discover the ways in which individuals are incomplete, fallible and psychologically one-sided; facts that would lead us to assume increasingly unbiased or populist views (Chandra et al., 2020). The current popularity and efficiency of machine learning has generated its growing momentum, but it is not without its critics from an ethical point of view. Since ethics is not only a matter of social acceptance, but also requires prescriptions that are based on observations of how individuals should act, AI-related ethics requires dealing with ethical approaches (Bibal, et al., 2021; Awad et al., 2018).

Due to their popularity, Zuiderveen (2020) stated that decision-making algorithms, bots and other AI variants are being used in a variety of sectors as they can be used to predict a possible crime, or who might be a good worker, or who might not be able to pay back a loan, among others. On the other hand, decision-making algorithms could jeopardise human rights, such as the right not to be discriminated against. But, the author also explained that despite the rationality, neutrality and impartiality of decision-making algorithms, they could be sensitive to risks that could lead to unjust and unlawful discrimination, i.e. algorithmic systems can reproduce discrimination that is learned based on discriminatory human decisions, as various non-discrimination statutes usually
apply in cases of discrimination based on protective grounds such as ethnicity, but do not apply to new social effects such as gender.

5 CONCLUSION

The contemporary society dances to the beat of new technologies, whose innovations have been setting the rhythm of its steps, one might even say to a molto allegretto rhythm that with its suggestive melodies lures us into its dazzling rapture. Perhaps one of the dilemmas that, as time progresses and new advances continue to be made, will be the effects that AI generates according to ethical, social or economic perspectives; and depending on such impacts, it could be sensible to be able to continue developing or limit it; since an important issue is to be able to define that all AI-based technology requires a legal framework and regulatory limits in order to safeguard individual and public interests and protect them against possible negative effects.

There is no doubt that AI is affecting the legal profession, so there is an urgent need for a thorough assessment of the extent of such impacts on legal employment, to examine and determine what tasks AI cannot perform in the legal sector, and to discuss the legal dilemmas of AI implementation. Some experts in the field have predicted the displacement of the workforce, once thought to be the general workforce, but now most likely to be affected is the skilled workforce. To what extent this will play out and how much impact it will have not only on the professional field, but also on the university faculties that train such professionals; only time and technology will tell.

Due to the increasing advances in AI development, there have been extensive debates among academics, companies and various countries about what will be the way forward, or what will happen if any AI 'gets out of control and takes autonomy'; This is an extremely valid fact, but in light of the disparity between the progress of machine learning technologies and even more so deep learning versus what some representatives or social actors believe it should be or the assumptions that emerge according to how the information reaches their offices, it cannot be satisfactorily resolved in the coming years. This assertion is based on what is happening in the mass or private communications sphere in relation to what is taking place, often beyond their control, in the world. It should not be forgotten that many AIs are publicly accessible and the human factor will have to be taken into account: because one thing is what the developers of such
technologies think and quite another is the perspective of the users, who, like the ethical aspects, adjust according to their context or could overwhelm them.

We suppose that the problem or challenges to generate an ethical-legal framework that addresses the main flanks on which AIs are developed, should focus not on the scope or repercussions, which in themselves can already dispose society (as was the case in Italy where they tried to veto AI, but after a few weeks this process was annulled), but should focus on the algorithms, since they are the basis of their process. Likewise, the regulation of data collection and transmissibility should be subject to oversight, as the main violations are based on the handling of data. While it is true that technology is progress, and not something good or bad, its impact depends on who manipulates it and their interests. This will be a titanic task, which, if addressed, would be a crucial step towards the globalisation of digital ethics and a worldwide legal framework for AI.
REFERENCES


