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Transformative Impact of Legal Tech in the Legal Sphere

*Impacto transformador de las
Legaltech en el ámbito jurídico*

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Abstract

The continuous development of technology through the use of artificial intelligence and digitalization in our daily lives and professions poses a series of opportunities and challenges in the legal field. This article aims to analyze the opportunities and challenges related to Legal Tech and how lawyers can adapt and acquire the necessary skills to navigate a new reality. A literature review was conducted to examine the impact of Legal Tech and entrepreneurship opportunities. The results reveal that Legal Tech plays a vital role in automating repetitive tasks, improving efficiency and reducing human errors in this field. In conclusion, Legal Tech aims to improve the work of lawyers rather than replace them completely. To overcome the obstacles, it is necessary to invest in appropriate training programs and gradually adopt new behaviors within the sector.

KEYWORDS

Legal Tech, artificial intelligence, automation, entrepreneurship, due diligence.

Resumen

El continuo desarrollo de la tecnología a través del uso de la inteligencia artificial y la digitalización en nuestra vida cotidiana y nuestras profesiones plantea una serie de oportunidades y desafíos en el ámbito jurídico. Este artículo pretende analizar las oportunidades y retos relacionados con las Legaltech y cómo los abogados pueden amoldarse y adquirir las competencias necesarias que les permitan adaptarse a una nueva realidad. Se llevó a cabo una revisión bibliográfica para examinar el impacto de las Legaltech y oportunidades de emprendimiento. Los resultados revelan que las Legaltech desempeñan un papel vital en la automatización de tareas repetitivas, la mejora de la eficiencia y la reducción de errores humanos en este campo. En conclusión, las Legaltech pretenden mejorar el trabajo de los abogados en lugar de sustituirlos por completo. Para superar los obstáculos, es necesario invertir en programas de formación adecuados y adoptar gradualmente nuevos comportamientos dentro del sector.

PALABRAS CLAVE

Legaltech, inteligencia artificial, automatización, emprendimiento, debida diligencia.

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INTRODUCTION

Automation, digitization, and robotics are widely debated topics in the modern era, with significant implications for both our personal and professional lives (Ključnikov et al., 2023; Horoshko et al., 2021; Szabó-Szentgróti et al., 2021; Nayyar et al., 2020; Monteiro et al., 2021). Different perspectives emerge when these issues arise. Some people express concern regarding job losses resulting from automation, while others see artificial intelligence as an opportunity to improve quality of life and create new employment prospects. As a result, the employment landscape is continually evolving. Rather than focusing solely on the potential negatives, it is crucial to consider how robots and digitization can revolutionize business practices. In addition, we must recognize the value of human capabilities, such as emotional intelligence and adaptability, alongside automation and artificial intelligence for routine tasks.

Artificial intelligence is expected to create more jobs than it will displace (Wolla, 2020; Lombardo, 2021; Hess, 2019; Estebsari & Werna, 2022; Nielsen et al., 2023; Marquez, 2022; Olteanu et al., 2023; Wayne, 2019). The COVID-19 pandemic has further accelerated the global shift towards digitization, and it has highlighted the importance of technological advancement for long-term competitiveness. The fact that developed nations are leading global digitization underscores the importance of keeping pace with technological advances to maintain a nation's position within the global economy.

The implementation of artificial intelligence in the legal field can be a revolutionary change (Hasan, 2022). By automating repetitive tasks, such as document review and preparation, AI can greatly improve accuracy and efficiency. While AI may not possess the same level of legal expertise as human professionals, it can serve as a valuable tool for lawyers, allowing them to devote their attention to more intricate matters. The integration of legal technologies undoubtedly boosts productivity within traditional professions.

This article discusses how the legal sector is using robotics, artificial intelligence, and automation. It discusses the benefits of these technological advances, as well as any ethical or legal issues that may arise. Rather than focusing solely on the business side of the legal field, this article takes a global approach. It begins with an introduction that provides context and introduces key technological concepts. It then delves into a specific Legal Tech application related to due diligence. The article also addresses the challenges associated with preparing future lawyers for these emerging technologies. Finally, it concludes with a discussion summarizing the main points presented throughout the article.

METHODOLOGY

This comprehensive study examined, in depth, the impact of legal technology on business practices using a robust research methodology. In order to collect relevant studies on the incorporation and effects of legal technology on business legal practice, a literature review was conducted in reputable academic databases such as PubMed, IEEE Xplore, and Google Scholar. Key terms such as “legal technology,” “artificial intelligence in law,” “automation in the legal profession,” and “the impact of technology on business lawyering” were used for the search. These terms were carefully selected to cover various aspects of the relationship between technology, law, and legal systems, while ensuring comprehensive coverage of scientific literature. Strict criteria were applied to select articles that directly addressed the application and impact of automation and artificial intelligence in the context of business law. In addition, preference was given to articles that analyzed the benefits and challenges of legal technology from an ethical and regulatory standpoint, as well as those that presented strategies for adapting lawyers and legal training to an evolving technological landscape. Studies that did not specifically examine the relationship between legal technology and corporate services, or that did not meet the requirements of relevance and focus, were excluded. For maintaining quality standards during selection, articles that lacked empirical support or consisted solely of unsubstantiated opinions or general discussions of technology and law were also not considered. Quality assessment took into account factors such as the methodology of the study, accuracy of the data, and strength of the arguments. To ensure reliability, priority was given to articles published in prestigious peer-reviewed journals within the fields of legal technology and business law. By adopting this rigorous approach in reviewing existing research findings, the present study offers valuable insights into how legal technology influences business practices.

EMPIRICAL RESULTS

Automation

The concepts of robotics, artificial intelligence, and blockchain have recently experienced substantial advances. Automation, which is performing tasks without human intervention, has become widespread in various industries and consumer goods (Tyagi, 2021). Although levels of automation can vary, it is common for operations to require more human assistance. Automation encompasses robotization and digitization processes.

In the 1990s, automation was mainly linked to industrial processes. However, research and development have expanded this concept to encompass all aspects of everyday life (Kliestik, 2023). With the advent of digitization and computers, data manipulation in various fields has become

automated. The main objective of automation is to streamline processes, ensuring consistent and high-quality production, which ultimately leads to an increase in production while reducing labor requirements.

It is important to distinguish between high and low levels of automation. Low levels still require significant human intervention, and some tasks are performed exclusively by humans. On the other hand, high levels of automation reduce the need for human intervention in the process, but human supervision and guidance remain crucial. This dynamic creates tension between the importance of human involvement and the efficiency of automated systems (Kokina and Blanchette, 2019).

The value of human involvement and efficient automation are in conflict. However, as automated systems advance, the role of humans in their management and organization becomes even more crucial (Anayat, 2023). It is essential to determine the right level of automation based on specific needs. Finding the right balance is more important than simply aiming for high levels of automation, which ensures optimal productivity while still recognizing the importance of human supervision and expertise.

Robotics

In everyday use, the term “robot” encompasses a wide range of intelligent machines, such as self-driving vehicles and robotic vacuum cleaners. These robots are designed to perform physical tasks and come in various forms with different functions (Garcia-Haro et al., 2020). In addition, robots can also refer to computer programs, or “bots,” which perform specific mechanical operations using tools such as cameras, lasers, and sensors (Sayeed et al., 2022). The focus is on their efficiency and effectiveness rather than their resemblance to humans. However, despite their capabilities, robots still face difficulties in adapting to changing circumstances due to limitations in understanding the environment and interpersonal communication. Nevertheless, the implementation of robotization has demonstrated its potential to improve efficiency and minimize errors in various applications.

The 1950s saw the development of the first industrial robots, such as George Devol’s Unimate, which marked the beginning of the history of robots (Colombo et al., 2021). These robots were programmed and automated for use in the automotive industry. Eventually, smaller collaborative robotics, known as cobots, emerged to assist in tasks such as courier and home care. Asimov’s Laws of Robotics were created during this era to establish ethical guidelines for robot-human interaction. These laws prioritize the defense of humanity and the prevention of harm. Contrary to

popular belief, robots are capable of providing simple and practical solutions to everyday needs. For example, they can automate tasks in nursing homes or industrial environments.

Robotic process automation (RPA), also known as software robotics, refers to the use of automated software for repetitive tasks (Villar & Khan, 2021; Santos et al., 2019; Timbadia et al., 2020). These software robots mimic human behavior by interpreting information displayed on screens and following predetermined guidelines. However, it is important to note that they are unable to identify subtle errors or adapt to system changes, despite their advantages, such as 24/7 operation and increased efficiency. In addition to RPAs, chatbots have also evolved over the years and are now widely employed. These programs aim to simulate a human conversation, but their classification varies according to their complexity and ability to understand natural speech patterns.

There are different types of chatbots with varying capabilities. Basic chatbots follow preprogrammed dialogs and rules, while intelligent chatbots can understand context and engage in informal conversations (Huseynov, 2023; Liu et al., 2022). Advanced hybrid chatbots combine preprogrammed routes with free text interpretation to improve their performance. Chatbots are beneficial for efficiency and customer service, but they have limitations. They lack critical thinking, decision making, and empathy capabilities needed for customer service interactions.

Artificial Intelligence

Artificial intelligence (AI) is a set of technologies that use programmed cognitive capabilities based on mathematics, statistics, and programming to solve problems or make decisions (Yatskiv et al., 2020). However, it is important to note that AI is a computer program that operates according to predefined rules and lacks consciousness or genuine thought. Although figures such as Elon Musk, Bill Gates, and Stephen Hawking have called attention to the potential dangers of AI and its ability to replace human labor, it is crucial to consider the real risks associated with it. These risks include inequality and environmental damage from inadequate global regulation. Competition between countries to harness this technology can lead to tensions, discrimination, and manipulation, if not properly managed.

Although AI was initially developed in the 1950s, it has undergone significant advances in recent years, largely due to the increased availability of memory in computers and the exponential growth of data. This evolution can be classified into three distinct technology waves: manual implementations, statistical learning, and the next wave of adaptive AI. Statistical training using deep neural networks and machine learning techniques currently occupies a central place

in AI research. Deep learning is especially popular because it emulates brain structure using mathematical operations.

Regarding artificial intelligence, there are usually two classifications: Weak or narrow AI, and strong or general AI (Chung et al., 2022). Weak AI is designed for specific tasks, and it performs them quickly and accurately. However, it needs to have the ability to understand beyond its training data and possess independent will. On the other hand, the combination of various branches of artificial intelligence can create intelligent solutions, such as chatbots, using robotics, machine learning, and natural language processing. We encounter AI in our daily lives through facial and voice recognition technologies, as well as personalized streaming recommendations. Although general AI is making strides to reach human-level capabilities, its ultimate success is yet to be determined due to the complexity of emulating conscious reasoning in machines.

Machine learning is a branch of artificial intelligence that uses algorithms to improve software performance and learn from experience (Kuleto et al., 2021). An algorithm is a set of instructions that describes how to perform a specific task or process. Machine learning allows machines to learn without explicit programming. There are three main approaches to machine learning: supervised, unsupervised, and reinforcement.

Supervised learning is about training a machine by providing it with numerous pairs of data and their corresponding responses (van Engelen & Hoos, 2020). An algorithm analyzes these pairs to establish the connection between specific data features and their respective outcomes. With this model, the machine can predict outcomes for new data without pre-existing outcomes by applying previously acquired rules. Although this process initially requires extensive manual labeling and classification of the data, it reduces the likelihood of errors in subsequent steps.

Unsupervised learning occurs when the machine is just provided with data, without any predetermined response. The computer then classifies the data based on patterns it identifies in the features (Alloghani et al., 2020). This method is highly adaptable and allows modifications to focus on specific features or exclude certain types of information. Although data preparation requires less manual effort, tuning the algorithm can be a more time-consuming process.

In the field of reinforcement learning, machines interact with their environment, collect information, and use that data to make decisions. The algorithm is specifically designed to maximize gains and improve its performance based on the information it receives regarding its performance on a given task. Although this method requires less information, it still needs to improve in maintaining stable and consistent learning environments.

Blockchain is an innovative technology that uses distributed public registries. Using advanced cryptography, blockchains securely and openly store and validate transactions (Josphineleela et al., 2023). Acting as a digital ledger, they efficiently track transaction history over time. The term blockchain, which refers to the cryptographic link that connects transactions, has become the most recognized name for this technology.

Blockchain technology has applications beyond the legal field. It provides a reliable and transparent method for documenting and verifying contracts, business transactions, as well as intellectual property, such as trademarks and patents. This technology has the potential to eliminate the involvement of third parties or intermediaries in legal processes by securely executing records and legal actions.

Legal Technology

Legal technology is a field that examines how changes in the legal profession impact job descriptions. It involves gaining knowledge about its applications, and analyzing the use of computers for legal tasks, which dates back to the 1960s, with the introduction of automatic data processing (Dwivedi et al., 2023; Gimpel et al., 2021; Đurić et al., 2023). The language used to describe legal technology has evolved, originally referring to software that assisted law firms with billing, client portals, and case management. Today, it encompasses a range of legal applications that leverage modern information and communication technologies. These programs aim to streamline the creation and delivery of legal services, while improving accessibility. Legal technology extends beyond courts and lawyers; it also includes encompasses areas where law and technology intersect, such as online dispute resolution and the availability of open-source legal materials.

Legal technology refers to the impact of software and programs on a company's operations. These technologies can be classified into maintenance technologies or disruptive technologies (Fenwick et al., 2019). Maintainability technologies include traditional document management software, accounting software, and electronic communication tools. They improve existing operating procedures without fundamentally changing the way tasks are performed. On the other hand, disruptive technologies are often more efficient than humans in terms of performance. Also replace the work of legal professionals and transform the operation of companies and industries. Examples include e-learning platforms, document review using artificial intelligence, and online dispute resolution services. The trend toward automation is evident in areas such as customer service chatbots and automated document creation. However, this shift may create pricing issues for law firms that rely on hourly billing models.

The field of legal technology is mainly focused on disruptive technologies as they bring about significant changes. On the other hand, maintenance technologies are already widely used, and their advances do not lead to substantial changes (Ryan, 2021). Although legal technology has not yet been widely adopted in Peru, there is a growing interest in this area. Startups and academic institutions play an important role in driving legal innovation.

The Peruvian market, being relatively small, encourages entrepreneurs to prioritize international markets. Its size makes it easier to identify and interact with key players. Technological stagnation in the legal industry could be attributed to the need for greater communication between solution providers and legal professionals. Typically, legal service providers focus on serving in-house counsel or law firms.

Impact of Legal Technology on the Legal Sector

The legal sector follows a traditional career path that begins with a position as an assistant attorney and may lead to becoming a partner. In the initial stages, individuals without a law degree work in support functions for the firm. Newly licensed lawyers often handle routine tasks such as research, drafting, and verifying information. However, there is a significant change on the horizon, driven by technology. Generation Z, soon to dominate the workforce, prioritizes mental health, work-life balance, and professional growth over long hours. They appreciate technologies that streamline processes and reduce stress (Rahman, 2023). Being tech-savvy allows Generation Z to quickly adapt to change, and it has led to new career paths that incorporate cutting-edge technology. Support staff now have the opportunity to perform legal preparation and review tasks. This change not only affects the perception of lawyering in the workplace, but also presents prospects for support staff to take on attorney roles while maximizing costs and profits for law firms.

The legal profession is transforming due to technological advances. Law firms that embrace technology and hire experts with diverse skills alongside traditional lawyers are replacing more traditionalist firms. It is important to note that technology is not intended to replace lawyers, but to enhance their work (Metzler et al., 2023). For example, artificial intelligence (AI) programming can serve as an extension of human thought processes. Human interpretation and judgment remain crucial in the legal arena, as there are rarely definitive or absolute answers. Given the complexity of cases and the impact individuals have on outcomes, the law remains focused on human involvement. Lawyers play a critical role in this context, because machines cannot improvise or creatively respond to unexpected circumstances. By delegating routine and repetitive tasks to machines, legal professionals can focus their efforts on strategic and innovative work.

The implementation of legal technology brings with it a number of challenges, despite the many advantages it offers. One of the main obstacles is the legal sector's resistance to adopting digital transformation. Traditional thinking and entrenched beliefs often hold back the adoption of new technologies, especially among those who do not yet have prior experience with them. In addition, while regulations exist to ensure legal certainty, they can also hinder technological innovation. Technology integration also raises ethical issues. Questions arise about fairness in the labor market due to the unequal distribution of the benefits produced by algorithms and machines. Artificial intelligence also raises debates about the manipulative tactics employed in decision-making processes, which raises ethical issues. It is important to note that algorithms and vulnerabilities play a role in aiding logical decision making; however, this raises critical questions regarding the moral principles governing robots and artificial intelligence and the determination of accountability for their actions under the law.

Finding Business Opportunities in the Legal Sector: A Strategic Perspective

A proposed business plan includes the development of an AI application specifically aimed at the due diligence process. This application aims to ensure thorough inspections in different business contexts. By incorporating innovative technologies such as artificial intelligence and machine learning, we intend to address existing challenges on speed, cost, and accuracy in traditional due diligence approaches. The goal is to revolutionize the way companies and professionals evaluate potential partners and transactions.

This AI application offers several advantages for due diligence processes. It leverages advanced artificial intelligence algorithms to analyze large amounts of data faster and more efficiently than traditional manual methods. In addition, the application has access to a variety of data sources, both public and private, allowing for a comprehensive assessment of key attributes when evaluating potential partners. This streamlined approach to data collection is invaluable for streamlining business decisions and reducing the time required to complete due diligence procedures.

The application serves two main audiences. First, it targets companies in a variety of industries looking for partnerships, market expansion, or strategic investments. These companies can use the app to more efficiently and accurately evaluate potential clients and partners. In addition, the application is designed for legal technologists and lawyers involved in business and real estate transactions. It enables these experts to analyze legal documents, contracts, and other relevant data more efficiently, reducing the risk of overlooking important details or legal risks associated with business decisions.

The proposal emphasizes distinctive qualities that will attract customers to the application. Using machine learning algorithms, the app is able to discover subtle patterns that may go unnoticed by conventional methods. It also identifies trends and patterns in the data, continually refining its insights and improving its ability to identify potential risks and opportunities. In addition, the application has an intuitive user interface and collaboration features that facilitate effective communication and decision-making across multidisciplinary teams. This seamless integration of teamwork ensures that the due diligence process is streamlined.

In summary, the proposal recognizes that the implementation of this application can minimize human error and simplify the manual review process. By automating repetitive and error-prone tasks, practitioners can devote their attention to more strategic and analytical aspects of due diligence. Through the use of machine learning algorithms, the application significantly reduces the chances of overlooking essential information. The introduction of this AI application is a significant innovation for due diligence, providing a robust tool to facilitate informed business decisions, mitigate risk, and improve the quality of business transactions.

Fostering the Future: Training the Next Generation of Lawyers

Updating legal training to adapt to the evolution of the profession is crucial. To meet this challenge, it is essential that legal training keeps pace with changing trends. By integrating technology into the curriculum, legal training can adapt to the needs of the marketplace. This integration ensures that students gain a comprehensive understanding of both traditional legal concepts and the complexities of the digital world. For example, incorporating classes on cybersecurity, privacy, and e-research will equip graduates with a solid understanding of conventional legal principles in the changing dynamics of the digital age.

However, legal training should not be limited to technology. It is equally important for law schools to prioritize interpersonal skills. These skills, which include effective communication, critical thinking, and problem solving, are essential for lawyers in navigating the complexities of an ever-evolving technological landscape, while maintaining meaningful relationships with clients and colleagues. By incorporating interpersonal skills into the curriculum, along with technology-focused courses, law schools can train lawyers who are not only technically proficient but also possess the interpersonal skills necessary to practice law.

To stay current in an ever-changing legal landscape, it is important for legal training to be proactive. Lawyers must stay abreast of the latest developments in legal technology. To accomplish this, law schools should offer continuing education programs that cover relevant topics, such as cybersecurity, cloud computing, and artificial intelligence. These programs would offer prac-

ticing lawyers the opportunity to stay informed and skilled, ultimately improving the quality of legal services in our technology-driven world.

In order to provide a comprehensive and future-oriented legal education, it is essential for academia to collaborate with the business world. Law schools should establish collaborations with law firms and legal technology companies to ensure that their curricula remain relevant and up to date. These collaborations allow for the development of curricula that meet the demands of the legal profession. In addition, students can receive hands-on training in the use of legal technologies and the implementation of strategies through these business partnerships. This helps bridge the gap between academic theory and real-world application.

CONCLUSIONS

It is no secret that many people recognize the advantages of legal technology, especially for repetitive and unsatisfactory tasks that can be easily automated. However, changes in the workplace brought about by technological advances and individual adaptation occur gradually. Integrating new software into existing systems requires thorough preparation, which involves breaking down tasks for automation and gathering relevant information for machine learning. Even with simpler software solutions, adoption can be hampered by limited time availability and resistance to change.

The implementation of legal technologies in today's environment is challenging due to the limited time available for training and proper implementation. This time constraint can affect the way technology is perceived and used. To overcome this obstacle, it is crucial to prioritize training and gradual implementation.

The true value of new technologies in the legal sector becomes apparent when they demonstrate their effectiveness in routine tasks. Internal feedback from users who have positive experiences is vital in shaping the perception of value, and in encouraging rapid adoption. Sharing these experiences plays a role in fostering a cultural shift toward acceptance and effective use of legal technology in the workplace, ultimately building confidence in its capabilities.

Many lawyers express concern regarding job security as technology continues to advance. This is especially true for those who have received traditional training and have honed their skills in an environment with little reliance on technological advances. The uncertainty surrounding these changes can lead to resistance to adopting new technologies and doubts on their reliability and effectiveness in the legal arena. The introduction of technology may make practitioners, who have invested much time and effort in learning and mastering traditional meth-

ods, feel threatened. They may fear that their knowledge and experience will be replaced by automated solutions.

Given the evolving nature of the legal profession, it is clear that law schools must adapt their curricula to meet the challenges of today and tomorrow. To adequately prepare law students, a flexible and global approach is necessary. Integrating technology into the curriculum is a crucial step in ensuring that graduates possess a solid understanding of both traditional legal principles and the complexities of an ever-changing digital landscape. This evolution in teaching can also prioritize the interpersonal skills essential for effective interaction in a technology-driven legal world, fostering lasting relationships with colleagues and clients.

Legal technology offers the possibility of improving quality of work by reducing human error, which is a significant advantage. However, the effectiveness of technological solutions depends on their proper implementation and operation. Mistakes made in the early stages can hinder the benefits of technology. It is important to note that the expertise and judgment of legal professionals cannot be replaced by technology. Therefore, humans still have the responsibility to ensure legality and accuracy in legal matters.

The integration of technological tools in the legal sector is a long-term commitment, as the benefits are often not apparent for several years. These tools also require regular maintenance to ensure their continued effectiveness. Neglecting proper maintenance can lead to user dissatisfaction and undermine the perceived usefulness of AI-driven solutions. Given the inherent complexity of legal issues, it is crucial to carefully consider system complexity when implementing solutions, especially in cases involving legal interpretation.

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