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# Future Prospects for the Application of Artificial Intelligence in Judicial Management

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## Abstract

*The problems in judicial management persist regarding the applicability of artificial intelligence (AI) systems. Currently, they have become a challenge as they lack legal foundation and legitimacy, given that to date, only a minimal number of countries have laws addressing the supervision, regulation, management, and control of AI system applicability in judicial settings. The objective of this research is to analyze the future perspectives of the applicability of Artificial Intelligence in Judicial Management. The method employed will be exploratory research to analyze information from reviewed articles, legal reports, and official websites. Possible indicators of issues in AI applicability in judicial management, current and future trends of AI in judicial management, and an appropriate conceptual model for AI applicability in judicial management were identified. It was concluded that the application of artificial intelligence in judicial management remains a challenge and an ongoing issue because it currently does not inspire confidence in decision-making processes.*

**Keywords:** *Judicial Management; Artificial Intelligence; Systems for Judicial Management; Legal Processes; Penal Laws for AI.*

## Introduction

The problems in judicial management persist regarding the applicability of artificial intelligence (AI) systems. Currently, they have become a challenge as they lack legal foundation and legitimacy, given that to date, only a minimal number of countries have laws addressing the supervision, regulation, management, and control of the applicability of artificial intelligence systems. Below, we identify possible issues, advantages, and trends of AI in relation to judicial management:

In Ecuador, a diagnostic of artificial intelligence is being conducted to develop a digital ecosystem aimed at generating AI strategies. The goal includes analysing governance and formulating strategies, drawing inspiration from approaches used in Estonia and Singapore. AI governance represents one of the significant challenges facing legal and technical sciences. Several universities and polytechnic schools in Ecuador participated in the development of this document, including University of the Americas, University of Carchi, University San Francisco de Quito, among others(Ministerio de telecomunicaciones y de la sociedad de la informacion, 2020). In Ecuador, artificial intelligence in judicial administration considers that the alignment between technology and human interpretation within a legal context remains essential to ensure efficient and fair trials. The integration of chatbots represents a new paradigm in the provision of judicial services. Chatbots are implemented through online platforms and government applications. Their primary functions include providing basic information on legal procedures and judicial processes. It is acknowledged that chatbots can effectively deliver introductory legal services and respond to frequently asked questions. It is emphasized that in Ecuador, AI with chatbots would play a significant role in judicial administration(Bodero-Solís et al., 2024). The Fourth Industrial Revolution, driven by AI, compels reflection on its impact on the administration of justice from the plural, interdisciplinary, and social perspective that characterizes bioethics. The authors identify the difficulties that arise from various legal, ethical, and reasoning viewpoints(Segura, 2023). Artificial Intelligence is at the center of debates due to gaps

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in areas such as regulation, supervision, and management. The authors state that there is a weak global generalization regarding legal regulations of AI. This research determines that the following countries have enacted relevant regulations: the United States has 22 regulations, the United Kingdom 6 regulations, Canada 1 regulation (and is among the few with both criminal and administrative laws), Germany 3 regulations and criminal law, while Portugal has 13 regulations and Spain 10 regulations. Other countries have created regulations but lack any criminal or administrative laws. Surveys conducted for this article indicate that the aspects needing regulation are ethics, privacy, security, responsibility, and algorithmic bias for the development and application of Artificial Intelligence in Ecuador(Pablo David Portilla Obando, Carmen Marina Méndez Cabrita, Carmen Marina Méndez Cabrita, 2024). The application of information technologies, specifically Artificial Intelligence (AI), for scheduling hearings in the Ecuadorian judicial system presents a series of significant challenges and ethical considerations. The use of open AI tools and various platforms, such as ChatGPT, underscores the importance of establishing restrictions and limitations to ensure ethical and responsible use(Katherine et al., 2024). The authors base their arguments on electronic management supported by articles 116, 118, and 119 of the COGEP, article 579 of the COIP, and article 8 of the Organic Law of Jurisdictional Guarantees and Constitutional Control. External users of e-SATJE-2020 include legal professionals, procedural parties, third-party interveners, prosecutors, enforcement bodies in law, and the general public. To operate within the Ecuadorian Automatic Judicial Processing System, these users require a digital mailbox(Morillo Velasco, 2020). The integration of Artificial Intelligence (AI) with the legal field has significantly impacted the administration of justice. An evaluation of the feasibility of implementing AI systems in the administration of justice is conducted through doctrinal and legal analysis, aiming to optimize judicial processes and understand their implications in terms of legal security and procedural economy. This involves considering algorithms and the adoption of expert systems in the legal area. Expert systems and machine learning tools have the capability to analyze extensive legal databases, identifying patterns, precedents, and possible legal outcomes. This capability accelerates judicial decision-making and provides a solid foundation, thereby contributing to the efficiency and quality of the judicial system(Milla Lostaunau, 2014). The use of information technologies and artificial intelligence is frequently seen in education, medicine, legal management, and other fields. Data science aids legal professionals in decision-making, risk management, and performing routine legal research tasks. According to the research, the legal industry is becoming more modern and aligned with society(McKeown et al., 2020). The evaluation of the impact of artificial intelligence on patent legislation considers the legal concepts of the inventor and an expert in the field, along with the essential requirements for the patentability of inventions. The AI system is based on neural networks. General laws are resistant to change(Hoffmann-Riem, 2019). Despite lacking legality and legitimacy, the use of artificial intelligence increasingly interacts in judicial trials within a globalized environment. Intelligent software includes functional modules, such as guidance, indications, and deviation warnings, which can assist first-instance judges in delivering verdicts, advancing cases, and automatically generating documents throughout the litigation process. Different software developed for legal management using information technologies, especially artificial intelligence, are faster. Artificial Intelligence can have a direct influence on Judicial Decision-Making and Decision Support(Aini, 2020). In Saudi Arabia, significant efforts have been made in the area of artificial intelligence. AI techniques in the Saudi judicial system indicate possible future developments. The findings revealed that AI techniques are promising advancements in the judiciary. The authors support enhancing human expertise with appropriate AI techniques such as machine learning, text mining, NLP, and automatic interpretation to improve efficiency, effectiveness, and accuracy. While AI in various fields like agriculture, manufacturing, and healthcare is mature, its application in judicial management worldwide is still in the development phase(Al-Alawi & A-Lmansouri, 2023). With the support of artificial intelligence, legal assistance services will be available 24 hours a day and 7 days a week; Changes with AI are relevant both in the industry and in legal management. The development of AI-powered chatbots designed to provide judicial advice. The authors present a generation chatbot and an intent-based chatbot to provide judicial advice services to Indians and compare the two approaches on the basis of various factors such as nature of responses, quality of response, handling of changing scenarios, training and requirements data. The development and evaluation of generative AI and intent-based AI systems for legal chat applications has provided insights into their strengths and limitations(Wyawahare et al., 2024). The judiciary to manage justice has incorporated AI with the aim of improving decision-making for judges and legal professionals and also to offer the public a better service. The integration of AI in legal management allows us to

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streamline tasks such as: Documentation review, legal research, contract analysis, case prediction and decision making. Considering that AI allows us to lower the margin of error, courts worldwide have begun to incorporate AI as a means to improve the administration of justice; although they are aware of the ethical challenges that arise with the use of AI systems. The authors determine recommendations to address ethics such as: Human Oversight and Responsibility, Privacy and Data Protection, Collaboration and Stakeholder Engagement, Potential for Errors and Unintended Consequences and Ethical Guidelines and Principles(John et al., 2023). Due to the problems that can be generated with the use of AI, the European Union is generating the law for the use of AI in all areas of knowledge, for which the following question has been asked. AI Act in Late 2023: Where Are We Now? and consider the following relevant points that AI systems have high risk, infrastructure requirements to cover high-risk systems, among others(Wagner et al., 2024). The challenges of fundamental human rights in the era of artificial intelligence are the set of fundamental human rights, principles of the rule of law and democratic values enshrined in the European multinational legal order (Mansoor and Paul, 2022).Artificial intelligence or AI-based systems are technologies that have a great impact on legal management. The authors review the IA regulatory framework and make proposals on new, renewed and modernized rights that should improve and complement the current ones, and also consider regulatory standards. They carry out an analysis regarding technological determinism and legal order, impact of AI on fundamental human rights, vision of the future of AI(Shaelou & Razmetaeva, 2023). The Supreme Court of Justice of India has always been humanistic, but due to technological advances it has had to incorporate the application of AI into the legal system. They state that they have multiple benefits that even for this reason are used in judgment predictions but it also has its limitations in security, which is the reason why academics and lawyers mention that the integration of AI must be in a responsible manner with society and humanity(Rana et al., 2023). Some Justice Organizations have been slower in using Information Technologies than others; But due to the amount of information stored, they have seen the need to apply artificial intelligence, but it generates important concerns as a safeguard of the values of Justice. The principles set out in the documents are: 1.) respect for fundamental rights, 2.) non-discrimination, 3.) quality and safety, 4.) transparency, impartiality and equity, and 5.) "Under user control." The threats that AI poses to the judiciary regarding possible loss of these principles(Rocha & Carvalho, 2022).

Why is it necessary to analyze the future prospects for the application of artificial intelligence in judicial management?

To have an alternative that allows clearly identifying the future perspectives of the applicability of artificial intelligence in judicial management with necessary arguments to generate trust in systems based on artificial intelligence and identify the situation of the standards criminal and administrative laws in judicial management.

The objective of this research is to analyze the future perspectives of the applicability of Artificial Intelligence in Judicial Management.

The deductive method is used with exploratory research for the analysis of the information used as reference in this document.

The results obtained are: Indicators of possible problems of the applicability of AI in judicial management, Current and future trends of AI in judicial management and an adequate conceptual model for the applicability of AI in judicial management.

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## Literature Review

The authors define a legal prediction model based on machine learning known as "Legal Insight"; This model allows decisions to be made based on appropriate laws, providing an additional layer of knowledge

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and value. Helps predict Supreme Court trials. The "Legal Acumen" model is the pioneer in legal prediction. They consider the SVM algorithm to be based on accuracy, precision, recall and scoring(Rani et al., 2023). The State of the People's Republic of China has introduced the Chinese criminal justice system, but AI's misinterpretation of judicial decisions, AI's inability to make value judgments, possible biases of algorithms, selectivity of the data used by AI, the "black box" nature of AI-made rulings, lower acceptance of AI-backed rulings. The Chinese suggest that AI should not be given importance and should not be used for decision making but as an assistant(Shi, 2022). The AI platform is to integrate the theories of social governance foundations, modernization of the rule of law, "Internet +" concept, and the business management system of justice, among others; in the construction system of the public legal services platform. AI is in all areas and why not in the university area. The intelligence industry is developing rapidly, but the level of research and development is still lagging behind(Wan, 2022). The Italian justice system has implemented mechanisms for mediation processes; considers that one of the critical aspects is the reliable construction of litigation. The decision is made by a judge/court who has to read hundreds of pages to make a decision. One solution is artificial intelligence with a decision support tool that can process documents and is able to produce reliable suggestions, produce circumstantial motivations, provide a web-based tool. To solve these problems, AI and eXplainable AI have been applied and a solution has been obtained that meets the aforementioned objectives and many other detailed requirements. This solution belongs to the "Giustizia Agile" project funded by the Italian government and has been validated. in real cases(Collini et al., 2024). ICT is immersed in all people and areas and has changed the way of life, including judicial functions. The authors state that there are several risk problems in the security of information processed by the technology implemented in the courtroom and the technical applications available in the Malaysian Courts. They state that technology will always come first and the Law behind, therefore you have to know how to manage risks properly(Hamin et al., 2012). They define that in Pakistan the judicial systems are very deficient. They are ranked low by the World Justice Project (WJP), which is an international body that works to advance the rule of law around the world. They implemented four topic modeling techniques i.e. LDA, LSA, NMF and HDP using the judgments of Supreme Court of Pakistan and Islamabad High Court and evaluated their performance(Mehmood & Irfan, 2022). The paper presents a web-based implementation structure of an IS for the judicial system in the Regional Trial Court (RTC) of the Philippines. The central objective is to help Judicial Officers and lawyers' workflows. The methodology used for the development of the project is the following: Project design, requirements planning, software development, hardware development, system testing, system evaluation(Acoba et al., 2020). In some countries such as Bangladesh, judicial processes were being carried out manually, with a lot of risk, with the use of ICT and to ensure judicial processes in this country, a system based on Blockchain has been created with the purpose of mitigating risks, vulnerabilities and threats. in judicial management(Rakibul Hasan et al., 2024). Ukrainian and EU experts state that for the proper use of Artificial Intelligence there must be legal regulation based on socio-legal, social, ethical, methodological and practical statutes that there is no harm to humanity that there is a technological impact with positive results prior to the implementation of systems based on artificial intelligence. They consider that AI is a new potential subject of legal relationship(Kostenko et al., 2023). Artificial intelligence has new trends and challenges in the judicial area, facilitating all judicial processes with interpretation, calculations, among others, but at the same time it generates potential risks, such as black boxes of algorithms, algorithmic discrimination, among others. To safeguard these risks, limits must be placed on the use of AI in judicial processes. The authors conclude that the fairness of artificial intelligence should be limited by social relations, rationality and operation of the code(Xu et al., 2022). Artificial intelligence is the present, not the future, that has an impact on the management of justice. They identify possible areas for the use of AI in justice, examine the legal personality of AI and the scope of its competence, and evaluate the prospects for the development of AI in justice. The authors consider the following areas of use as: Court activities, evaluation of evidence, among others. They considered that the feasibility of using AI is to solve problems that require processing a large amount of information and documents in electronic format. States that the use of judicial AI is only possible if guarantees are offered for human rights and interests(Laptev & Feyzrakhmanova, 2024). Legal professionals are experimenting with various options with AI and have obtained excellent benefits but they also argue that AI is trustworthy, social, responsible, humane and ethical(Verheij, 2020). The potential focus of artificial intelligence is to improve access to legal services to streamline legal procedures. The focus is to ensure fairness and uphold transparency in all judicial proceedings. They determine a "human-in-the-loop" strategy that interacts between human knowledge and artificial intelligence techniques to mitigate bias and ensure individualized legal results(Zafar, 2024). The authors evaluate whether current international protocols are useful in the fight against cybercrime and whether artificial intelligence (AI) technologies can

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be applied. They analyze the possible judicial problems that can be caused by the misuse of AI by committing harmful and illegal conduct, including deep fakes(Velasco, 2022). They used the two-step procedure, considering the involvement of the data. analysis (DEA), slacks-based analysis (SBM), and partial least squares structural equation modeling (PLS-SEM). The results demonstrate that judicial efficiency has significant relationships with performance, quality and context characteristics. They review the literature and develop hypotheses on: Italian judicial system, relationship between performance indicators and judicial efficiency, relationship between quality indicators and judicial efficiency, relationship between procedural characteristics and judicial efficiency, relationship between characteristics of the context and judicial efficiency, Additional characteristics of efficiency and the Heterogeneity of judicial efficiency. They used the Methodology: Research design, data collection procedure and variable descriptions, data analysis techniques(Mazzocchi et al., 2024). Intelligent systems raise serious concerns, one of the main ones being how to control the machines; One of the problems is that the systems unfairly evaluate people's creditworthiness. Criminal justice with predictive analysis has allowed us to improve the fight against crime. The authors present a strategy for human-machine collaboration to provide judges with the benefits of AI and machine performance. They define two key components; one learning model and the other a human-computer interaction component(Lettieri et al., 2023). The study of law and technology carries a contradiction due to the accelerated growth of technologies without border limits. The application of AI in law has often become a black box considering the paradigm how it ensured the control of machines. They conclude that the validity of the law is long: they consider a political ideal and a mechanism to limit the abuse of AI systems(Greenstein, 2022). Technologies with artificial intelligence systems will bring changes in the application of justice. In the survey conducted with judges, they indicate that the dehumanization of justice can generate problems; for them, justice should continue to be human, not techno-justice. The results obtained in this survey are: Characterization of the sample population of Judges, Profession (Legal education, Legal writing), Social function of the judge, Adjudication, Legal principles(Martinho, 2024). In this document they analyzed whether AIs are reliable and are corporate governance considering that artificial intelligence systems will change many aspects in this world, but they argue that the four founding pillars must be maintained, which are respect for human autonomy, prevention of harm, justice, and applicability. In this research they analyzed the following topics: The guidelines, Corporate leadership and supervision, Diversity, non-discrimination and equity, Corporate Purpose and Stakeholders, Technical Robustness and Security, Privacy and data governance(Hickman & Petrin, 2021). The authors mention that legal discourses about robots are directed within a limiting framework considering that these robots have artificial intelligence (AI) systems. They state that they can cause serious consequences for the law in the digital future. They relate to 20th century science fiction films with artificial beings where humans practically lose control over things on earth. They analyzed the following topics: Science fiction, robots and the human paradigm, human futures, bodies and separation in science fiction robots, The scholarship of human paradigm and robotic law, human futures, separation and distinction, Robots that speak but see the man, The closure and restriction of robotic law scholarship(Goding & Tranter, 2023).

## Methodology

In this research, the IMRYD methodology (Introduction, Materials-Method, Results and Discussion) was applied for the structure of the article and the respective analysis of the information.

For the research design, the analysis of information using the deductive method and exploratory research are considered, considering three fundamental phases:

*First phase*
Identification of the research problem with the analysis of the references from the introduction phase and then with the definition of the research question, answer to the question, with the definition of the research objective.

*Second phase*
A table was prepared that will be presented as a result considering the most relevant points of view of the authors of the articles analyzed in the introduction phase to support the possible problems that may arise with the applicability of systems based on artificial intelligence in judicial management.

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*Third phase*
Current and future trends regarding the applicability of artificial intelligence in judicial management are analysed. In this phase, the references of the reviewed literature are analysed.

## Results

The results obtained are the following: Indicators of possible problems with the applicability of AI in judicial management, Current and future trends in AI in judicial management and Adequate conceptual model for the applicability of AI in judicial management.

*Indicators of possible problems with the applicability of AI in judicial management*

The proposed model allows minimizing the availability of threats and vulnerabilities of small and medium-sized companies, in order to determine what they are exposed to in order to propose immediate solutions, such as: mitigate, share, avoid and eliminate the risk. The model is detailed in Figure 1 below.

Table 1. Indicators to identify possible problems

| Indicator | Type | Ref. |
|---|---|---|
| AI governance is one of the biggest challenges. | Management | (Ministerio de telecomunicaciones y de la sociedad de la informacion, 2020) |
| Alignment between technology and human interpretation. | Technical | (Bodero-Solís et al., 2024) |
| Impact on the administration of justice from a plural, interdisciplinary and social perspective. | Management | (Segura, 2023) |
| At a global level there is a weak generalization regarding legal norms regulating AI. | Management | (Pablo David Portilla Obando, Carmen Marina Méndez Cabrita, Carmen Marina Méndez Cabrita, 2024) |
| Platforms such as Chat GPT consider the importance of establishing restrictions and limitations to guarantee ethical use with responsibility. | Management | (Katherine et al., 2024) |
| Digital mailbox availability. | Management / Technical | (Morillo Velasco, 2020) |
| Legal databases, to identify patterns, antecedents and possible legal outcomes. | Technical | (Milla Lostaunau, 2014) |
| Risk management and performing routine legal research tasks. | Management | (McKeown et al., 2020) |
| General laws resist change. | Management | (Hoffmann-Riem, 2019) |
| AI does not have legality and legitimacy but increasingly its use has interaction in judicial trials under a globalized environment. | Management | (Aini, 2020) |
| Judicial management worldwide is in the development phase. | Management | (Al-Alawi & A-Lmansouri, 2023) |
| Generative AI and Intent-Based AI for Legal Chat Apps Have Limitations. | Technical | (Wyawahare et al., 2024) |
| AI allows the courts to reduce their margin of error. | Management | (John et al., 2023) |
| The European Union is generating the law for the use of AI in all areas of knowledge. | Management | (Wagner et al., 2024) |
| Technological determinism and legal order, impact of AI on fundamental human rights, vision of the future of AI. | Management / Technical | (Shaelou & Razmetaeva, 2023) |
| AI has limitations in security. | Management / Technical | (Rana et al., 2023) |
| AI presents important concerns as a safeguard of the values of Justice. | Management | (Rocha & Carvalho, 2022) |

The management or technical indicators or the two most relevant at the same time that must be considered

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in an analysis for the application of AI systems.

To generate Table 1, an analysis was carried out on each of the references in terms of how they can generate possible problems at the management or technical level or both at the same time.

*Current and future trends in AI in judicial management*

The prototype proposes to minimize the risks that can cause bankruptcy in companies, by identifying the vulnerabilities and threats that erroneous financial information can generate. Select mitigation strategies in order to design and implement an action plan, until its monitoring.

Table 2. Current and future trends

| Trends | Type | Ref. |
|---|---|---|
| Predicting Supreme Court trials. The "Legal Acumen" model is the pioneer in legal prediction. | Current | (Rani et al., 2023) |
| The Chinese suggest that AI should not be given importance and should not be used for decision making but as an assistant. | Current / Future | (Shi, 2022) |
| AI is developing rapidly, but the level of research and development is still lagging behind. | Current / Future | (Wan, 2022) |
| Decision making by a Judge/Court applied AI and eXplainable of the "Giustizia Agile" project. In Italian Justice. | Current | (Collini et al., 2024) |
| Risk issues in the security of information processed by the technology implemented in the courtroom and the technical applications available in the Malaysian Courts. | Current / Future | (Hamin et al., 2012) |
| In Pakistan the judicial systems are very poor. | Current | (Mehmood & Irfan, 2022) |
| Judicial system in the Philippines in project design, planning, software development, hardware development, system testing, system evaluation. | Current / Future | (Acoba et al., 2020) |
| In Bangladesh, this country has created a system based on Blockchain with the purpose of mitigating risks, vulnerabilities and threats in judicial management. | Current | (Rakibul Hasan et al., 2024) |
| Ukrainian and EU experts state that for the proper use of Artificial Intelligence there must be legal regulation. | Current / Future | (Kostenko et al., 2023) |
| It generates potential risks, such as black boxes of algorithms, algorithmic discrimination, to avoid this, limits must be placed on the use of AI in judicial processes. | Current / Future | (Xu et al., 2022) |
| AI is the present, not the future, that has an impact on the management of justice. The use of judicial AI is only possible if guarantees are offered for human rights and interests. | Current | (Laptev & Feyzrakhmanova, 2024) |
| They argue that AI is reliable, social, responsible, humane and ethical for use. | Current | (Verheij, 2020) |
| They determine a "human-in-the-loop" strategy that interacts between human knowledge and artificial intelligence techniques to mitigate bias and ensure individualized legal results. | Current | (Zafar, 2024) |
| They analyze the possible judicial problems that can be caused by the misuse of AI by committing harmful and illegal conduct, including deep fakes. | Current / Future | (Velasco, 2022) |
| Two-step procedure, considering data involvement. analysis (DEA), slack-based (SBM). | Current | (Mazzocchi et al., 2024) |
| They define two key components; one learning model and the other a human-computer interaction component. | Current | (Lettieri et al., 2023) |
| Study of law and technology carry a contradiction due to the accelerated growth of technologies without border limits. | Current / Future | (Greenstein, 2022) |
| In the survey carried out among judges, they indicate that the dehumanization of justice can generate problems, for them justice should continue to be human, not techno-justice. | Current/ Future | (Martinho, 2024) |
| They analyzed whether AI is reliable and whether it is corporate governance considering that artificial intelligence systems will change many aspects in this world. | Current/ Future | (Hickman & Petrin, 2021). |
| Robots are guided within a limiting framework considering that these robots have artificial intelligence (AI) systems. | Current/ Future | (Goding & Tranter, 2023) |

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| | | |
|---|---|---|
| They state that serious consequences for the law in the digital future. | | |

The current and future trends that must be analyzed and considered to make the decision to use an AI system.

Table 2 describes the current and future trends in a summarized form for readers to consider in an evaluation of systems based on artificial intelligence

*Adequate conceptual model for the applicability of AI in judicial management*

The conceptual model defined in Fig. 1 is an alternative for the Governance Integration of an AI system for Ju

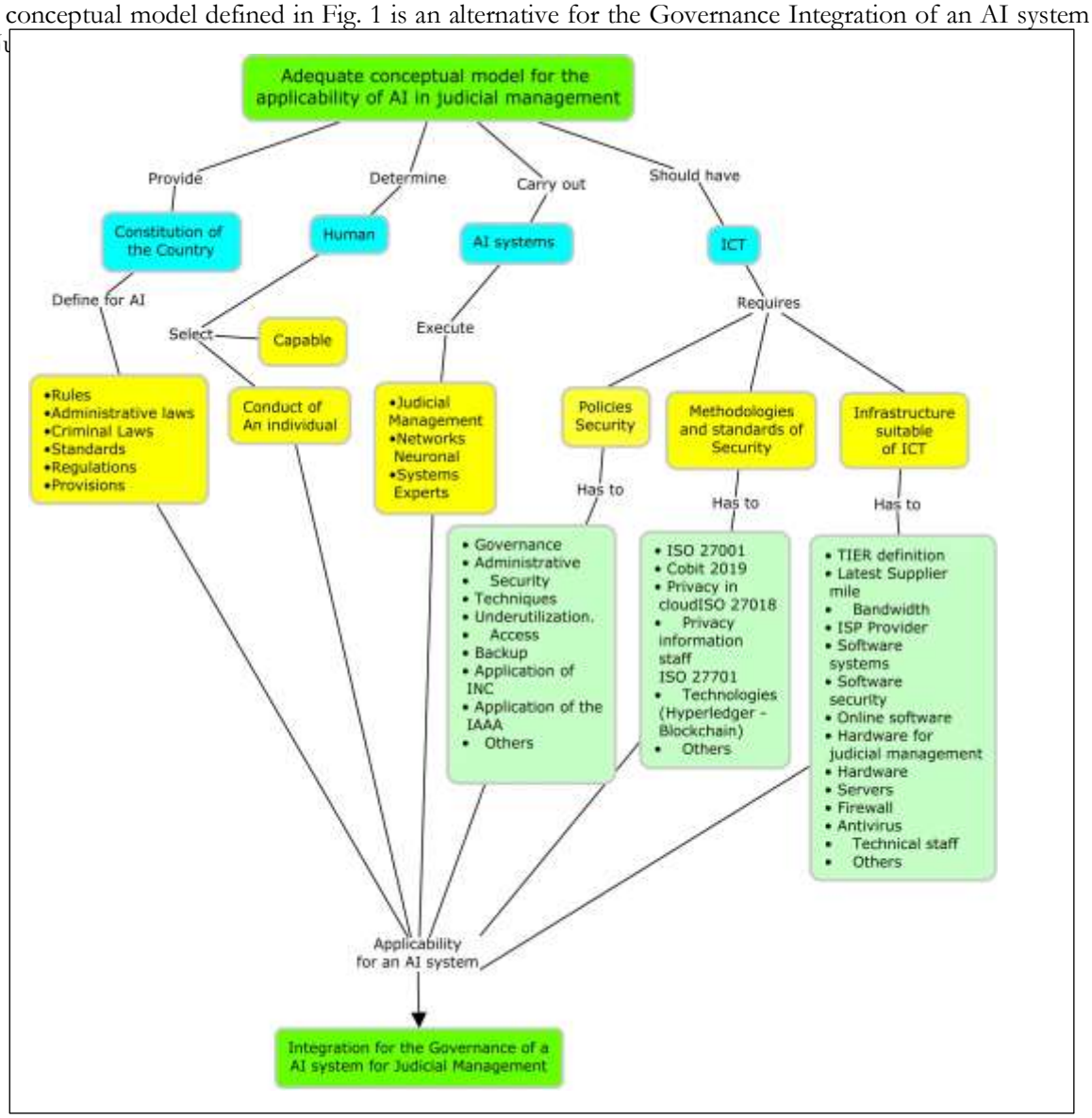


**Figure 1.** Conceptual Model for an AI System

Overview of the conceptual model for an AI system:

Constitution of the country

In each country, the constitution should be modified to be able to correctly apply criminal laws, administrative laws, rules, regulations, standards, provisions that are aimed at ensuring that decision-making

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using artificial intelligence systems is not biased regarding artificial intelligence (AI).

Human

At this point, two important points must be made: the first is regarding the training that judges have basic academic training in law and information technologies with master's degrees in management and doctorates in either of the two basic training courses. They must create a structure of IT judges. Secondly, human behavior regarding ethics must have a bidirectional relationship with AI systems.

AI systems

Artificial intelligence systems must be developed based on the legal basis of the country's constitution and must be complemented with neural networks, expert systems, among others, to ensure their proper functioning.

ICT

ICTs are transversal in all areas of knowledge and for the generation and operation of artificial intelligence systems for judicial management, the following minimum requirements must be met: Security policies, security methodologies and standards and an adequate ICT infrastructure.

## Discussion

The results obtained in this research are the indicators regarding the possible problems that are being generated with the use of AI systems in judicial management, current and future trends with the applicability of AI systems in judicial management and finally adequate conceptual model for the applicability of AI in judicial management that will serve as an alternative to carry out an analysis of an AI system for judicial management and make the decision of its implementation.

In this research, a general analysis is carried out in order to have a clear vision of the situation of AI systems for judicial management in several countries in America, Europe and Asia. It is clarified that in this research no validations are carried out.

After having analyzed the documents from the introduction phase to identify the problem of AI systems for judicial management and reviewing the documents from the materials phase on current and future trends, none of them make contributions. Similar to our results, none even present a conceptual model for the governance integration of an artificial intelligence system for judicial management, which is our original contribution to this research.

Considering the situation of current and future artificial intelligence systems, our conceptual model for the Integration for the Governance of an AI system for Judicial Management is an alternative basis for the analysis of an AI system prior to decision making for its utilization.

## Future Work and Conclusions

Short-term researchers must carry out a validation with a case study to re-confirm the situation of artificial intelligence systems in judicial management.

It was concluded that the applicability of artificial intelligence in judicial management continues to be a challenge because to date it does not generate trust in decision-making in trials or different legal processes; Furthermore, a minimum number of countries have created criminal and administrative laws for the management and control of the applicability of artificial intelligence in judicial processes.

The indicators generated to identify possible problems with the applicability of AI in judicial management allow us to more clearly identify the existing problems in AI systems for judicial management, especially in Ecuador and several countries around the world.

Current and future trends in AI in judicial management allow us to identify the different points of view of current systems and what should be done to ensure that AI systems for legal management provide confidence in all processes.

It was concluded that the "Appropriate conceptual model for the applicability of AI in judicial management" is an alternative to adequately define the Integration for the Governance of an AI system for Judicial Management

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### Authors' contributions

All authors collaborated in the process of elaboration of the article. Diego Andrade and Moises Toapanta worked mainly in the Introduction, Analysis, Review of all phases of the article and the Literature. Zharayth Gómez and Enrique Mafla worked mainly in the methodology, search for information and results. Antonio Orizaga and Janio Jadán worked mainly in the selection of the validation scales, discussion and conclusions.

### Author ethical declarations

We confirm that the work has not been published elsewhere in any form or language

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