

# Artificial Intelligence for Judicial Decision-Making in Ecuador

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## Abstract

*A systematic review was carried out on the production and publication of research papers related to the study of Artificial Intelligence for Judicial Decision-Making in Ecuador, during the period between 2018 and 2022 under the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) approach. The purpose of the analysis proposed in this document was to know the main characteristics of the publications registered in the Scopus and Wos databases and their scope in the study of the proposed variables, achieving the identification of 65 publications in total. Thanks to this first identification, it was possible to refine the results through the keywords entered in the search button of both platforms, which were ARTIFICIAL INTELLIGENCE FOR CORT DECISION-MAKING, reaching a total of 9 documents, excluding duplicates and those that did not meet the analysis criteria. The identified scientific publications were analyzed in order to know the main characteristics within the execution of research projects related to the study of the advantages, causes and disadvantages presented in the implementation of Artificial Intelligence for Judicial Decision-Making in Ecuador, evidencing as the main drawback the absence of technological tools in public institutions, which causes the permanent congestion of the system, delay in resolving conflicts and/or problems that afflict society, increased social inequality, among other factors that impede the fulfillment of its objectives in terms of governance and sustainable development.*

**Keywords:** Artificial Intelligence (AI), Judicial Decision Making, Ecuador.

## INTRODUCTION

Currently, technology plays a fundamental role in the different activities carried out by human beings in their daily lives as a result of the so-called Revolution 4.0, which brought with it transformation through advanced methods, mostly characterized by being more effective and efficient. Although it seems that technology could not be applied in many aspects, time has shown otherwise, as tools have been created that seek to help, support or facilitate certain types of work considered repetitive and exhausting with the sole purpose of generating faster solutions and avoiding congestion in procedures. It is for this reason that international actors such as the Organisation for Economic Co-operation and Development (OECD) have exalted the commitment made by multiple countries around the world with the implementation of these technologies, specifically Artificial Intelligence due to the fact that "reflects the growing awareness of the enormous potential" of these "in the public sector to improve both its internal processes and the way in which the government interacts with the population and provides services to them". Due to its importance, it is possible to find detailed information on AI and its application in various aspects of the public sector such as: Education, Public Security and Protection, Health Care, among others. I mean (OECD, n.d.) (OCDE, s.f.), that Artificial Intelligence can be implemented in all areas of the public sector, however, on this occasion we will emphasize its application in Regulatory Functions or Judicial Decision Making. Undoubtedly, the greatest contribution of AI to Judicial Decision-Making is the management of information and its classification, so it is efficiently able to predict results based on the characteristics previously defined in the program. However, not everything is perfect. It is absolutely necessary that for the use of these technologies, the aspects that AI must take into account are very clear in order not to generate controversies and major problems in the community or individuals who seek to provide a prompt solution to a problem. Hence, some authors differ in their conception of these man-made tools, even more so in Latin American countries whose history has been framed by injustice and social inequality, so that it could easily lead to the violation of more fundamental rights if the situation and environment in which a

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situation took place for its subsequent legal solution were not correctly considered. Ecuador's situation is not very different from what was mentioned above, which is why the country is in the constant search to meet the Sustainable Development Goals through the implementation of AI tools that, according to UNESCO, they are of great help to "social good and the promotion of the achievement of the SDGs if it is developed in a way that benefits humanity, respects global norms and standards, and is anchored in peace and development." For this reason, (UNESCO, s.f.)It is essential to know more details of the advantages and/or disadvantages that have been generated from the use of advanced technologies such as Artificial Intelligence in Judicial Decision-Making, taking into account that "every technological revolution entails new imbalances that we must foresee". (Azoulay, s.f.)

### **General Objective**

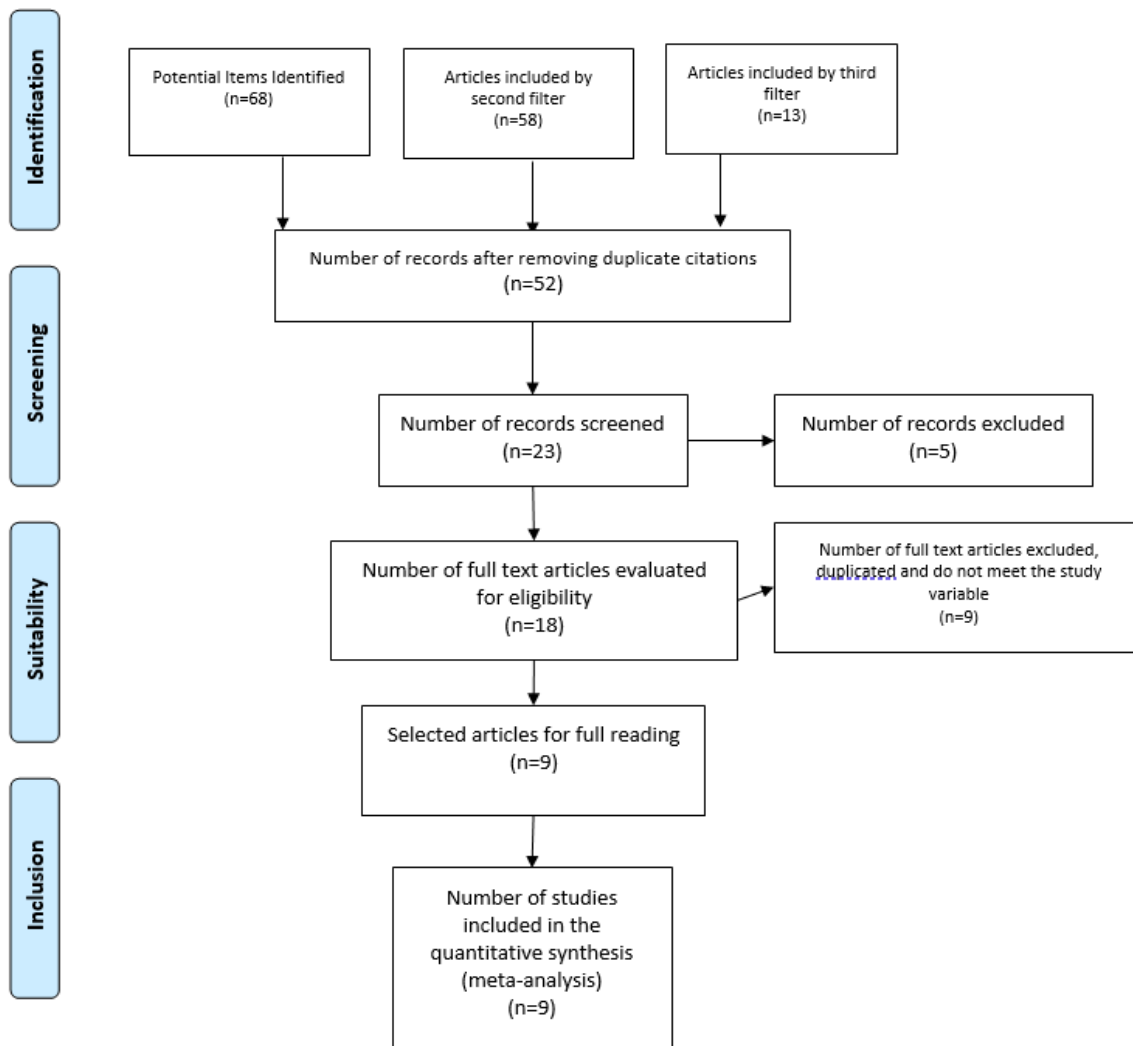
To analyze, from a bibliometric and bibliographic perspective, the production of research papers on the variables Artificial Intelligence and Judicial Decision-Making published in high-impact journals indexed in the Scopus and Wos databases during the period 2018-2022.

### **METHODOLOGY**

The present research is qualitative, according to Hernández, et al., qualitative approaches correspond to the investigations that carry out the procedure of obtaining information to review and interpret the results obtained in these studies; To this end, information was searched in the Scopus and Wos databases using the words ARTIFICIAL INTELLIGENCE FOR CORT DECISION-MAKING. (2015)

### **Research design**

The research design proposed for the present research was the Systematic Review that involves a set of guidelines to carry out the analysis of the collected data, which are framed in a process that began with the coding to the visualization of theories On the other hand, it is stated that the text corresponds to a descriptive narrative since it is intended to find out how the levels of the variable affect; and systematic, because after reviewing the academic material obtained from scientific journals, theories on knowledge management were analyzed and interpreted. (Strauss & Corbin, 2016) (Hernandez, Baptista, & Fernandez, 2015)



**Figure 1.** Flowchart of a systematic review carried out under the PRISMA technique (Moher, Liberati, Tetzlaff, Altman, & Group, 2009)

**Source:** Authors' own creation; Based on the proposal of the Prisma Group (Moher, Liberati, Tetzlaff, Altman, & Group, 2009).

## RESULT AND FINDINGS

Web of Science

**Table 1.** List of articles analysed

No	RESEARCH TITLE	AUTHOR/YEAR	COUNTRY	TYPE OF STUDY	Indexing
1	<i>Ai-based legal technology: a critical assessment of the current use of</i>	Soukupová, Jana.	Czech Republic	Qualitative	Scopus

	<i>artificial intelligence in legal practice</i>				
2	<i>Advanced Artificial Intelligence and Robo-Justice</i>	Zekos,Georgios I.	Greece	Qualitative	Scopus
3	<i>Artificial intelligence and judgment by computers: an analysis from the perspective of substantial access to justice</i>	Cardoso, Henrique Ribeiro. Pessoa, Flávia Moreira Guimarães.	Brazil	Qualitative	Scopus
4	<i>Civil justice in the digital and artificial era: towards a new identity?; [justicia civil en la era digital y artificial: ¿hacia una nueva identidad?</i>	Pérez Ragone, Álvaro.	Chile	Qualitative	Scopus
5	<i>A vulnerability analysis: Theorising the impact of artificial intelligence decision-making processes on individuals, society and human diversity from a social justice perspective</i>	Krupiy, Tetyana (Tanya).	Netherlands	Qualitative	Scopus
6	<i>Artificial intelligence and social media: Towards a new paradigm of judicial communication</i>	No	RESEARCH TITLE	AUTHOR/YEAR	COUNTRY
TYPE OF STUDY	INDEXING	1	Ai-based legal technology: a critical assessment of the current use of artificial intelligence in legal practice	Soukupová, Jana.	Czech Republic

Qualitative	Scopus	2 Zhao, Yuepeng Zhao, Yueqin	Advanced Artificial Intelligence and Robo-Justice	Zekos, Georgios I.	Greece
Qualitative	Scopus	3	Artificial intelligence and judgment by computers: an analysis from the perspective of substantial access to justice	Cardoso, Henrique Ribeiro.	Brazil

Source: Authors' own creation

**Co-occurrence of words**

Figure 2 shows the relationship between the keywords used to search for the study material for the systematic analysis proposed for this research.

**Figure 2.** Co-occurrence of keywords.



Source: Authors' own creation

Figure 2 shows the relationship between the variables Artificial Intelligence and Judicial Decision-Making resulting from the search carried out in the Scopus and Wos databases, determining that Artificial Intelligence is one of the most widely used Information and Communication Technologies in public administration because it allows it to carry out more inclusive and effective processes at each of the institutional levels. Like other

aspects of our daily lives, the judicial function in various countries has had to face multiple changes to keep up with globalized societies, always seeking to facilitate the execution of processes in a more transparent and secure way for the parties involved. As we can see in Figure 2, there is an interdependence between Artificial Intelligence and Judicial Decision-Making since the idea is not to replace judges with technological tools, on the contrary, it seeks to provide support and strengthen their decision-making while decongesting the system and guaranteeing respect for Human Rights. In general, the intention of using this type of mechanism is to modify the judicial system by improving it, thereby achieving better access to justice. Reducing response time, obtaining more information, clearer and more transparent processes are some of the benefits that the implementation of Artificial Intelligence resources in judicial processes is believed to bring.

## **Discussion**

The purpose of this article was to analyze from a systematic perspective, the contribution of the authors through their publications to the study of Artificial Intelligence for Judicial Decision-Making in Ecuador, carried out in high-impact books and journals indexed in Scopus and Wos databases during the period 2018-2022 by authors affiliated with institutions around the world. This allowed us to affirm that the publications exhibited in this document have carried out research related to the variables chosen from different approaches, facilitating the study and thus a better understanding of the subject. Such is the case of the article called "Artificial Intelligence and Computer Trial: An Analysis from the Perspective of Substantial Access to Justice" which seeks to identify the advantages and disadvantages of implementing technologies in judicial processes, managing to determine that although the use of these Artificial Intelligence systems began with the intention of speeding up the solution of problems, it is necessary to analyze them in detail, taking into account "the advantages and disadvantages of the Artificial Intelligence system". algorithmic biases and the possibility of using this technology for discriminatory purposes. In addition, the possibility of granting machines the possibility of judicial decision is rejected", since such a decision could be based on repetitive and generalized characteristics that in turn would cause disagreements or inequities of social aspect. For this reason, in the article entitled "The Remodeling Effects and Limitations of Judicial AI" it is argued that despite the fact that AI has allowed access to a "Visible Justice" there are still many aspects to improve since "it is not easy to achieve absolute objectivity and precision in algorithmic decision-making and, in more complex cases, JHA can promote formal justice but not substantive justice", that is, according to the authors, it is essential to be clear about the normativity and alternatives that facilitate decision-making automatically "as well as "to infuse the concepts of openness, equity and responsibility to promote science and technology for goods and the positive development of intelligent justice to realize 'visible justice'". In other words, we must keep in mind that, although technology has played an important role in our daily lives, it is also normal to find negative aspects of it. For example, in the case of our study variables and according to the article "AI-based legal technology: a critical assessment of the current use of artificial intelligence in legal practice" it is stated that "While artificial intelligence demonstrated that it could improve the legal profession, there are still some underlying risks related to the technology itself, who may consider their use to be of concern." One of the main concerns of the researchers refers to the concept of social justice and the constant search of countries and societies to satisfy the needs of their inhabitants under the principle of equality or equity, a topic addressed in the article "A vulnerability analysis: theorizing the impact of artificial intelligence decision-making processes on individuals, society and human diversity from a social justice perspective". Although it is not one hundred percent linked to decision-making in judicial processes, it is possible to use its conclusions to better understand the great social gap that could arise from the misuse of Artificial Intelligence in the Judicial System, so all countries must be aware that "depending on the way in which an intelligence decision-making process is designed, artificially, it can produce solidarity or segregation between groups in society." Similarly, the author states that "there is a possibility that the operation of artificial intelligence decision-making processes does not reflect people's lived experiences and, as a result, undermines the protection of human diversity" so decisions as relevant as judicial ones should be made on an individual basis trying to understand the characteristics of each individual and their environment. In the words of "the legislature must respond accordingly by identifying contexts in which it is mandatory to employ human decision-makers and enacting relevant legislation." (Cardoso & Pessoa, 2022) (Cardoso & Pessoa, 2022)

(Changshan, 2022)(Changshan, 2022) (Changshan, 2022)(Changshan, 2022)(Soukupová, 2021) (Soukupová, 2021)(Krupiy, 2020) (Krupiy, 2020) (Krupiy, 2020) (Krupiy, 2020).

## CONCLUSION

This review article concludes by highlighting the importance of knowing the updated status of the bibliography published in databases such as Scopus or Wos, referring to the study of Artificial Intelligence for Judicial Decision-Making in Ecuador during the period between 2018-2022. Ecuador, like any Latin American country, has a long list of aspects to improve, so in 2017 it set out to meet some of the Sustainable Development Goals (SDGs), which in turn has driven it to implement various types of technology in its public administration processes in order to allow access to justice for all. The latter would provide a solution to the most frequent concerns on the part of citizens, who consider that there is no efficient and effective solution to the problems presented to the systems of administration of justice, thus generating other disagreements, since it is no secret to anyone that "an excessive delay or an excessive indeterminacy of judicial decisions affects the costs of transaction and legal certainty, diminishing the level of credibility." For this reason, it is considered that the implementation of Artificial Intelligence tools in the Ecuadorian judicial sphere is necessary to help judges and prosecutors make decisions "with greater diligence and objectivity" and thus decongest the system. In the same way, it is important to keep in mind that all problems do not require a regulatory individual, that is, some situations can be solved through alternative mechanisms that can be of great help with the adaptation of Artificial Intelligence to its operation. This also requires "encouraging greater citizen participation and less dependence on traditional conflict resolution." (Vallejo Aristizábal, 2021)(Vallejo Aristizábal, 2021)(Vallejo Aristizábal, 2021).

There is still a long way to go, due to the absence of technological resources that Ecuador still maintains in criminal matters, so it is recommended the use of Artificial Intelligence systems that have been created from the characteristics of the institution, which facilitates the "public control of its artificial intelligence algorithms and the possibility of adaptation to its own judicial reality", without forgetting that the main function of the institution is to ensure that the main function of the institution is to ensure that the main function of the institution is to support and/or help decision-makers and not become a replacement for them. (Vallejo Aristizábal, 2021).

## REFERENCES

- Azoulay, A. (n.d.). *UNESCO*. Retrieved from UNESCO: <https://www.unesco.org/es/artificial-intelligence>
- Cardoso, H. R., & Pessoa, F. M. (2022). ARTIFICIAL INTELLIGENCE AND JUDGMENT BY COMPUTERS: AN ANALYSIS FROM THE PERSPECTIVE OF SUBSTANTIAL ACCESS TO JUSTICE. *Law Review*, 75-101.
- Changshan, M. (2022). The Reshaping Effects and Limitations of the Judicial AI. *Frontiers of Law in China*, 42-66.
- Cordero Moscoso, J. M., & Sacoto Romo, M. C. (2021). E-justice in Ecuador: inclusion of ICTs in the administration of justice (Central Theme). *Forum: Law Review. No. 36*, 91-110.
- Dymitruk, M. (2019). Ethical artificial intelligence in judiciary. *Jusletter IT*.
- Krupiy, T. (. (2020). A vulnerability analysis: Theorising the impact of artificial intelligence decision-making processes on individuals, society and human diversity from a social justice perspective. *Computer Law and Security Review*.
- Moumouni, C. (2021). Artificial intelligence and social media: Towards a new paradigm of judicial communication. *Communication et Management*, 19-34.
- OECD. (n.d.). Case studies of the use of AI in governments in Latin America and the Caribbean.
- Pérez Ragone, Á. (2021). Civil Justice in the Digital and Artificial Era: Towards a New Identity? *48 Revista Chilena de Derecho* 203, 203-229.
- Soukupová, J. (2021). AI-based Legal Technology: A Critical Assessment of the Current Use of Artificial Intelligence in Legal Practice. *Masaryk University Journal of Law and Technology*, 279-300.
- UNESCO. (n.d.). *UNESCO*. Retrieved from UNESCO: <https://www.unesco.org/es/artificial-intelligence>
- Vallejo Aristizábal, S. V. (2021). Advantages and Risks of the implementation of Artificial Intelligence tools in the Ecuadorian Judicial System. . 1-34.
- Zekos, G. I. (2022). *Advanced Artificial Intelligence and Robo-Justice*. Serres: Greece.
- Zhang, Y., Zhao, Y., & Zhao, Y. (2022). The Application of Artificial Intelligence Decision-Making Algorithm in Crisis Analysis and Optimization of the International Court System. *Mobile Information Systems*.