Use of AI tools in the Colombian Judiciary: Findings from Three Surveys.

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Submitted: 31 January 2025, Revised: 26 March 2025, Accepted: 21 April 2025, Published: 30 June 2025

Abstract. This paper aims to answer three main questions regarding the use of artificial intelligence (AI) tools in the Colombian judiciary. First, what type of AI tools do judges and judicial staff in Colombia access and use? Second, how and for what purposes are these AI tools used? Third, do demographic factors (e.g., age, gender) influence how judges and judicial staff approach AI tools? This paper is based on three comprehensive surveys conducted in 2024. Two surveys conducted by the authors targeted participants in the course "Artificial Intelligence for the Administration of Justice: Fundamentals, Applications, and Best Practices", offered by the Universidad de los Andes and the Superior Council of the Judiciary (CSdJ). A total of 1,391 judicial staff members responded at the start of the course, and 824 responded at its conclusion. A third survey, conducted later by the CSdJ, gathered responses from 3,152 judicial personnel. Our analysis reveals that training significantly improved AI familiarity among judicial personnel—initially, 63% reported minimal knowledge, but after the 50-hour course, 85% claimed moderate to high familiarity. While approximately one-third of respondents initially used AI for work tasks, this increased to nearly half post-training. Over 80% of users accessed free AI versions, raising concerns about confidentiality as these platforms may share information with third parties. Judicial officials primarily employ generative AI for information searches and document writing, particularly for jurisprudence (59%), legislation (52%), and definitions (51%). This reliance on AI for information retrieval presents risks if outputs aren't verified against reliable sources. Although age and gender disparities in AI familiarity exist, reported usage patterns show minimal demographic differences. These findings emphasize the importance of enhancing digital literacy among judicial professionals and inform our recommendations for developing appropriate regulations and guidelines governing AI systems in the justice sector.

Keywords. Artificial Intelligence, Algorithms, Large Language Models, Chatbots, Justice, Judges, Tribunals, Judicial Staff, Colombia.
Research paper, DOI: https://doi.org/10.59490/dgo.2025.1060

1. Introduction

The adoption of artificial intelligence (AI) tools can contribute significantly to the objectives of the administration of justice and, in general, to the objectives of the States (UNESCO, 2023). Magistrates, judges and other judicial staff around the world have been using AI systems for the management of processes and support in performing legal tasks over the last decade (CEPEJ, 2024; Gutiérrez, 2020).

However, the successful adoption of these systems depends on multiple factors that go beyond the characteristics of the technological tools themselves and the physical infrastructure required for their operation. The

effectiveness of AI systems in solving problems or achieving objectives within an organization also depends on the human factor, at both the individual and organizational levels. In that sense, the human talent that deploys and uses them is essential, in addition to the governance of the organization and the culture that shapes the behavior of the individuals who compose it.

This paper aims to answer three main questions regarding the application of AI tools in the Colombian judiciary. First, what type of AI tools do judges and judicial staff in Colombia access and use? Second, how and for what purposes are these AI tools used? Third, do demographic factors (e.g., age, gender) influence how judges and judicial staff approach AI tools?

This is the most comprehensive article published to date on the use of AI systems in Colombia's public sector. The study is based on three surveys conducted among Colombian judicial personnel. The surveys were conducted in the first semester of 2024 through electronic forms. Two surveys were answered by judicial officials who took part in the course "Artificial Intelligence for the Administration of Justice: Fundamentals, Applications and Best Practices", offered jointly by the Universidad de los Andes and the Superior Council of the Judiciary (CSdJ) - the body in charge of governing the judiciary in Colombia. The first survey was answered at the beginning of the course by 1,391 judicial personnel, and the second at the end of the course by 824 judicial personnel. The third survey was administered directly by the CSdJ and answered by 3,152 judicial personnel. This paper, based on the survey data, explores the ways in which judicial personnel use AI tools, focusing on Generative Artificial Intelligence (GAI) systems.

The paper is divided into four sections, in addition to this introduction. The first section provides a brief literature review on empirical research that has examined how judicial operators worldwide use these tools. The second section details the methodology employed to conduct the research, emphasizing the design and processing of the surveys. Next, the third section outlines the main findings regarding the uses of the tools. The final section synthesizes the key findings from the surveys.

2. Literature review

The use of AI tools in the justice sector precedes the "boom" of GAI systems that detonated globally, in November 2022, with the launch of the ChatGPT tool by OpenAI. For example, since November 2017, the Prosecutor's Office of the Autonomous City of Buenos Aires, Argentina, has been using the Prometea system for "the digital automation of reiterative task processes and the application of AI for the predictive elaboration of legal opinions in analogous cases for whose solution there are already reiterative judicial precedents" (Estevez et al., 2020, p. 46). In Brazil, since 2019, the Federal Supreme Court (STJ) implements the Victor tool to support the review the admissibility of appeals concerning the requirement of "general repercussions" (Ministro do Superior Tribunal de Justiça, 2020; UNESCO, 2023).

The "Resource Centre Cyberjustice and AI" database, created by the Council of Europe's European Commission for the Efficiency of Justice (CEPEJ), lists over 140 different AI tools used by judges and courts on different continents. In Colombia, for example, since 2021 the Constitutional Court has been using the PretorIA tool, a machine learning system that assists in the search for information for the selection of tutelas in the review process (proceso de revisión) (Corte Constitucional, 2020, 2024; Gutiérrez, 2020; Gutiérrez & Muñoz-Cadena, 2023; Saavedra & Upegui, 2021).

More recently, there has been a growing interest in incorporating GAI systems into legal work by judges, prosecutors, and lawyers (Gutiérrez, 2024c; UNESCO, 2023). For example, (Gutiérrez, 2023a, 2023b, 2023c, 2023d, 2024a) has documented cases in which judges and courts have used chatbots operating from large-scale language models (LLMs) to support the drafting of judicial decisions and their participation in court hearings.

While there are case studies on specific AI tools deployed in the justice sector, such as those mentioned earlier, and monographs that document various types of AI tools, like (UNESCO, 2023), scholarship on how these tools are utilized in practice by magistrates, judges, and judicial staff remains limited. Only recently, an emerging literature has sought to understand the use of AI systems in the justice sector through surveys. The studies examine how judicial officers and lawyers utilize these systems in their professional roles. This section overviews the findings of four recent surveys conducted by the Conselho Nacional de Justiça do Brasil (CNJ), the United Nations Educational, Scientific and Cultural Organization (UNESCO), LexisNexis, and Thomson Reuters.

First, the Brazilian CNJ (Conselho Nacional de Justiça, 2024) studied aspects of the governance of the use of GAI systems in the judiciary and evaluated the impacts of these tools in the Brazilian judicial system. The results presented below focus on the second part of the survey regarding the use of these tools by the Brazilian judiciary. The questionnaire was sent to all active magistrates and judicial personnel between May and June 2024. The target population consisted of 16,844 magistrates and 278,755 judicial personnel. In total, responses were obtained from 1,681 magistrates (9.1%) and 16,844 judicial personnel (6%).

Due to the concern related to the reliability of the texts generated by GAI systems, the study inquired about the reasons for their use. The main uses of GAI tools identified by the survey correspond to text generation, proofreading, translation, and synthesis, among others. However, the results also highlight the use of these tools for tasks such as general information searches (approximately 50%) and case law searches (15% of magistrates and 11% of judicial personnel). When evaluating the potential uses of these tools, most magistrates (70%) and judicial personnel (60%) considered them helpful for case law searches, both for professional practice and research.

When asked about potential limitations to the use of these tools, the central reported limitation was a lack of knowledge in their use (51.9%), followed by distrust in the reliability of the results (32.6%), a lack of regulation (15%), and ethical concerns regarding their use (10%). These results are analogous to those found in the survey that we conducted in Colombia, particularly regarding the perceptions of magistrates, judges, and other judicial personnel on the barriers to the adoption of AI systems in the administration of justice in Colombia. However, the results of the Brazilian survey suggest that there is optimism in the use of these systems due to their potential benefits for various tasks (80% of magistrates and 70% of judicial personnel). In addition, more than 95% of those surveyed consider it appropriate to receive training in the use of GAI tools in the workplace.

Second, the survey conducted by UNESCO at the end of 2023 targeted its global network of judicial operators, including judges, judicial staff, prosecutors, lawyers, and legal researchers. In total, 563 judicial operators from 96 countries responded to the survey (Gutiérrez, 2024c). Among the main findings of the survey, 31% of respondents considered themselves "expert" or "very familiar" with AI systems, 41% answered that they were "moderately familiar" with AI, and 27% were somewhat or not at all familiar. On average, respondents reported greater familiarity with AI systems than the Colombian judicial personnel who responded to the survey at the beginning of the CSdJ Course.

The UNESCO study also identified that 44% of respondents reported having used AI tools in the work context, but half of these reported sporadic use (monthly or once). This proportion is lower relative to the average of those who responded to the Colombian survey at the start of the CSdJ course, but similar to those who responded to the exit survey. Among the main tasks for which GAI systems are used, according to the respondents of the UNESCO survey, were searching for information related to the justice sector, drafting documents, and exploring ideas. This pattern was similar to that found in the responses of the Colombian judicial personnel who were surveyed at the start and end of the CSdJ course.

Despite the widespread adoption of GAI tools, 69% of respondents to the UNESCO survey consider that there are risks associated with the use of these systems in the administration of justice due to the quality of the text generated, the potential violation of personal data protection law, potential copyright violations, and opacity in the operation of these systems, among others. In the case of the beginning and exit surveys of the CSdJ Course, the proportion of Colombian judicial personnel who identify potential risks is higher, but the types of risks identified are similar.

In third place, Lexis Nexis, a multinational business and legal information technology analytics company, conducted a survey of 4,180 lawyers, law students, and U.S. citizens (LexisNexis Legal & Professional, 2023). The objective of the survey was to better identify familiarity, usage, and adaptation of AI systems for legal matters. Among the main results, the respondents' familiarity with AI stands out. 98% of respondents under 45 years old and 82% over 45 years old are aware of the existence of these systems, despite being a relatively new technology. The survey also shows the gap between awareness of these tools and their use, both personally and professionally: 36% of lawyers reported using these tools, compared to 44% of law students and 32% of citizens.

When asked about the reasons for use, the main answers were research on various topics (59%), writing

documents (45%), writing emails (38%), and understanding new legal concepts. These results regarding the types of uses of the tools are similar to those found in the UNESCO global survey and in the surveys conducted in Colombia. Concerning the perception of impact, 29% of the lawyers considered it to be significant, and 10% viewed it as transformative. When asked about the type of impact, 15% believed it would be positive, 62% saw it as mixed (both positive and negative), 11% thought it would be negative, and 12% indicated that the impact is uncertain. In comparison, the judicial personnel who responded to the surveys in Colombia seemed to be slightly more optimistic about the future impact of these technologies.

Despite the potential uses reported by respondents, 87% of lawyers expressed concerns regarding the ethical implications of using these systems: somewhat (54%), very (29%), or significantly (4%). Both the UNESCO global survey and the Colombia surveys found a high percentage of people who believed that the use of AI tools in the justice sector posed risks and potential negative consequences. The answers to the open-ended questions were analyzed by Lexis Nexis with the assistance of AI systems. The results indicate that while lawyers see potential benefits from these systems, AI will not replace the human function in law. The primary concern expressed by respondents is the prospect of job losses.

Finally, Thomson Reuters, a multinational information and technology company, surveyed professionals in English-speaking countries across various sectors, including legal, tax and accounting, risk and fraud, as well as officials from government entities, to understand their perceptions of GAI tools and how they are being introduced in the workplace (Thomson Reuters, 2024). The sample for the survey was constructed from a company database. A total of 1,128 people were surveyed between January and February 2024. All respondents came from English-speaking countries such as the United States (48%) and the United Kingdom (19%), among others. Regarding the perceptions observed, 46% of the participants reported feeling hopeful and enthusiastic about the use of these tools, while 18% expressed worry or fear. Respondents from the justice sector were the most concerned (31%) and least enthusiastic (15%) of all participating sectors.

When asked whether GAI tools can be implemented in their fields of work, 85% of the respondents from the legal area answered in the affirmative. However, when answering the question of whether these tools should be implemented in their fields of work, 51% of respondents from the legal sector agreed. When delving deeper into the reasons why GAI tools should or should not be implemented in the legal sector, respondents perceived that these tools help save costs and increase efficiency in the use of workers' time in high-value tasks. However, the legal sector workers surveyed also identified two of the main reasons why they did not consider it appropriate to use GAI tools: the lack of reliability and accuracy of the answers provided.

When exploring expectations regarding the use of GAI systems, a significant gap can be observed in Thomson Reuters' survey. Specifically for the justice sector, only 14% of organizations report that they use these tools, 12% plan to use them, 35% are considering their use, and 40% have no current plans to use these systems. Respondents were also asked about barriers to adopting these tools, and the primary concerns raised by them included the potential risk of inaccurate information (70%), worries about data security (68%), and the privacy and confidentiality of information shared with GAI systems (62%). These results are similar to those identified in the responses to the questions on the risks associated with the use of GAI in the justice sector in the UNESCO global survey and the surveys in Colombia.

As observed in this literature review, the interest in understanding the use of AI systems in judicial systems globally is growing. This trend motivates the present research to examine their adoption, implementation, perceptions, and ethical and legal implications in Colombia. The four major surveys (Conselho Nacional de Justiça, 2024; Gutiérrez, 2024b; LexisNexis Legal & Professional, 2023; Thomson Reuters, 2024) indicate that a significant percentage of people have begun to implement AI tools in the justice sector, and the share of judicial personnel who report using AI tools appears to be increasing. Additionally, in contrast to the optimism about the potential improvement in efficiency and productivity that dominates the narratives of tech companies and some policymakers, the surveys suggest that there is concern about the lack of regulation, low access to formal training, and the potential risks associated with the inappropriate or malicious use of these systems.

This research aims to contribute to the literature by analyzing the use of AI systems by magistrates, judges, and other judicial staff in Colombia. Our findings highlight the importance of enhancing digital literacy among professionals who use AI systems in the administration of justice. Based on these findings, our article offers insights and recommendations for future regulations and guidelines regarding the use of AI systems in the justice sector.

3. Methodology and Data

This research is based on three surveys conducted with judicial personnel in Colombia about the uses and governance of AI tools in the justice sector. The authors conducted two surveys as part of the CSdJ Course delivered by Universidad de los Andes between January and May 2024, and a third survey was administered directly by the CSdJ at the beginning of the second semester of 2024. The CSdJ considered the questions from the first two surveys, replicated some of them, and created its own questionnaire. The survey delivered by the CSdJ was sent to all judicial servants, allowing them to independently respond if they had attended the CSdJ Course.

The two surveys administered as part of the CSdJ course mirrored the UNESCO global survey but included additional questions, such as the perceived barriers to adopting AI tools by the judiciary. The questionnaires of the two surveys included open and closed questions focusing on three areas of interest: familiarity with and uses of AI systems, perceptions of the implications of their usage, and governance of AI tools. First, about familiarity and uses, the questions included the frequency of use in work environments, the reasons why judicial personnel use these systems, and how they access these systems. Second, regarding the implications of using AI tools, judicial personnel were asked about the perceived risks and negative aspects of AI systems, as well as their views on the potential impact of these systems on society and the justice sector. Finally, regarding governance, the questions addressed the perception of barriers to adoption, training for using these systems, best practices, and current regulations governing these systems. The analysis of the last two types of questions, regarding potential risks and AI governance, is not included in this paper due to space constraints and will be addressed in future publications.

Due to the different number of responses, we compare the relative frequencies of the main sociodemographic variables between baseline (1.311 responses) and endline (824 responses). As presented in Table 1, there are no differences in the relative frequencies by sociodemographic variables, which helps in the comparison among the surveys conducted as part of the CSdJ Course by the Universidad de los Andes.

Tab. 1 – Sociodemographic characteristics of participants at baseline and endline.

Sociodemographic variables		**Baseline**	**Endline**
Gender	Male	44.14%	46.05%
	Female	55.50%	53.58%
	Prefer not to answer	0.36%	0.36%
Position	Judge	19.00%	23.67%
	Magistrate	12.50%	11.04%
	Other judicial staff	68.51%	65.29%
Age range	Under 26 years old	1.73%	1.33%
	26–35	24.19%	24.76%
	36–45	35.55%	36.53%
	46–55	25.77%	25.24%
	56–65	11.42%	11.29%
	Over 65 years old	1.29%	0.73%
	Prefer not to answer	0.07%	0.12%

Notes: Percentages may not sum to exactly 100% due to rounding.

3.1. CSdJ Course Surveys

The CSdJ Course taught the fundamentals of AI for the administration of justice to personnel in the Judicial Branch of Colombia. The course examined how various AI technologies are utilized by the judiciary across different jurisdictions, their potential benefits and risks, and avenues for preventing serious risks such as the violation of fundamental rights. The primary objective of the course was to develop and strengthen competencies for the responsible use of AI systems in the administration of justice.

The course comprised 18 class sessions organized into three modules: 1) Fundamentals of AI, 2) Applications in the justice sector and ethical framework for the use of AI, and 3) Good practices in the implementation of AI systems within the justice sector. In total, each student had the opportunity to have 50 hours of training: 35

in remote and synchronous sessions (through the Zoom platform) and 15 in asynchronous sessions (through Bloque Neón, the digital platform of the Universidad de los Andes).

The course was attended by 1,400 students who voluntarily registered following the call for applications issued by the CSdJ in December 2023. The students who registered for the CSdJ Course represented almost 4% of the total number of judicial officers in the country. The CSdJ established the following requirements for pre-enrollment in the course: 1) To be an employee of the Judicial Branch, with a continuous relationship of no less than three years; 2) Not to have a disciplinary record and 3) To have complied with the academic activities to which he/she has been previously admitted.

Participation in the course was balanced in terms of gender; 54% of the students were female (767) and 45% were male (633). Thirty-seven percent of the students who participated in the CSdJ course were between 36 and 45 years of age, followed by 24% of students between 26 and 35 years of age and 24% between 46 and 55 years of age. The remaining percentage of students belonged to a different age group. Thanks to the virtual format of the course, students from 138 municipalities in the country, located in 27 of Colombia's 32 departments, in addition to the capital, Bogotá, were able to participate (Figure 1a). Bogotá stood out as the city with the highest judicial personnel participation (341), followed by Medellín (81) and Cali (52).

As part of the activities implemented during the CSdJ Course, participants were asked to answer a survey at the beginning of the course (after being introduced to basic concepts of AI, such as what an AI tool is) and another one at the end of the course. The baseline survey was answered by 1,391 students (99% of registered judicial personnel), while the endline survey obtained 824 responses (58% of registered judicial personnel). One reason for the lower response rate in the endline survey is that completing the questionnaire was not mandatory for course certification, and by the end of the course, some students may have been less willing to participate voluntarily. Despite repeated efforts to distribute the questionnaire, the responses could not be matched to those from the baseline survey.

3.2. Survey administered by the CSdJ

The third survey was directly administered by the CSdJ between July 11 and 26, 2024. The CSdJ's survey was answered by 3,152 judicial officers throughout the country (Figure 1b). In this sense, more than 8% of Colombia's judicial personnel responded to this survey conducted by the CSdJ. The survey inquired about the use of AI systems, the perception of relevant AI regulatory guidelines, and the perceived ethical risks associated with the use of such systems.

(a) Number of students who participated in the CSdJ Course by department.

(b) Number of judicial personnel who responded to the CSdJ survey by department.

Fig. 1 – Location of judicial personnel participating in the CSdJ Course (left picture) and judicial personnel who responded to the CSdJ survey (right) by Department.

As can be seen in figure 1b, Bogotá presents the highest frequency of judicial officers who responded (689); Antioquia is the territorial jurisdiction with the second highest number of judicial officers (496). On the other hand, there were no responses from judicial officials in three departments of the country: Guainía, Vaupés and Vichada.

3.3. Survey data processing

Most of the questions in the three surveys provided multiple options for the judicial officers to choose from. These responses were sorted, and the resulting databases were organized to obtain basic descriptive statistics and generate various visualizations to represent them. The surveys also included some open-ended questions in order to better understand and analyze the multiple-choice answers provided by the participants. The open-ended questions analysis is not included in this paper due to space constraints and will be addressed in future publications.

4. Main Findings

4.1. Familiarity with the AI systems of judicial personnel.

To evaluate the use of AI systems and their various aspects, we chose to compare the results of the initial measurement conducted on the participants of the CSdJ Course with those of the final measurement. It is pertinent to mention that the judicial staff responded to the first survey after being exposed to basic concepts, such as what an AI system is, while the second survey was completed by the end of the course when students had finalized 50 hours of training. Where information was available, the results were compared with those obtained from the survey directly administered by the CSdJ. To facilitate the comparability of the results before and after, we chose to analyze the relative frequencies.

As shown in Figure 2, at the end of the course, the perceived familiarity with AI systems increased. Before starting the training, 63% of the trainees indicated that they had no or little knowledge of AI systems; this result contrasts with the 85% of trainees who indicated that they had moderate or a great deal of familiarity with these systems at the end of the course. It is worth noting that, at the end of the training, the percentage of older judicial personnel who perceived themselves to be experts in the use of AI systems did not change. As mentioned before, the level of familiarity with AI systems perceived by judicial officers in Colombia is relatively lower than that reported by judicial operators responding to the UNESCO Global Survey.

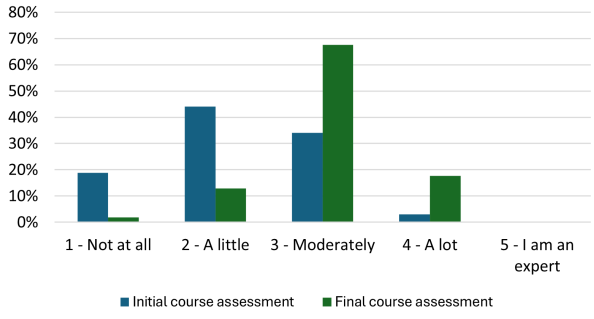

Fig. 2 – Familiarity with AI systems of judicial personnel (comparison before and after the CSdJ Course).

To evaluate the variations of relevant questions according to demographic variables such as gender and age, as well as the frequency of AI system usage, the differences observed exclusively in the entry survey of the CSdJ Course were compared using relative frequencies. First, with respect to the gender of the participants, it is observed that women responded having no or little familiarity with AI systems to a greater extent than men; for their part, men who indicated having moderate familiarity with these systems are 38% of the total, compared to 30% of women; finally, the minority of respondents indicate having a lot of knowledge or being experts in the use of AI systems (Figure 3).

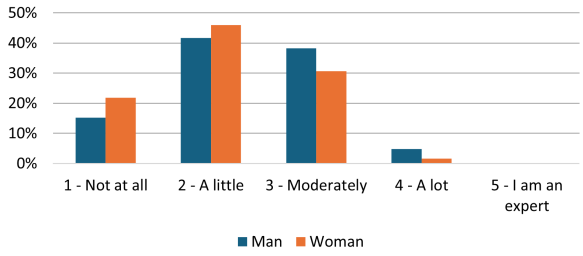

Fig. 3 – Comparison by gender of the familiarity with AI systems of judicial officers who participated in the Course.

When comparing familiarity with AI across different age ranges of the respondents in the CSdJ Course entry survey, several aspects stand out (Figure 4): Generally, it is observed that as age increases, the level of null familiarity with these systems rises; this relationship is inversely related to moderate familiarity. Therefore, it is noted that older judicial personnel tend to have less familiarity with AI systems.

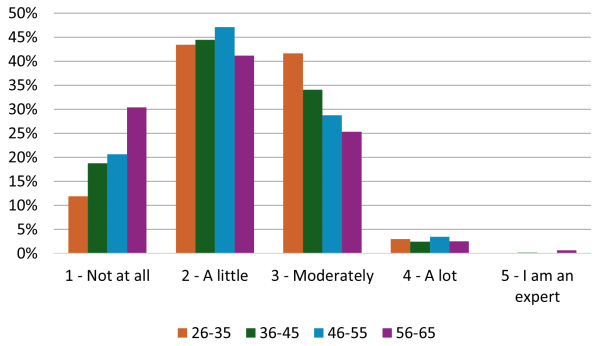

Fig. 4 – Comparison by age range of the familiarity with AI systems of the judicial officers who participated in the CSdJ Course. Observations for judicial personnel under 26 and over 65 are omitted since together they represent less than 2% of the data.

4.2. Uses of AI systems by judicial personnel.

The survey administered by the CSdJ asked judicial personnel if they had used "any AI tool or application that helps you make your job easier or faster." 29% of those who responded to the survey answered affirmatively (920 judicial personnel).

The two surveys conducted as part of the CSdJ Course also asked about the use of AI and GAI tools. At the beginning of the course, 34% of the trainees reported having used some AI tool for work purposes, and 26% reported having used GAI tools for the same purposes (Figures 5 and 6).

These data suggest that the learners who enrolled in the CSdJ Course and answered the course's baseline survey tended, on average, to be slightly more likely to use AI tools at work than the judicial personnel who answered the survey directly administered by the CSdJ. This observation is likely because students in the CSdJ Course had a greater interest in these tools, which is why they enrolled in the course (in short, a self-selection factor may contribute to explaining the different results). As mentioned before, these frequencies of use reported by judicial personnel in Colombia are somewhat lower than those reported by judicial operators who responded to the UNESCO global survey.

At the end of the CSdJ Course, the percentages reporting the use of AI systems for work-related issues increased significantly: 56% for any AI tool and 44% for GAI tools (Figures 5 and 6). These results suggest that the CSdJ Course may have influenced a significant number of students to use AI tools in their work for the first time and that lacking basic training is a barrier to testing and adopting these types of tools for work purposes.

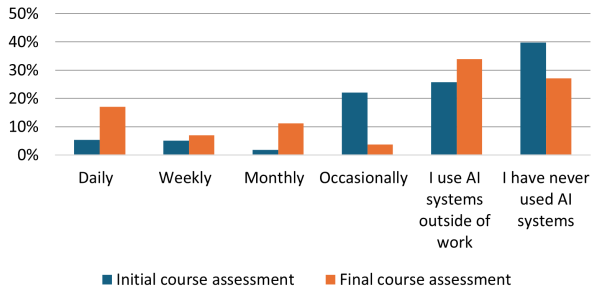

Fig. 5 – Frequency of use of AI systems (comparison before and after the CSdJ).

When studying the frequency of use of AI systems before and after the CSdJ Course, an increasing trend in use was observed after the course (Figure 5). Specifically, before the CSdJ Course, 39% of the trainees had never used AI systems, while this percentage dropped to 27% after the course. Similarly, the percentage of judicial personnel who began to use these systems in areas other than the workplace increased, as indicated by the students' responses, which showed an approximately 8% rise after the CSdJ Course. The greatest variation was observed in the percentage of trainees who used AI systems daily. Before starting the CSdJ Course, only 5% reported using these systems daily, compared to 17% at the end of the course. The percentage of judicial

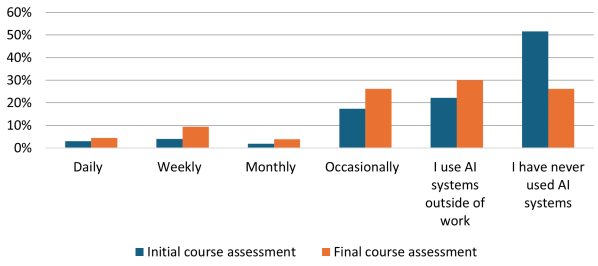

Fig. 6 – Frequency of use of AI chatbots (comparison before and after the CSdJ).

officers who started using these systems on a weekly and monthly basis also increased at the end of the CSdJ Course.

A similar pattern is observed with respect to the frequency of use of GAI systems (AI chatbots) to perform work activities (Figure 6). Before starting the CSdJ Course, 52% of judicial personnel reported never having used GAI systems, while at the end of the course, this figure dropped to 26%. The largest increase in reported use of AI chatbots after the CSdJ Course was for occasional use for work activities, which rose from 17% to 26%. To a lesser extent, daily, weekly, and monthly work-related use also increased after the CSdJ Course.

On the other hand, when comparing the frequency of AI system use by men and women, the largest difference lies in the reported lack of experience using these tools. Specifically, 35% of men reported never having used AI systems, compared to 44% of women. Regarding the frequency of use of AI systems for work purposes, most of the responses reported by men and women (daily, weekly, and occasional use) were relatively similar (Figure 7).

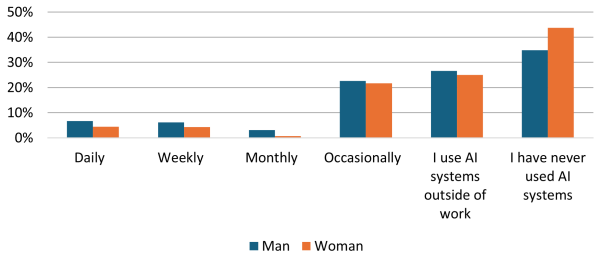

Fig. 7 – Comparison by gender of the frequency of use of AI systems by the judicial officers who participated in the Course.

In addition, when comparing the variations in the frequency of use of AI systems by age range, it is observed that, for each age range, approximately 40% of judicial personnel stated in the CSdJ Course entry survey that they had never used AI systems (Figure 8). Regarding all frequencies of use of AI systems for work tasks, there are no differences greater than 6% between age ranges.

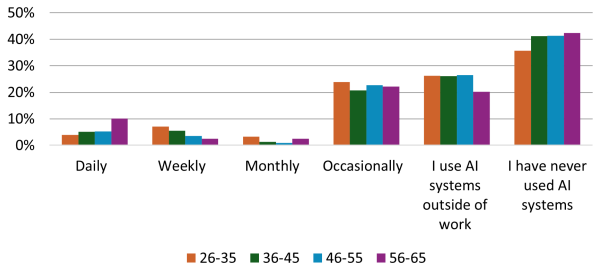

Fig. 8 – Comparison by age range of the frequency of the use of AI systems by judicial officers who participated in the CSdJ Course. Observations for judicial personnel under 26 and over 65 are omitted since together they represent less than 2% of the data.

However, these differences are mainly observed when comparing 26 to 35 years age group with the 56 to 65 years age group. In this regard, 10% of the judicial personnel between 56 and 65 years of age reported using AI systems daily, compared with 4% of those between 26 and 35 years of age. In this case, only 20% of judicial personnel aged 56 to 65 reported using these tools outside of work, while 26% of all other judicial personnel reported using these tools outside of work.

In sum, although, on average, younger trainees tended to report a greater familiarity with AI systems than older trainees, the propensity to use AI systems for work purposes does not diverge much between the age ranges of the judicial officers who responded to the CSdJ Course start-up survey.

4.3. What AI systems are used in the Judicial Branch?

In addition to identifying the main reasons for using AI systems, participants in the CSdJ Course were also asked about the specific systems they use in their professional activities. The word cloud (Figure 9) illustrates the AI tools most frequently mentioned by the respondents. Notably, *ChatGPT* (128 mentions) emerged as the most cited tool, with a frequency three times higher than that of the second most mentioned tool, *Copilot* (56 mentions). All other tools received fewer than 16 mentions, with *Gemini* (16 mentions), *Microsoft* (7 mentions), and *SAMAI* (5 mentions) standing out.

Fig. 9 – AI systems most commonly used at work by judicial officers who participated in the Course.

It should be noted that *SAMAI* is not currently considered an AI tool. Rather, it is a digital platform used within the contentious-administrative jurisdiction, offering functionalities such as online consultation of judicial case information, document authenticity validation and verification, and virtual document filing.

The survey conducted directly by the CSdJ also included a closed-ended question regarding the tools used by judicial personnel (Figure 10). Unlike the open-ended format used in the Course questionnaire, this version asked respondents to select tools from a predefined list. Nonetheless, the findings were consistent with those from the Course responses. *ChatGPT* was again the most frequently selected tool, with twice the number of mentions as *Copilot* (Microsoft), the second most used tool, followed by *Gemini* (Google) and *Bing* (Microsoft).

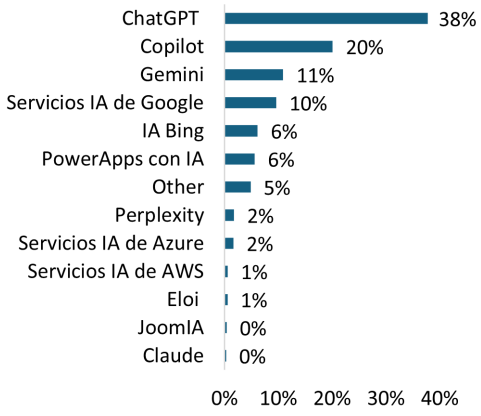

Fig. 10 – AI systems used by judicial personnel who responded to the CSdJ's surveys.

4.4. How are GAI systems being used in the Judicial Branch?

In the three surveys, judicial personnel were asked about their use of GAI systems to carry out professional activities. The question was presented in a multiple-choice format (with predefined subcategories of use), but allowed judicial personnel to add other types of uses if deemed necessary.

Figure 11 presents the most common uses reported by survey respondents: searching for caselaw (59%); searching for legislation (49% to 52%, which increased after completing the course); searching for meanings and definitions (increased from 46% to 51% by the end of the course); other uses (42% to 47% by the end of the course); and summarizing texts (40% to 41% by the end of the course) are the primary reasons judicial personnel utilize GAI systems.

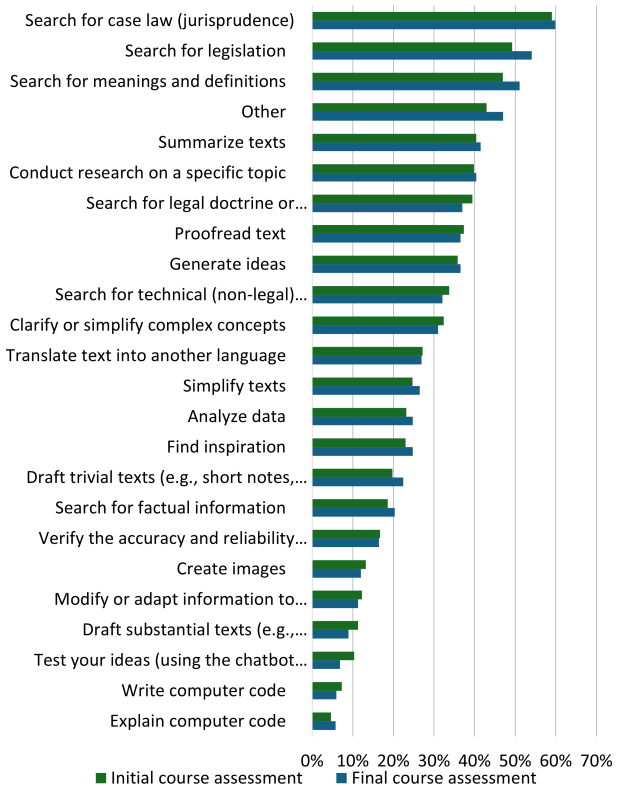

Fig. 11 – Uses of AI chatbots for work activities reported by judicial personnel (before and after the CSdJ's course).

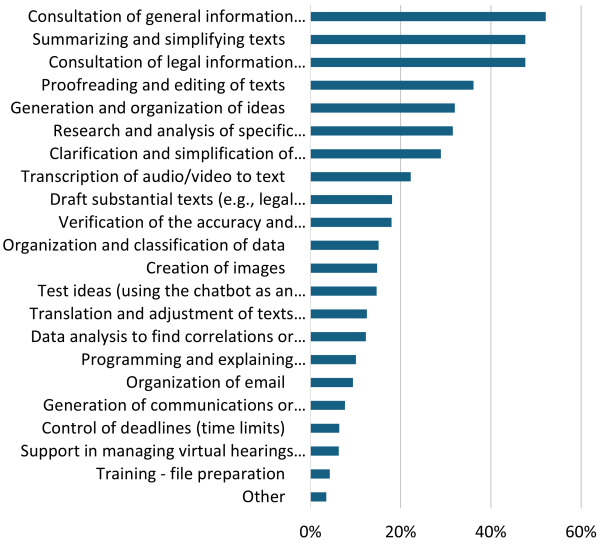

Fig. 12 – Uses of AI chatbots for work activities reported by judicial personnel who responded to the survey conducted directly by the CSdJ.

There is no major variation in the order of the most frequent uses reported by the students; however, in most cases, there is a slight increase in the reporting of each respective use, suggesting that the CSdJ Course may have diversified the types of uses to which judicial personnel apply AI chatbots. Additionally, a significant percentage of respondents indicated "other uses" apart from those listed in the survey question, highlighting the importance of further research into the potential applications that judicial personnel make of these tools.

Regarding the results of the survey conducted directly by the CSdJ (Figure12), the most common work uses that judicial personnel assign to AI chatbots were: consulting general information (52%), consulting legal information (48%), summarizing and simplifying texts (48%), proofreading and editing texts (36%), and generating and organizing ideas (32%).

The CSdJ Course surveys also sought to identify how learners used the responses generated by the AI chatbots. A very low percentage of respondents answered that they used the chatbot-generated response "without any verification or correction" (between 4% and 1% before and after the course, respectively). The vast majority of court judicial personnel either verify or correct the information before using it or use it to understand the issue and then formulate their own text (Figure 13). This result is similar to the one reported in the UNESCO global survey.

The main difference observed in the measurements at the beginning and end of the CSdJ Course is that the total number of judicial personnel that report verifying and correcting the information provided by the chatbots increases by 11 percentage points. This variation decreases by 8 percentage points with respect to the rate of judicial personnel who report using the information to learn and understand the information provided.

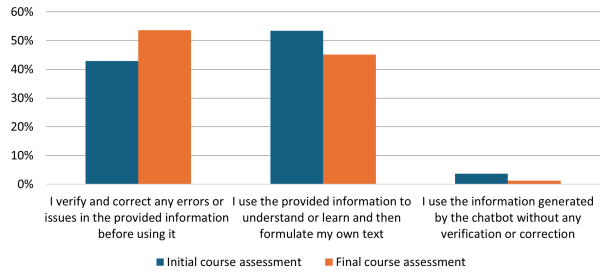

Fig. 13 – Form of use of the results generated by the chatbots (comparison before and after the CSdJ course).

When studying the responses on how the chatbots' results are used, distinguished by gender, it is observed that 56% of women reported using the information received to analyze it and better understand the context, compared to 50% of men (Figure 14). For both genders, less than 5% reported the information from the chatbots without any verification or correction, but it is worth highlighting that the proportion of women reporting this practice was half that of men.

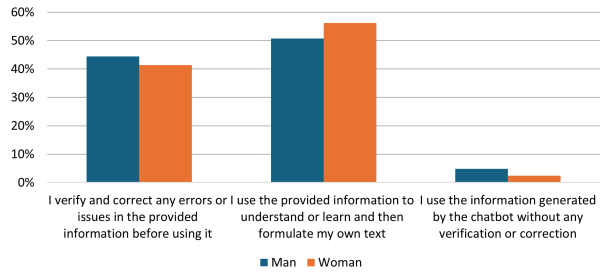

Fig. 14 – Comparison by gender of form of use of the results generated by the chatbots.

When comparing the results of chatbot usage by age, no significant differences were observed among the age groups. However, students aged 56 to 65 reported that they utilized the information to a greater extent (66%) for understanding or learning while also indicating that they wrote their own texts.

5. Conclusions

This research sought to answer fundamental questions about how judicial personnel in Colombia use AI systems in their work. The study was based on three surveys conducted among various types of judicial personnel in Colombia between January and July 2024. The first survey was completed at the beginning of the CSdJ Course by 1,391 judicial personnel, the second upon completion of the course by 824 judicial personnel, and the third survey, administered directly by the CSdJ, involved 3,152 judicial personnel. These are the largest surveys conducted to date in Colombia on the subject and among the largest in the world.

In this section, we synthesize the main findings of the surveys and reflect on the policy implications derived

from these findings, which are primarily relevant to the Colombian Judicial Branch but may also provide insights for organizations that govern the Judicial Branch in other countries.

5.1. Familiarity with AI systems

The familiarity with AI systems exhibited significant changes before and after completing the CSdJ course. In general, the percentage of learners with moderate or high knowledge of AI systems increased (85%). This degree of familiarity is lower compared to that evidenced by the judicial personnel who responded to the CSdJ survey. Concerning gender, women showed lower familiarity with these systems compared to men. When comparing age, there was a higher proportion of null familiarity among the older age range.

These findings suggest that awareness among judicial staff regarding the existence and relevance of AI tools is high even though the availability and access to tools such as AI chatbots proliferated relatively recently, in late 2022. Moreover, awareness is expected to increase as the adoption of these technologies is a priority in many jurisdictions, including Colombia.

5.2. Use of AI systems

Regarding the use of AI systems, 29% of the judicial officers who responded to the CSdJ survey indicated that they had used them to facilitate their work. This is in line with the percentage of students who took the CSdJ course and reported using AI systems (34%) and GAI (26%) for the same purposes before starting the course. Furthermore, at the end of the course, the use of these AI tools (55%) and GAI (43%) increased considerably. This suggests that one of the main barriers to using AI tools to support labor-related activities is a lack of basic training, such as understanding how these tools are developed, what types of tools are available, their limitations, and associated risks (key topics addressed in the 50-hour CSdJ Course).

Similarly, the frequency of AI system usage increased by the end of the course; the percentage of judicial personnel who had never used AI systems dropped from 39% to 27%, and for GAI systems from 52% to 26%. Moreover, the daily use of AI tools rose from 5% to 17%. This suggests that basic training on the use of AI tools can increase not only the likelihood of using the tools but also the frequency of use, thereby enhancing the impact (both positive and negative) of AI in the administration of justice.

Moreover, the tendency to use AI systems for work purposes does not vary significantly across the age ranges of the judicial personnel who responded to the CSdJ Course survey. This finding challenges the notion that younger workers are more likely to use AI tools than their older co-workers. However, participants in the CSdJ Course survey may be more likely to use AI tools than the judicial staff who did not take the course since their enrollment in the training was voluntary and may signal their original interest in using the tool regardless of their age or gender.

The findings also challenge the notion that members of the judiciary are generally resistant to innovation or reluctant to change the way work is conducted. Moreover, the fact that 1,400 magistrates, judges, and judicial staff voluntarily enrolled in a 50-hour AI course signals the demand for learning about new tools.

5.3. Access to AI systems

The majority of students who responded to the CSdJ baseline and exit surveys indicated that they accessed free versions of AI tools, whereas fewer than 20% paid for access to AI systems or indicated that the Judicial Branch provided the tools. This has important implications regarding the security of the information and, consequently, for the protection of privacy and personal data. Most companies that offer free versions of AI chatbots state in their terms of use that the information provided by users may be used for future training of models and that it may be shared with third parties (Gutiérrez, 2024a). Therefore, the use of these types of tools by judicial officials can jeopardize the confidentiality of information related to the judicial process and put fundamental rights at risk.

A key implication of this finding is that the judiciary needs to take action to prevent information breaches through a combination of human, technical, and administrative measures. These measures include prohibiting the use of generative AI tools that are offered for free or specifying which AI tools can be used (these can

take the form of rules or technical solutions, such as blocking access to the tools on institutional devices); alternatively, mandating that any information and documents introduced into these AI systems are anonymized and free from reserved data; providing alternatives for judicial staff to access generative AI tools that offer higher levels of information security and personal data protections; and, lastly, enhancing basic digital literacy skills through training programs.

In the case of the Colombian judiciary, some of these measures were taken by the end of 2024. Through the Agreement PCSJA24-12243 of December 16, 2024, the CSdJ adopted its guidelines "for the respectful, responsible, safe, and ethical use and exploitation of artificial intelligence in the Judicial Branch." The guidelines established "security of information" and "personal data protection and privacy" as two of the principles that must be abided by when using AI tools (article 1) and established that judicial personnel should "abstain from using general or commercial AI chatbots in its free versions" (article 8.1).

5.4. Reasons for using AI systems

The reasons for using AI systems among the judicial staff are diverse. Among the main reasons, five main categories were identified: systematization, writing, learning, idea generation, and analysis. Regarding the tools with the highest frequency of use by CSdJ Course participants, ChatGPT was the most frequently mentioned tool, followed by Copilot and Gemini. This result is similar in order of hierarchy to that observed in the responses of the judicial personnel who answered the survey administered by the CSdJ. However, the reported use of AI tools in the Colombian judiciary may have changed in 2025 due to the prohibition on using the free version of AI chatbots established by Agreement PCSJA24-12243, and because Copilot Chat is now available for Microsoft 365 business customers.

The survey's findings also highlight the need for the Colombian judiciary to provide a more diversified set of AI tools that are accessible to all or most of its judicial staff. Following the example of other Latin American jurisdictions, such as tools for assisted search of case law available for judicial staff and the general public (in late 2024, the Constitutional Court of Colombia launched such a tool for constitutional case law); automatic classification of documents submitted in judicial processes and assignment of those documents in workflows; anonymization tools; editing and summarizing AI tools; translation tools, both for text and live verbal translation; and tools for transcribing audio recordings of hearings (Muñoz-Cadena et al., 2025).

5.5. How GAI systems are used

When evaluating how the students of the CSdJ Course used GAI tools, the survey suggests that the highest priority was given to tasks related to information search and document writing, in that order. The result was similar to that shown in the survey conducted directly by the CSdJ, with the difference that document writing emerged as the most relevant category, followed by information search. These results align with the findings of UNESCO's Global Survey on the use of AI tools by judicial operators. When evaluating specific tasks, searching for jurisprudence remained unchanged at 59% after completing the course; searching for legislation increased from 49% to 52% after completing the course, and searching for meanings and definitions rose from 46% to 51% after completing the course, representing the main functions that CSdJ Course students assigned to these tools.

The predominant use of GAI tools to search for information generates additional risks, especially considering that most respondents access free versions of the systems. Given that there is a high probability that the answers provided by AI chatbots are imprecise, incorrect, or even false, a judicial official who does not contrast these outputs with reliable sources may make baseless decisions. (Gutiérrez, 2024a) has already mapped situations in which justices used AI chatbots in Bolivia, Brazil, Colombia, Peru, and Mexico to draft rulings and intervene in judicial hearings by copy-pasting answers or reading them out loud without checking on the reliability of the chatbot's output.

Moreover, the survey highlights the limitations of AI training in shaping the practical application of AI tools. While the CSdJ Course stressed the limitations of AI chatbots to participants, and even though the surveys indicated that the judicial staff were aware of the quality issues of AI chatbots, they still used them as a tool for searching for information. A policy implication from this finding is that the Judiciary cannot rely on a single type of action to ensure the responsible use of AI tools (e.g., training); it needs to complement various technical and regulatory measures.

5.6. Limitations and future research

Our research has several limitations, and there are potential future avenues of inquiry. First, the respondents of the three surveys were not selected randomly, nor were specific measures taken to ensure the representativeness of the samples. For example, the judicial staff that self-enrolled in the CSdJ Course and answered the corresponding start and end-line surveys were likely more interested in AI tools than their average peers, making them more prone to report higher and more diverse use of AI tools. Moreover, the design of the surveys did not allow for the identification of the effects of the training since there were no treatment and control groups.

Second, while the surveys allow for the identification of specific trends among the respondents, another data collection strategy—such as semi-structured interviews—would be necessary to understand why such trends arise and to provide a deeper interpretation of the survey results. Furthermore, this paper did not address other important aspects of AI tool deployment and usage in the justice sector, including specific perceptions of the risks associated with using AI tools and the need for AI governance arrangements. While the CSdJ Course surveys included questions on these topics, due to space constraints, we could not discuss them in this paper.

Finally, future research could explore in-depth cases of specific AI tools used by the judiciary in Colombia to understand how they are (or are not) changing labor roles and occupations within the judiciary and their impact on particular tasks, such as case management, decision-making processes, and drafting rulings.

Acknowledgement

The authors of this paper would like to thank the Superior Council of the Judiciary for allowing access to the anonymized data from the survey of Judicial Branch employees.

Contributor Statement

Table 2 presents the contributions of the authors to the development of the article, detailing the specific responsibilities of each during the research and writing process.

Tab. 2 – Authors' Contribution and Statement

Role	Author a	Author b
Conceptualization	Yes	No
Data Curation	No	Yes
Formal analysis	No	Yes
Funding acquisition	Yes	No
Investigation	Yes	Yes
Methodology	Yes	Yes
Project administration	Yes	No
Software	No	Yes
Supervision	Yes	No
Resources	Yes	No
Validation	Yes	No
Visualization	No	Yes
Writing – Original Draft	Yes	Yes
Writing - Review & Editing	Yes	Yes

Notes: This table describes the contribution of each author to the article.

Use of AI

During the preparation of this work, the authors used ChatGPT (model GPT-4) and Claude (model 3.7) to assist in the construction of tables and the revision of the English text. After using this tools, the authors reviewed, edited, made the content their own and validated the outcome as needed, and takes full responsibility for the content of the publication.

Conflict Of Interest (COI)

There is no conflict of interest.

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