Research article
UDC 34:004:17:004.8
EDN: https://elibrary.ru/fsfsnq
DOI: https://doi.org/10.21202/jdtl.2024.23

Ethical and Legal Regulation of Using Artificial Intelligence in Morocco

Hamza Jabir ✉
Ibn Zohr University, Agadir, Morocco

Kamal Lagtati
Ibn Zohr University, Agadir, Morocco

Denis Pohe-Tokpa
University of Bordeaux, Pessac, France

Keywords

"hard law",
Moroccan legislation,
artificial intelligence,
moral values,
"soft law",
principle of technological reality,
legal regulation,
legal risks,
digital technologies,
ethical principle

Abstract

Objective: to explore and identify the issues and opportunities for the ethical and legal regulation of artificial intelligence by the example of digital transformation in Morocco.

Methods: the study was conducted using analytical and comparative approaches to address the emerging legal issues arising from the development of artificial intelligence. The traditional scientific method in law is based on legal analysis, which was applied to the study of legal texts, scientific literature, diagnosis of the condition of the study field at the national and international level. Along with this, the comparative approach in law was used, which made it possible to examine the Moroccan legislation comparison with that of other countries.

Results: the article presents a review of scientific literature on the legal and ethical issues of using artificial intelligence. Legal texts and decrees developed at national and international level, directly or indirectly linked to the use of artificial intelligence, were reviewed. Moroccan legislation was compared with that of other countries. The findings suggest that, in the absence of a specific legal framework for artificial intelligence systems, the adoption of ethical standards in the form of guidelines, best

✉ Corresponding author

practices and ethical charters is preferable. These mechanisms appear to be a viable alternative to legal regulation. In this sense, several initiatives were taken to promote "soft law", which aims to encourage appropriate behavior of technological agents.

Scientific novelty: the analysis of digital transformations in Morocco made it possible to present a comprehensive view on the role of ethical aspects and on the sufficiency of law to respond to the changes in the modern society, transformed by the development of artificial intelligence.

Practical significance: the study allows identifying ways to find a more flexible balance between "soft" and "hard" law in the regulation of relations, taking into account the technological reality. This should encourage the appropriate behavior of technological agents and positively affect the specificity of the current situation. Today, the "hard law" slowly recognizes and addresses the problems associated with the digital technologies' regulation and slowly takes into account the possible risks posed by artificial intelligence and the insufficiency of its regulation.

For citation

Jabir, H., Lagtati, K., & Pohe-Tokpa, D. (2024). Ethical and Legal Regulation of Using Artificial Intelligence in Morocco. *Journal of Digital Technologies and Law, 2*(2), 450–472. https://doi.org/10.21202/jdtl.2024.23

Contents

Introduction

In recent years, artificial intelligence has been at the heart of all concerns because of its intensive and varied use by a growing number of companies. It is a «computer system that works by trying to duplicate or imitate the principles of thinking, intelligence or, more simply, certain movements or gestures of the human being» (Bertrand & André, 2010). With the multiplication of the means of connection, the new capacities of collection and algorithmic

treatment of the data, the emergence of technologies related to Big Data, connected objects, algorithms, blockchain, and artificial intelligence is currently being observed. This multi-faceted digital phenomenon is bringing together different universes by adding the speed, intelligence and simultaneity of digital to the objects associated with these New Information and Communication Technologies (NICTs) (Soulez, 2018).

Indeed, artificial intelligence is developing at an extremely fast pace and companies find themselves more and more in a position where they must on the one hand acquire these technologies to remain competitive, but on the other hand, learn to master them, to avoid the various biases that can be harmful. Artificial intelligence holds great promises, but also strong fears of dangers and risks that need to be corrected, or even limited, in order to guarantee a deployment that complies with the legal framework, moral values and ethical principles and the common good.

According to United Nations Educational, Scientific and Cultural Organization (UNESCO), the risks linked to artificial intelligence are three fold[1]: the scarcity of work, which would be carried out by machines instead of human beings; the consequences for the autonomy of the individual, in particular for his or her freedom and security; the overtaking of humanity, which could disappear, in a dystopian scenario-catastrophic-to the benefit of more intelligent machines (Franchomme & Jazottes, 2021). Moreover, the use of artificial intelligence techniques has already created new challenges). It implies a transformation of society, which creates the need to rethink the ethical aspects, and to ensure that the law is sufficient to react to this change.

The multiple initiatives of regulation of artificial intelligence converge on the importance of ethics in this field, even with its weak impact on the functional perimeter of an artificial intelligence (Merabet, 2018). Ethical issues have only recently been taken into account because the law is slow to grasp the problems linked to digital technology and to legislate on them. It is first necessary to recognize the application of human rights to the digital world, before considering any real regulation. This can be facilitated by the fact that «soft law» ethical issues are considered globally and borders cannot be a real obstacle as is the case when it comes to setting up a «hard law» normative framework (Cath, 2018).

It is therefore becoming essential to integrate in the future ethical critiques around digital projects related to artificial intelligence (Cath, 2018). Several standards, charters and guidelines concerning algorithmic systems, transparency, privacy, confidentiality, impartiality and more generally the elaboration of ethical systems have been elaborated by professional associations, private companies and some international organizations (Bensamoun & Loiseau, 2017a).

Morocco is one of the first countries to align itself with UNESCO's recommendations on the ethics of artificial intelligence (Rochd et al., 2021). This is the first global normative instrument on this subject. This was announced by the Minister of National Education,

[1] UNESCO. (2021). Recommendation on the Ethics of Artificial Intelligence, adopted on the sidelines of the 41st session of the UNESCO General Conference held in November 2021 in Paris.

Preschool and Sport on the sidelines of the signing of an agreement with UNESCO as part of the CONFINTEA VII held in Marrakech in June 2022. The kingdom has officially implemented the recommendation of the United Nations Educational, Scientific and Cultural Organization on the ethics of artificial intelligence adopted on the sidelines of the 41st session of the General Conference of UNESCO held in November 2021 in Paris (Benhanou, 2017).

The functional perimeter of artificial intelligence in company's activity would be difficult to circumscribe in an exhaustive way, so much it widens every day. From now on, AI allows organizations to automate and optimize certain tasks in an increased way, thus playing a major role in the mutations of the activity, by inventing new forms and organization of work (Benhanou, 2017). Artificial intelligence is an integral part of daily life and will become even more integrated in the years to come. It therefore generates several challenges, but also opens new perspectives for individuals, organizations and structures. The use of artificial intelligence in everyday life raises many ethical questions closely linked to the law, as it is the guarantor of the protection of fundamental rights and is the only one able to limit or prohibit certain practices. For example, in terms of environmental damage, to take just one example, it has been estimated that by 2020 digital technologies will account for between 1.8 and 6.3% of global carbon dioxide emissions.

In light of the delicate nature of artificial intelligence, it is crucial to address its legal implications, ensuring accountability for all stakeholders involved and preventing potential abuses. The existence of a legal void regarding artificial intelligence cannot be tolerated. It seems, therefore, essential to reflect on the role of ethics in the establishment of a legal framework for the use of artificial intelligence within companies.

For the elaboration of this study, the standard methods recommended for the realization of a scientific work were adopted: the analysis of legal texts, scientific works, a diagnosis of the sector and its environment at the national and international level. In order to understand and master our field of study, we consulted various books and academic journals dealing with the legal and ethical issues of the use of artificial intelligence. In addition, we have undertaken a review of legal texts and directives planned at the national and international level having a direct or indirect link with the use of artificial intelligence as well as making a comparison between Moroccan legislation and comparative legislations. On the international level, we consulted the various directives and resolutions established by the various organizations or international authorities.

1. The Emergence of Artificial Intelligence: an Opportunity or a Threat?

Artificial intelligence has already started to change almost all areas of everyday life. Based on a process of imitation of human intelligence, which is based on the creation and application of algorithms. Artificial intelligence holds many promises and represents a huge opportunity for countries. On the other hand, the use of this technology has already created new challenges and raises concerns about the risks it poses to the functioning of organizations (1.2), the world of work and fundamental rights and freedoms (1.1).

1.1. Artificial Intelligence and the Protection of Fundamental Rights and Freedoms

It is true that Artificial Intelligence offers a growing opportunity to create new solutions to improve human life, strengthen health guarantees and the well-being of humanity (Soulez, 2018). These intelligent technologies contain risks for the exercise of fundamental rights and freedoms. It is in this sense that the commission of the European Council has stated that «the use of algorithmic systems with automated data collection, decision analysis, optimization or machine learning capabilities, may have negative consequences on the exercise, enjoyment and protection of all human rights and fundamental freedoms»[2].

The truth is that artificial intelligence allows to gather and process a vast set of data. These are collected through the use of applications (badges, geolocation, video surveillance ... etc.) and will be used for the establishment and payment of remuneration, management of employee work and leave, control of performance and discipline[3]. These different technologies used in the workplace are likely to affect the rights and freedoms of employees (Desbarats, 2020) and even the rights of candidates in a recruitment process organized by the company (Desbarats, 2020).

Since artificial intelligence relies on data in order to function, personal data is one of the «stronger» issues in artificial intelligence. The problem is that algorithms need a huge amount of data to process to make a decision. This situation can sometimes conflict with the principles of data collection and use set by Moroccan positive law. These are, in fact, the principles of data minimization and purpose limitation provided for by Law 09-08 on the protection of individuals with regard to the processing of personal data.

It is important to note that, the use of artificial intelligence applications has long been justified by the technological naturalness of these applications, as they allow to avoid any kind of prejudice and unconscious discrimination made by any human being. Artificial intelligence can therefore undermine the human values and principles on which the Universal Declaration of Human Rights is based. It can also lead to violations of fundamental rights and freedoms, such as freedom of expression and assembly, through the filtering and deletion of content: human dignity, discrimination based on gender, racial or ethnic origin, religion or belief and, as the case may be, the protection of personal data, respect for privacy or the right to an effective judicial remedy and a fair trial, as well as consumer protection.

It should also be noted that artificial intelligence has given rise to new issues and challenges in terms of ethics and data protection that normally need to be addressed through policy and careful design of solutions to achieve harmony and compliance with regulatory provisions. The data that will be processed is often personal and behavioral

---

2 Counsil of Europe. (2018, November 12). Draft Recommendation of the Committee of Ministers to member States on human rights impacts of algorithmic systems. https://clck.ru/3B46zf

3 (Michaud, 2021); usages et régulations, conférence de l'université de Toulouse à titre de «l'année universitaire» 2019–2020.

and can be very sensitive data such as health information and biometrics, with potential privacy and ethical implications exacerbating the protection of personal information in a future enabled by artificial intelligence. Indeed, if personal data is the new Eldorado, its exploitation by hyper sophisticated and not ideologically disinterested algorithms risks leading to the constitution of new forms of slavery or at least, of remote control of collective and individual behaviors. (Barraud, 2019). This is a technological regulation that threatens the free will of each individual, the algorithms carry normative effects, formidable although rather imperceptible (Marique & Stronwel, 2017).

By harnessing the power of artificial intelligence, the integration of AI into the legal sphere can serve as a catalyst for social and technical progress, benefiting both legal professionals and litigants alike. «There is no doubt that certain applications of artificial intelligence currently being developed or experimented with, such as those aimed at improving legal research, can be very useful and make judicial work both faster and more efficient. It is necessary to advocate a use of artificial intelligence which is, at the service of the professionals of justice and in phase with their needs and on the other hand, respectful of the individual rights guaranteed by the universal declaration» (Boy, Racine, & Siiriaien, 2009). Far from being a simple instrument for improving the efficiency of judicial systems, artificial intelligence should reinforce and not diminish the guarantees of the rule of law as well as the quality of the public justice service.

1.2. Artificial Intelligence: a Tool for Companies

Technological progress transmits a different and new dynamism to the business environment progressively imposing various challenges to companies. During the industrial revolution, emerging technologies have significantly affected the way companies are organized and managed, resulting in their digital transformation and the optimization of operational models prioritizing IT resources to improve products and services, establish more cooperative next-generation partnerships, and react immediately to real customer expectations.

Indeed, artificial intelligence has made the working world and companies evaluate[4]. It is even evoked the quasi programmed disappearance of certain activities in many sectors (industry, banking, finance, trade... etc.) as well as, in some more or less tangible way, the robots come to «increase» the physical and cognitive potential of the man at work; in order to reduce the tediousness of the task, but also to assist him. With the emergence of artificial intelligence applications, a set of jobs are particularly likely to change and robots are gradually integrating into sensors whose operation uses artificial intelligence. The latter is increasingly enabling «soft» interactions between humans and robots. This revolution is

[4] N. Le Ru. (2016). l'effet de l'automatisation sur l'emploi: ce qu'on sait et ce qu'on ignore, France stratégie. La note d'analyse, n°49 juillet 2016: conseil d'orientations sur l'emploi, Automatisation, numérisation et emploi, t, 1, les impacts sur le volume, la structure et la localisation de l'emploi, janvier 2017.

both favorable for companies and employees, who can now interact in a much simpler way with the machine likely to assist them in difficult tasks (Zouinar, 2020). Collaborative robotics brings benefits to the company, improves productivity and flexibility, but can also participate in the improvement of working conditions by aiming at the reduction of disorders and ensuring a flexible coordination in the execution of tasks within the company[5].

Note that these applications equipped with artificial intelligence are specially designed to support remote and team work via new communication technologies, thus promoting mobility and telecommuting. They also allow a better communication within the company, a better level of professional and human relations by making more accessible the information concerning the life in company. These different tools of artificial intelligence allow new possibilities to blossom, to optimize the working time, to accomplish tasks by reducing the margin of error, as well as to relieve any possible stress (Marique & Stronwel, 2017). Nevertheless, the risk is just as great of witnessing the isolation of the worker, the invasion of his or her private life by omnipresent information flows, and relationships that have become exclusively digital to the detriment of the human being.

In Morocco, as is the case for a whole set of developing countries, the race to Big Data and algorithms is creating new horizons. Indeed, artificial intelligence is already very present in our lives, obviously through our smartphones, GPS, etc. and more and more our cars (Naim et al., 2021). The same is true in companies, where we often use many other tools such as automatic translation or chatbots[6] to respond to consumers on the Internet. As well, speech-to-text technology, which is an interdisciplinary part of artificial intelligence, can transform any audio content into written text. It allows companies to save time by avoiding the need to manually type on the keyboard. Artificial intelligence thus favors the development of a new generation of products and services, with reduced costs.

It is important to note that in Morocco, all sectors do not benefit from the same degree of maturity to accommodate this type of technology. We still cannot talk about artificial intelligence in Morocco, at least for the majority of companies (Ait El Bour & Lebzar, 2020). Today, companies are working on data, trying to collect it, digitize it, facilitate access to it and analyze it (Bouanba et al., 2022; Mohamed-Amine et al., 2024). This is the preliminary step for the implementation of an artificial intelligence system. Now, the sectors that lend themselves best to this technological evolution are banking, the stock market, insurance, telecom operators, and part of industry.

---

5 Atain-Kouadio, J. J., & Sghaier, A. (2017). Les robots et dispositifs d'assistance physique: état des lieux et enjeux pour la prévention. INRS, Note Scientifique et technique, NS 354. (In French).

6 It is a real personal assistant, and provides a quick and consistent response to thousands of tourists seeking information or service. The Chatbot offers a conversation with the customer that respects the culture and the brand image of the company or the person who uses it.

In the public sector, artificial intelligence represents an opportunity to improve public service. It will allow us to provide citizens with practical information, thus making their lives easier, modernizing the administration and public service. Artificial intelligence also improves participation in public life and stimulates economic development through better provision and circulation of information. It also allows the development of information technologies and the establishment of a digital economy, overcoming the reluctance that may exist within the administration and organizing an ecosystem to ensure the harmonious establishment of a knowledge society, where the various actors can make their contribution (Boubker, 2024).

Finally, the adoption of artificial intelligence technologies has a significant impact on the performance of the company, encourages its development and internalization, and improves its effectiveness and economic results. The artificial intelligence technology used is based on the techniques of machine learning, a mathematically modeled tool that allows self-learning algorithms. Management is increasingly investing in artificial intelligence technologies to automate business processes, improve day-to-day decision-making by company managers and make provisions more accurate.

2. Artificial Intelligence Regulation: a Moral and Legal Need

The increased development of artificial intelligence over the last few years and its possible deployment in all sectors and in almost all human activities have led to reflections on its legal framework. However, individuals continue to invent themselves in a deterritorialized world and the protection of digital rights and freedoms must be based on identified and clearly reaffirmed legal principles and on a wide range of regulatory tools.

Aware of its potential in the perspective of a post-covid economy, the States are however just as aware of its dangers. In addition, indeed, in every field of application (as wide as reason can conceive it), the use of artificial intelligence could raise the question, and question its ethical and legal character. Because of the complexity and diversity of the applications of artificial intelligence and their fickle and evolving nature, it is necessary to adopt flexible «soft law» instruments in the form of guidelines, ethical charters, codes of conduct and other ethical standards (2.1), before establishing a legal framework for the use of artificial intelligence (2.2).

2.1. An Ethical Framework for Artificial Intelligence

The relatively anarchic development of artificial intelligence has prompted actors to propose normative frameworks to limit the risks that this technology presents, while aiming to optimize its benefits. However, aware of the importance of norms, as well as of the need not to penalize themselves by establishing a corpus, the actors of artificial intelligence have called upon ethics to set rules for the development and use of artificial intelligence systems based on principles corresponding to specific interests. At the same time, international

public or private actors have become aware of the risks inherent in a standardization that is both disordered and biased, and have engaged in the race for standards at both the national and international levels (Thibout, 2019).

These dynamics have resulted in a multitude of normative and ethical codes, but with the absence of an international consensus on the establishment of common normative tools. The objective of these initiatives is to respond to an obvious and certain concern about the announced rise of artificial intelligence and its real or supposed dangers. The idea is that artificial intelligence should be, from conception to use, «ethically compatible», that is to say, in conformity with the humanistic values that are inherent to society. In other words, it is time to embody in texts in the form of charters, codes of ethics, good practice guides, guidelines, an ethic for the use of artificial intelligence applications (Jobin et al., 2019). In this sense, the implementation of artificial intelligence in society would require the development of flexible rules in the form of a flexible law, which involves the stakeholders in its construction (Bostrom & Yudkowsky, 2018).

Indeed, the idea of an ethics for artificial intelligence, aims that developers must respect human dignity and individual autonomy in the research and development of artificial intelligence systems, for example, they must take the necessary measures not to cause discrimination resulting from prejudices that would have been included in the training data of artificial intelligence systems. In the context of competition to the international stakes and risks of artificial intelligence, the initiatives of regulation of artificial intelligence are multiplying and agreeing on the importance of ethics in this field (Bufflier, 2020).

Ethics applied to artificial intelligence is in the process of being developed; there are certain international standards, but they have a soft law value. Ethics therefore has an original Soft Law logic, but it is progressively being articulated around Compliance.

At the international level, UNESCO adopted a recommendation on the ethics of artificial intelligence at its General Conference. The elaboration of this Recommendation was based on the preliminary study of the World Commission on Scientific Knowledge and Technology (COMEST) of UNESCO. This text constitutes the first international normative instrument on the ethics of AI in the form of a recommendation covering all areas of AI through the elaboration of key principles, and guiding the development and application of AI from a human-centered perspective. The text of the Recommendation states that UNESCO is «Also convinced that globally recognized ethical standards for AI technologies, which fully respect international law, in particular human rights law can play a key role in the development of AI-related norms worldwide[7]».

It is important to note that through this simple recommendation – characterized by a real lack of binding character – UNESCO inscribes Compliance mechanisms called «strategic mechanisms» of ethics where it encourages Member States to set up «strategic frameworks

[7] The Preamble of the UNESCO Recommendation on the Ethics of Artificial Intelligence.

or mechanisms» in order to assess the impact of artificial intelligence on human rights, the rule of law, democracy, ethics as well as due diligence tools by referring to the United Nations Guiding Principles on Business and Human Rights (Bostrom & Yudkowsky, 2018).

At the European level, it is since 2018, that the commission of the European Council has considered in a global way the artificial intelligence. With a desire to ensure an adequate ethical and legal framework in relation to the values of Article 2 of the Treaty on European Union and the Charter of Fundamental Rights of the European Union. To this end, the commission proposed the development of draft ethical guidelines in the field of artificial intelligence. These guidelines were published in 2019, and constitute the foundations of a trustworthy ethics, from which the ethical principles to which the professionals of artificial intelligence must strive to adhere are derived. There are four ethical principles: respect for human autonomy, prevention of harm, fairness and explicability.

In addition, the European Parliament adopted in 2017, a resolution containing «recommendations for civil law rules on robotics»[8] , In the appendix, «a charter on robotics» which is declined according to the addressees, in an ethical «code of conduct» for engineers in robotics, in a «code of ethics» for the committees of ethics and research, a «license» for the designers and another for the users. In this sense, the European Commission has also elaborated a text in the form of «A European ethical charter for the use of artificial intelligence in judicial systems and their environment» (Bensoussan & Bensoussan, 2019). It concerns the automated processing of judicial decisions and judicial data (by machine learning). The charter contains a whole set of principles that aim to address the ethical concerns of artificial intelligence. These principles focus on the respect of certain fundamental values, in particular the principle of non-discrimination and the right to privacy. Particular attention is also paid in the charter to security and transparency[9].

Conscious of the risks that artificial intelligence presents, Morocco, for its part, has taken several initiatives to accompany the digital transition that the world has known today. Morocco has established in 2011, a General Directorate of Information Systems Security (DGSSI), whose mission is to ensure the support and security of digital development. This authority has developed a strategy to accompany the proliferation of communication and information technologies. The strategy in question responds to the new challenges arising from the evolution of digital users and the threats linked to these technologies[10].

---

8 Resolution of February 16, 2017 with recommendations to the Commission on civil law rules on robotics (2015/2103(INL)), Liability, item AF.

9 The European Parliament adopted other resolutions in 2020: European Parliament resolution of October 20, 2020 with recommendations to the commission on a framework for ethical aspects of artificial intelligence and robotics and related technologies; European Parliament resolution of October 20, 2020 with recommendations to the commission on a civil liability regime for artificial intelligence. Voir, Y. Meneceur. (2019). Les enseignements des éthiques européennes de l'intelligence artificielle. JPC, 325, 552, 2.

10 General Directorate for Information Systems Security. Stratégie Nationale en matière de cyber sécurité. https://clck.ru/3B49Gf

The Moroccan authorities have also created in 2017, the Digital Development Agency in order to question the relationship of humans to digital and to structure the debate around this issue. This Agency prepares reports by organizing broad consultations that consist in inviting public and private actors, with a view to contributing to a more creative and innovative society, while building a new balance between economic and societal issues related to digital. Morocco, has also established with the publication of Law 09-08 on the protection of individuals with regard to the processing of personal data, a national commission to monitor the protection of personal data. It is responsible for ensuring the protection of personal data contained in computer files and treatments or paper, both public and private (Jaldi, 2022).

The reports established by these institutions constitute a reference framework for the regulation of the use of technology in Morocco (Ait El Bour & Lebzar, 2020). The latter has also aligned itself with the recommendations of UNESCO on the ethics of artificial intelligence. It remains to establish a commission, which will be responsible for questions of artificial intelligence and its challenges, which will certainly be inspired by the recommendations of UNESCO, and ethical charters and guidelines established by international bodies.

Private initiatives also play a key role in establishing an ethical framework for the use of artificial intelligence. They involve the major players in the digital economy. For example, the «Partnership on AI» collective [11], Founded by the major multinational companies, Google, Microsoft, Facebook[12], Amazon and Apple, to study and formulate best practices on artificial intelligence technologies, to advance public understanding of artificial intelligence, and to serve as an open platform for discussion and engagement around artificial intelligence and its impact on people and society (Bensamoun & Loiseau, 2017a).

The difficulty observed today is that, in practice, ethics applied to artificial intelligence is complex in its implementation. Indeed, a good number of companies, governments, associations, public and private sector actors are setting up good practice guides, recommendations or simply communicating on ethical and responsible artificial intelligence. However, it has been observed that these actors were struggling to implement these principles within their companies. In this sense, self-regulation by operators is a relevant solution, but only if it implies mandatory behaviors upstream, on the model of compliance or accountability (Cath, 2018)

2.2. The Need for a Legal Regime Adapted to Artificial Intelligence

Artificial intelligence has become a strategic issue in that it concerns almost all human activities. From finance to defense, through education, logistics, health and justice. It is gradually becoming essential in certain regions of the world and is tending to spread

[11] Partnership on AI (PAI). www.Partnershiponai.org

[12] The social network belongs to Meta, which is recognized as an extremist organization, its functioning is prohibited in the territory of the Russian Federation

to the entire globe. This has prompted the players involved to propose normative frameworks to limit the risks associated with this technology and optimize the benefits. However, the implementation of a legal framework that would strictly regulate the development and use of artificial intelligence systems poses several problems. First of all, it is not necessarily desired by certain stakeholders insofar as it could go against their interests, thus limiting their margin of action. Secondly, it requires a consensus based on a long diplomatic exercise and complex negotiations with the various public and private actors. The regulation in question must therefore leave as much space as possible for the development and use of algorithmic systems, which offer advantages for individuals and society. Thus, it must guarantee that the use of these systems does not harm the individuals concerned and society as a whole.

Furthermore, should the challenges created by artificial intelligence systems not be governed by a general «law of artificial intelligence» or by a «law of algorithms», a combination of general and sector-specific standards is much more appropriate. Indeed, we can see that it will probably be necessary to adapt the interpretation and application of existing standards in order to be able to meet the new challenges in an appropriate way.

It is particularly necessary to note that there is no specific regulation of artificial intelligence in Moroccan law, as is the case in most advanced countries. However, the use of artificial intelligence systems is associated with data processing. The law on the protection of personal data applies, as it concerns personal data. Thus, it appears in principle possible to solve challenges related to the protection of privacy and data protection with the means – of the existing data protection law (Jaldi, 2022). Then, the law 09-08 relative to the protection of the physical persons with regard to the treatment of the personal data finds its application, every time the systems of artificial intelligence involve the personal data and information.

Nevertheless, the use of artificial intelligence systems also leads to other issues. For example, the implementation of these systems is often not identifiable for the people concerned and their functioning is not understandable. Furthermore, such systems can lead to the discrimination of individuals and the manipulation of their actions. In addition, the implementation of artificial intelligence systems raises new issues of liability law. There is still a need for regulation in all of these areas, and this is the case for guaranteeing the safety of autonomous systems and certain authorization procedures.

It is clear that a legal framework for artificial intelligence systems, which does not disrupt the development of the technology, and which offers guarantees to potential victims, is of considerable importance. In this respect, some authors have gone so far as to propose the creation of an electronic personality, giving artificial intelligence systems a legal status. This concept of electronic personality was very quickly criticized, on the grounds that this solution could break down the boundaries between man and machine (Merabet, 2018). To this effect, we can see that it appears difficult to impute a legal responsibility to a machine, and the solution that would consist in creating a legal personality for the benefit of artificial intelligence systems is extravagant and must be fought. Such a solution could limit the solvency of the «robot debtor» and make its manufacturers less responsible (Bensamoun & Loiseau, 2017b).

On the other hand, it seems reasonable and judicious to impute the effects of the responsibility to the designer, the manufacturer, the owner, and the user of the artificial intelligence, who are hidden behind the machines. Let us note, that one of the difficulties in the field of artificial intelligence, is that many actors are likely to intervene[13]. The responsibilities can thus be found at the level of the choice of the learning data, their collection, their organization, the design of the algorithms, the realization of the software, the interface and even the hardware part (Courtois, 2016). Other actors can disrupt the functioning of the systems, whether it is a malicious user or even a third party acting in bad faith. It seems that several of these actors may have a share of responsibility, or even that the different responsibilities may be jointly and severally committed.

Today, intelligent machines are endowed with the ability to make decisions autonomously and outside the effective control of the person. This makes inapplicable the traditional rules of the responsibility for the things as, it is foreseen in the article 88 of Moroccan code of the obligations and contracts[14]. For even if the human being can keep custody of the thing endowed with artificial intelligence, it can escape from him because of the difficulty to control it effectively. Moreover, in this regime, it is difficult for potential victims to establish whether the custodian was the designer or the user of the artificial intelligence. If, for example, the user has technological skills, he can modify the source code of the artificial intelligence, which will induce a change in its behavior. Moreover, he can choose the parameters of its functioning by altering its behavior. Such a scenario makes it very difficult to identify the person with effective power over the thing. Considering all the aforementioned concerns, establishing whether the harm resulted from the structure or the behavior of artificial intelligence becomes challenging, giving rise to the issue of proof in this hypothesis.

Indeed, the majority of the doctrine has noted that the responsibility for things is not entirely adapted to the autonomous fact of artificial intelligence (Shushanik, 2019). To this end, other no-fault liability regimes can be adapted to the autonomous nature of artificial intelligence. This is the case of product liability, which may appear to be an effective regime for dealing with the most autonomous artificial intelligence systems (Courtois, 2016). The notions of product and defect are compatible with the immaterial and autonomous character of these systems. It constitutes a mechanism of responsibility of full right, as, it is envisaged in article 106 paragraphs 1 of the Moroccan code of the

[13] The plurality of participants in the use or programming of the machine overturns the traditional rules of civil liability: a fault, a damage and the causal link.

[14] Article 88 of the Code of Obligations and Contracts (DOC) stipulates that "individuals are liable for the harm caused by the objects under their control, provided that these objects directly caused the damage, unless they can demonstrate: 1) taking all necessary precautions to prevent the harm, and 2) that the harm resulted from either an unforeseen event, an irresistible force, or the fault of the victim".

obligations and contracts «The producer is responsible for the damage caused by a defect of its product»[15].

In reality, intelligent machines are not ordinary products and it will be necessary to take into account, in particular for the determination of the origin of the defect, the complex character of the good by integrating intangible and, if necessary, tangible elements and whose production involves various participants, from the «manufacturer» of the robot to the designers of algorithms and programs. The broad conception of producer, whether it is the manufacturer of the finished product or the manufacturer of the component part of the system, the joint and several liability of both provide for the treatment of the liability without the need for other rules (Courtois, 2016). The question that arises is in which case the producer can benefit from a cause of exoneration of responsibility. The answer is provided for in Article 106-9 of the Code of Obligations and Contracts: «The producer is not liable if he proves that the defect which caused the damage did not exist at the time the product was put into circulation or that this defect arose afterwards". According to this article, the producer cannot be held liable if, taking into account the circumstances, there is reason to believe that the defect which caused the damage did not exist at the time the product was put into circulation by him or that this defect arose afterwards.

However, artificial intelligence systems can challenge the traditional rules of release. In some cases, the role of the producer is not limited to putting the product into circulation. Sometimes the software is updated to ensure its proper functioning and adaptation to the environment. In addition, the producer may provide new data that will be processed by the stand-alone software. Here, the issue is to know if it is possible to consider the engagement of the producer's responsibility in the presented hypotheses. To this end, we can see that if the producer retains control over the system produced for the subsequent addition of updates, he should be responsible for the defects of this system, even if these defects appear after the release of this product. Finally, it should be noted that this liability regime seems to be adapted to artificial intelligence systems, but its application in this field is still uncertain, in the absence of identified jurisprudence, and the question of the articulation of these different liability regimes may be a real challenge.

Conclusions

Artificial intelligence and the extent of its development has created new economic, social, and ethical challenges. The law is not the exception. However, even if artificial intelligence helps companies to adapt and master an increasingly dynamic business environment, it presents

[15] The term «product» refers to any product made available on the market in the context of a professional, commercial or artisanal activity, whether in return for payment or free of charge, whether new or used, whether or not it has been processed or packaged, even if it is incorporated into another item of furniture or into a building. Electricity is considered a product. See article 106-2 of the Moroccan code of obligations and contracts.

risks to the exercise of fundamental rights and freedoms. It is therefore necessary to find a balance between the use of artificial intelligence for business and human development and the protection of fundamental rights and freedoms.

Technology and the use that is made of it, a fortiori in the XXth century through the Internet, is transborder and calls into question a good number of legal borders, national laws and even international law. However, to remain effective, the law must integrate «the principle of technological reality», which is a factor of differentiation and complexity of the norm and apply it to artificial intelligence. The problem of choosing the regulations applicable to artificial intelligence is a real one, because artificial intelligence is at the crossroads of several so-called advanced sectors.

In the absence of a specific legal framework for artificial intelligence, ethics naturally imposes itself as a palliative solution to the choice, abstruse for the majority, of flexible law, easy to apply to artificial intelligence, non-binding; ethics proves to be a comfortable tool to use instead of law. The legal framework of artificial intelligence systems requires the crossing of many general or special legal disciplines, thus creating new, transversal relationships, so that the law can apprehend the specificity of these new actors and fulfill its normative and regulatory functions.

References

Ait El Bour, D., & Lebzar, B. (2020). L'intelligence artificielle face aux entreprises marocaines, quels défis? *Revue Internationale d'Economie Numérique*, *2*(1). (In French).

Al-Ajmi, F. (2011). *Civil Protection for the Consumer in the Electronic Contract*. (Unpublished Master dissertation). University of the Middle East.

Barraud. (2019). Le droit en datas: comment l'intelligence artificielle redessine le monde juridique. *Revue Lamy droit de l'immatériel*, *164*. (In French).

Benhanou, S. (2017). *Imaginer l'avenir de travail – Quatre types d'organisations à l'horizon 2030*, France Stratégie, Document de travail n°2017-05. (In French).

Bensamoun, A., & Loiseau, G. (2017a). La gestion des risques de l'intelligence artificielle – de l'éthique à la responsabilité. *La Semaine juridique*, *12*. (In French).

Bensamoun, A., & Loiseau, G. (2017b). *L'intégration de l'intelligence artificielle dans l'ordre juridique en droit commun: questions de temps*. Dalloz IP/IT, 239. (In French).

Bensoussan, A., &, Bensoussan, J. (2019). *IA, robots et droit*. Bruxelles: Bruylant. (In French).

Bertrand, André R. (2010). C*onditions de la protection par le droit d'auteur. Deux cas particuliers: intelligence artificielle et réalité virtuelle*, Dalloz, 103.27. (In French).

Bostrom, N., & Yudkowsky, E. (2018). The Ethics of Artificial Intelligence. In *Artificial Intelligence Safety and Security* (pp. 57–69). Chapman and Hall/CRC. https://doi.org/10.1201/9781351251389-4

Bouanba, N., Barakat, O., & Bendou, A. (2022). Artificial Intelligence & Agile Innovation: Case of Moroccan Logistics Companies. *Procedia Computer Science*, *203*, 444–449. https://doi.org/10.1016/j.procs.2022.07.059

Boubker, O. (2024). From chatting to self-educating: Can AI tools boost student learning outcomes? Expert *Systems with Applications*, *238*(A), 121820–121820. https://doi.org/10.1016/j.eswa.2023.121820

Boy, L., Racine, J.-B., & Siiriaien, F. (2009). *Droit économique et Droit de l'homme*. Bruxelles, Larcier. (In French).

Bufflier, I. (2020). Intelligence artificielle et éthique d'entreprise. *Cahiers de droit de l'entreprise*, *3*, dossier 19, 45. (In French).

Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *376*(2133), 20180080.

Courtois, G. (2016). *Robots intelligents et responsabilité : quels régimes, quelles perspectives*. Dalloz IP/IT, 287. (In French).
Desbarats, I. (2020). Quelle protection sociale pour les travailleurs des plateformes? *Revue de droit du travail*, *10*, 592–601. (In French).
Franchomme, M.-P., & Jazottes, G. (2021). Le défi d'une IA inclusive et responsable. *Droit social*, *2*, 100–108. (In French).
Jacquemin, H., & de Streel, A. (2017). *L'Intelligence artificielle et le droit*, Bruxelles, Larcier. (In French).
Jaldi, A. S. (2022). l'intelligence artificielle au Maroc: entre encadrement réglementaire et stratégie économique. *Policy Centre for the New South*, PB-59/22. (In French).
Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature machine intelligence*, *1*(9), 389–399.
Marique, E., & Stronwel, A. (2017). *Gouverner par la loi ou les algorithmes: de la norme générale de comportement au guidage rapproché des conduites*. Dalloz IP/IT, 10, 517. (In French).
Merabet, S. (2018). *Vers un droit de l'intelligence artificielle: thèse pour le doctorat en droit privé*. Université d'Aix-Marseille. (In French).
Michaud, O. (2021). La protection des travailleurs à l'heure de l'intelligence artificielle. *Dossier droit social, 2*, Fév., 124–132. (In French).
Mohamed-Amine, N., Abdellatif, M., & Belaid, B. (2024). Artificial intelligence for forecasting sales of agricultural products: A case study of a moroccan agricultural company. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100189. https://doi.org/10.1016/j.joitmc.2023.100189
Naim, A., Aaroud, A., Akodadi, K., & El Hachimi, C. (2021). A fully AI-based system to automate water meter data collection in Morocco country. *Array*, *10*, 100056. https://doi.org/10.1016/j.array.2021.100056
Rochd, A., Benazzouz, A., Ait Abdelmoula, I., Raihani, A., Ghennioui, A., Naimi, Z., & Ikken, B. (2021). Design and implementation of an AI-based & IoT-enabled Home Energy Management System: A case study in Benguerir – Morocco. *Energy Reports*, *7*, 699–719. https://doi.org/10.1016/j.egyr.2021.07.084
Shushanik, G. (2019). *Les problèmes de la réparation du dommage pour les produits et services défectueux dans la législation civile: thèse pour le doctorat en droit privé*. l'UEE. (In French).
Soulez, M. (2018). Questions juridiques au sujet de l'IA. *Enjeux numériques*, *1*, 83. (In French).
Thibout, Ch. (2019). La compétition mondiale de l'intelligence artificielle. Pouvoirs – *Revue française d'études constitutionnelles et politiques*, 170, 131–142. (In French).
Vassileva-Hadjitchoneva, J. (2020). L'IA au service de la prise de décisions plus efficace. *Pour une recherche économique efficace: 61° Congrès International AIELF*. Santiago, Chili. (In French).
Zouinar, M. (2020). Evolutions de l'intelligence artificielle: Quels enjeux pour l'activité humaine et la relation humain-machine au travail? *Activités*, 17-1. (In French). https://doi.org/10.4000/activites.4941

Authors information

Hamza Jabir – PhD Student in Private Law, Legal Sciences and Sustainable Development Research Laboratory, Faculty of Law, Economics, and Social Sciences, Ibn Zohr University
E-mail: hamza.jabir@edu.uiz.ac.ma
ORCID ID: https://orcid.org/0000-0003-3534-8982
WoS Researcher ID: https://www.webofscience.com/wos/author/record/HMP-6781-2023
Google Scholar ID: https://scholar.google.com/citations?user=Lka-pbUAAAAJ

Kamal Lagtati – Research Professor, HDR in Private Law, Legal Sciences and Sustainable Development Research Laboratory, Faculty of Law, Economics, and Social Sciences, Ibn Zohr University; Member of the Centre Michel de l'hospital Université de Clermont Auvergne (EA 4232).
Address: BP 32/S, Riad Salam, CP 80000, Agadir, Morocco
E-mail: k.lagtati@uiz.ac.ma
ORCID ID: https://orcid.org/0009-0004-9198-2712
Google Scholar ID: https://scholar.google.com/citations?user=W-X93ewAAAAJ

Denis Pohe-Tokpa – Research Professor, HDR in Private Law, Faculty of Law and Political Science, University of Bordeaux
Address: 16 Avenue Léon Duguit, 33608 Pessac, France
E-mail: denis.pohe-tokpa@u-bordeaux.fr
ORCID ID: https://orcid.org/0009-0007-2678-1430

Authors' contributions

The authors have contributed equally into the concept and methodology elaboration, validation, formal analysis, research, selection of sources, text writing and editing, project guidance and management.

Conflict of interest

The authors declares no conflict of interest.

Financial disclosure

The research had no sponsorship.

Thematic rubrics

OECD: 5.05 / Law
PASJC: 3308 / Law
WoS: OM / Law

Article history

Date of receipt – December 14, 2023
Date of approval – January 12, 2024
Date of acceptance – June 25, 2024
Date of online placement – June 30, 2024

Научная статья
УДК 34:004:17:004.8
EDN: https://elibrary.ru/fsfsnq
DOI: https://doi.org/10.21202/jdtl.2024.23

Этическое и правовое регулирование использования искусственного интеллекта в Марокко

Хамза Джабир ✉
Университет Ибн Зохр, Агадир, Марокко

Камаль Лагтати
Университет Ибн Зохр, Агадир, Марокко

Денис Поэ-Токпа
Университет Бордо, Пессак, Франция

Ключевые слова

«жесткое право», законодательство Марокко, искусственный интеллект, моральные ценности, «мягкое право», принцип технологической реальности, правовое регулирование, правовые риски, цифровые технологии, этические принципы

Аннотация

Цель: поиск и определение проблем и возможностей этического и правового регулирования искусственного интеллекта на примере опыта цифровых преобразований в Марокко.

Методы: исследование проведено с использованием аналитического и сравнительного подходов к решению возникающих юридических вопросов, обусловленных развитием искусственного интеллекта. За основу традиционного научного метода в праве взят правовой анализ, который применялся к изучению юридических текстов, научной литературы, диагностике состояний и условий изучаемой области на национальном и международном уровне. Наряду с этим использовался сравнительный подход в праве, позволивший рассмотреть законодательство Марокко в сопоставлении с законодательством других стран.

Результаты: осуществлен обзор научной литературы, посвященной правовым и этическим вопросам использования искусственного интеллекта. Проведен обзор юридических текстов и директив, разработанных на национальном и международном уровне и имеющих прямую или косвенную связь с использованием искусственного интеллекта. Приводится сравнение законодательства Марокко с соответствующими правовыми актами других стран. Полученные выводы свидетельствуют о том, что в отсутствие специальной правовой базы для систем искусственного интеллекта предпочтительным является

✉ Контактное лицо

принятие этических стандартов в виде руководящих принципов, руководства по передовой практике и этических хартий. Эти механизмы представляются жизнеспособной альтернативой правовому регулированию. В этом смысле было предпринято несколько инициатив по продвижению «мягкого права», которое направлено на поощрение надлежащего поведения технологических агентов.

Научная новизна: анализ цифровых преобразований в Марокко позволил представить комплексный взгляд на роль этических аспектов и обеспечение достаточности закона для реагирования на изменения современного общества, трансформирующегося в свете развития искусственного интеллекта.

Практическая значимость: проведенное исследование позволяет обозначить пути поиска более гибкого баланса между «мягким» и «жестким» правом в регулировании отношений с учетом технологической реальности, что должно поощрять надлежащее поведение технологических агентов и положительно влиять на специфику современной ситуации, когда «жесткое право» медленно осознает и решает проблемы, связанные с регулированием цифровых технологий, а также медленно учитывает возможные риски, которые несет в себе искусственный интеллект и недостаточность регулирования связанных с ним отношений.

Для цитирования

Джабир, Х., Лагтати, К., Поэ-Токпа, Д. (2024). Этическое и правовое регулирование использования искусственного интеллекта в Марокко. *Journal of Digital Technologies and Law*, *2*(2), 450–472. https://doi.org/10.21202/jdtl.2024.23

Список литературы

Ait El Bour, D., & Lebzar, B. (2020). L'intelligence artificielle face aux entreprises marocaines, quels défis? *Revue Internationale d'Economie Numérique, 2*(1). (In French).

Al-Ajmi, F. (2011). *Civil Protection for the Consumer in the Electronic Contract*. (Unpublished Master dissertation). University of the Middle East.

Barraud. (2019). Le droit en datas: comment l'intelligence artificielle redessine le monde juridique. *Revue Lamy droit de l'immatériel*, *164*. (In French).

Benhanou, S. (2017). *Imaginer l'avenir de travail – Quatre types d'organisations à l'horizon 2030*, France Stratégie, Document de travail n°2017-05. (In French).

Bensamoun, A., & Loiseau, G. (2017a). La gestion des risques de l'intelligence artificielle – de l'éthique à la responsabilité. *La Semaine juridique*, *12*. (In French).

Bensamoun, A., & Loiseau, G. (2017b). *L'intégration de l'intelligence artificielle dans l'ordre juridique en droit commun: questions de temps*. Dalloz IP/IT, 239. (In French).

Bensoussan, A., &, Bensoussan, J. (2019). *IA, robots et droit*. Bruxelles: Bruylant. (In French).

Bertrand, André R. (2010). *Conditions de la protection par le droit d'auteur. Deux cas particuliers: intelligence artificielle et réalité virtuelle*, Dalloz, 103.27. (In French).

Bostrom, N., & Yudkowsky, E. (2018). The Ethics of Artificial Intelligence. In *Artificial Intelligence Safety and Security* (pp. 57–69). Chapman and Hall/CRC. https://doi.org/10.1201/9781351251389-4

Bouanba, N., Barakat, O., & Bendou, A. (2022). Artificial Intelligence & Agile Innovation: Case of Moroccan Logistics Companies. *Procedia Computer Science*, *203*, 444–449. https://doi.org/10.1016/j.procs.2022.07.059

Boubker, O. (2024). From chatting to self-educating: Can AI tools boost student learning outcomes? *Expert Systems with Applications*, *238*(A), 121820–121820. https://doi.org/10.1016/j.eswa.2023.121820

Boy, L., Racine, J.-B., & Siiriaien, F. (2009). *Droit économique et Droit de l'homme*. Bruxelles, Larcier. (In French).

Bufflier, I. (2020). Intelligence artificielle et éthique d'entreprise. *Cahiers de droit de l'entreprise*, *3*, dossier 19, 45. (In French).

Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *376*(2133), 20180080.

Courtois, G. (2016). *Robots intelligents et responsabilité : quels régimes, quelles perspectives*. Dalloz IP/IT, 287. (In French).

Desbarats, I. (2020). Quelle protection sociale pour les travailleurs des plateformes? *Revue de droit du travail*, *10*, 592–601. (In French).

Franchomme, M.-P., & Jazottes, G. (2021). Le défi d'une IA inclusive et responsable. *Droit social*, *2*, 100–108. (In French).

Jacquemin, H., & de Streel, A. (2017). *L'Intelligence artificielle et le droit*, Bruxelles, Larcier. (In French).

Jaldi, A. S. (2022). l'intelligence artificielle au Maroc: entre encadrement réglementaire et stratégie économique. *Policy Centre for the New South*, PB-59/22. (In French).

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature machine intelligence*, 1(9), 389–399.

Marique, E., & Stronwel, A. (2017). *Gouverner par la loi ou les algorithmes: de la norme générale de comportement au guidage rapproché des conduites*. Dalloz IP/IT, 10, 517. (In French).

Merabet, S. (2018). *Vers un droit de l'intelligence artificielle: thèse pour le doctorat en droit privé*. Université d'Aix-Marseille. (In French).

Michaud, O. (2021). La protection des travailleurs à l'heure de l'intelligence artificielle. *Dossier droit social*, *2*, Fév., 124–132. (In French).

Mohamed-Amine, N., Abdellatif, M., & Belaid, B. (2024). Artificial intelligence for forecasting sales of agricultural products: A case study of a moroccan agricultural company. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100189. https://doi.org/10.1016/j.joitmc.2023.100189

Naim, A., Aaroud, A., Akodadi, K., & El Hachimi, C. (2021). A fully AI-based system to automate water meter data collection in Morocco country. *Array*, *10*, 100056. https://doi.org/10.1016/j.array.2021.100056

Rochd, A., Benazzouz, A., Ait Abdelmoula, I., Raihani, A., Ghennioui, A., Naimi, Z., & Ikken, B. (2021). Design and implementation of an AI-based & IoT-enabled Home Energy Management System: A case study in Benguerir – Morocco. *Energy Reports*, *7*, 699–719. https://doi.org/10.1016/j.egyr.2021.07.084

Shushanik, G. (2019). *Les problèmes de la réparation du dommage pour les produits et services défectueux dans la législation civile: thèse pour le doctorat en droit privé*. l'UEE. (In French).

Soulez, M. (2018). Questions juridiques au sujet de l'IA. *Enjeux numériques*, *1*, 83. (In French).

Thibout, Ch. (2019). La compétition mondiale de l'intelligence artificielle. *Pouvoirs – Revue française d'études constitutionnelles et politiques*, *170*, 131–142. (In French).

Vassileva-Hadjitchoneva, J. (2020). L'IA au service de la prise de décisions plus efficace. *Pour une recherche économique efficace: 61° Congrès International AIELF*. Santiago, Chili. (In French).

Zouinar, M. (2020). Evolutions de l'intelligence artificielle: Quels enjeux pour l'activité humaine et la relation humain-machine au travail? *Activités*, 17-1. (In French). https://doi.org/10.4000/activites.4941

Сведения об авторах

Джабир Хамза – соискатель степени PhD; исследовательская лаборатория частного права, юридических наук и устойчивого развития; факультет права, экономики и общественных наук; Университет Ибн Зохр
Адрес: Марокко, Агадир, BP 32/S, Риад Салам, CP 80000
E-mail: hamza.jabir@edu.uiz.ac.ma
ORCID ID: https://orcid.org/0000-0003-3534-8982
WoS Researcher ID: https://www.webofscience.com/wos/author/record/HMP-6781-2023
Google Scholar ID: https://scholar.google.com/citations?user=Lka-pbUAAAAJ

Лагтати Камаль – профессор-исследователь, почетный доктор, исследовательская лаборатория частного права, юридических наук и устойчивого развития; факультет права, экономики и общественных наук; Университет Ибн Зохр; член Центра Мишель де л'госпиталь, Университет Клермон-Овернь (EA 4232).
Адрес: Марокко, Агадир, BP 32/S, Риад Салам, CP 80000
E-mail: k.lagtati@uiz.ac.ma
ORCID ID: https://orcid.org/0009-0004-9198-2712
Google Scholar ID: https://scholar.google.com/citations?user=W-X93ewAAAAJ

Поэ-Токпа Денис – профессор-исследователь, почетный доктор частного права, факультет права и политологии, Университет Бордо
Адрес: Франция, Пессак, 33608, авеню Леона Дюгуи, 16
E-mail: denis.pohe-tokpa@u-bordeaux.fr
ORCID ID: https://orcid.org/0009-0007-2678-1430

Вклад авторов

Авторы внесли равный вклад в разработку концепции, методологии, валидацию, формальный анализ, проведение исследования, подбор источников, написание и редактирование текста, руководство и управление проектом.

Конфликт интересов

Авторы сообщают об отсутствии конфликта интересов.

Финансирование

Исследование не имело спонсорской поддержки.

Тематические рубрики

Рубрика OECD: 5.05 / Law
Рубрика ASJC: 3308 / Law
Рубрика WoS: OM / Law
Рубрика ГРНТИ: 10.07.45 / Право и научно-технический прогресс
Специальность ВАК: 5.1.1 / Теоретико-исторические правовые науки

История статьи

Дата поступления – 14 декабря 2023 г.
Дата одобрения после рецензирования – 12 января 2024 г.
Дата принятия к опубликованию – 25 июня 2024 г.
Дата онлайн-размещения – 30 июня 2024 г.