

Artificial Intelligence as a Strategic Ally in the Financial Sphere

La Inteligencia Artificial como Aliada Estratégica en el Ámbito Financiero

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ABSTRACT

Introduction: in the last decades, artificial intelligence (AI) established itself as a transformative tool in accounting and auditing. Its implementation allowed automating repetitive tasks, increasing accuracy in data analysis and freeing professionals to focus on strategic functions. Since its beginnings in the 1950s, AI evolved from theoretical ideas to practical applications with great impact in financial and administrative sectors.

Development: the development of AI began with the creation of the Logic Theory Machine and advanced with paradigms such as symbolic and connectionist AI. Over the years, technologies such as neural networks, virtual assistants and machine learning systems were integrated into various fields, including finance. In accounting, AI facilitated reporting and decision making by reducing the operational burden. In auditing, it made it possible to detect fraud and errors more quickly and reliably than traditional methods. Tools such as expert systems, neural networks and intelligent agents were incorporated to improve accounting review and ensure compliance with international standards. However, concerns were raised about job losses, technological dependence and ethical dilemmas.

Conclusion: AI represented a substantial advance in the efficiency and quality of accounting and auditing processes. Although it generated job uncertainty and ethical challenges, it was viewed as a strategic ally when applied in a conscious and regulated manner. Its responsible integration strengthened business decision-making and sustainable economic development.

Keywords: Automation; Auditing; Artificial Intelligence; Accounting; Transformation.

RESUMEN

Introducción: en las últimas décadas, la inteligencia artificial (IA) se consolidó como una herramienta transformadora en contabilidad y auditoría. Su implementación permitió automatizar tareas repetitivas, aumentar la precisión en el análisis de datos y liberar a los profesionales para enfocarse en funciones estratégicas. Desde sus inicios en los años 50, la IA evolucionó desde ideas teóricas hacia aplicaciones prácticas con gran impacto en sectores financieros y administrativos.

Desarrollo: el desarrollo de la IA comenzó con la creación del "Logic Theory Machine" y avanzó con paradigmas como la IA simbólica y la conexionista. Durante los años, tecnologías como redes neuronales, asistentes virtuales y sistemas de aprendizaje automático se integraron en diversos ámbitos, incluyendo el financiero. En contabilidad, la IA facilitó la elaboración de informes y la toma de decisiones al reducir la carga operativa. En auditoría, permitió detectar fraudes y errores con más rapidez y fiabilidad que los métodos tradicionales. Herramientas como sistemas expertos, redes neuronales y agentes inteligentes fueron incorporadas para mejorar la revisión contable y asegurar el cumplimiento de normas internacionales. No obstante, surgieron preocupaciones sobre la pérdida de empleos, la dependencia tecnológica y los dilemas éticos.

Conclusión: la IA representó un avance sustancial en la eficiencia y calidad de los procesos contables y de auditoría. Aunque generó incertidumbre laboral y desafíos éticos, se visualizó como una aliada estratégica cuando se aplicó de manera consciente y regulada. Su integración responsable fortaleció la toma de decisiones empresariales y el desarrollo económico sostenible.

Palabras clave: Automatización; Auditoría; Inteligencia Artificial; Contabilidad; Transformación.

INTRODUCTION

In today's digital age, artificial intelligence (AI) has emerged as one of the most disruptive and transformative technologies in various sectors, including accounting and auditing. Its evolution has made it possible to automate routine tasks, optimize processes, and provide greater accuracy in data analysis, enabling professionals in the field to focus on strategic and higher value-added functions, such as interpreting information and making decisions. This ability to improve operational efficiency and reduce the margin of error has made AI increasingly adopted in corporate environments, particularly in administrative and financial functions.⁽¹⁾

The development of artificial intelligence has its roots in the 1950s, when researchers from various disciplines began to explore the possibility of creating an "artificial brain." Since then, AI has evolved from rudimentary computer programs to complex systems capable of emulating certain aspects of human thought. From its earliest applications, such as the "Logic Theory Machine," to today's neural networks and machine learning algorithms, AI has come a long way marked by significant advances, setbacks, and discoveries.⁽¹⁾

In the accounting field, this technology represents a valuable tool for transforming the way financial transactions are recorded, processed, and analyzed. Likewise, in the field of auditing, AI allows for the detection of irregular patterns, fraud, or errors more quickly and accurately than traditional methods.⁽²⁾ Tools such as expert systems, artificial neural networks, and intelligent agents are being integrated into accounting review processes, which not only raises the quality of the work performed but also strengthens compliance with current rules and regulations.

However, despite its many benefits, the incorporation of artificial intelligence in professional environments also poses challenges and controversies. There are concerns about the replacement of certain jobs, the loss of human skills, and the ethical risks associated with the indiscriminate use of these technologies. In this context, it is necessary to analyze the real impact of AI within accounting and auditing, evaluating both its advantages and limitations, in order to understand how this tool can contribute to economic development and improve the quality of business decision-making.

DEVELOPMENT

In recent years, artificial intelligence (AI) has become one of the most advanced and significant technologies in the field of accounting. It has been observed that, in addition to being efficient and providing accuracy in accounting processes, professionals in the field can devote more time and concentration to other relevant aspects, such as analysis and reporting, which will aid decision-making. This is because much of the work that was previously done manually is now performed through task automation.⁽¹⁾

In 1956, various researchers in the fields of economics, politics, engineering, mathematics, among others, challenged the creation of an artificial brain, and that was when artificial intelligence was founded as an academic discipline. Alan Turing, an English mathematician now known as the father of the modern computer, was the one who, through the theory of computation, discovered that an artificial brain could be built by analyzing the possibility of a mental and physical articulation of man, linking mathematics and logic with biology.⁽³⁾

The term artificial intelligence was coined at a conference

held in Dartmouth organized by John McCarthy, Marvin Minsky, Claude Shannon, and Nathaniel, where several researchers were invited who were later awarded the Turing Award for their quality contributions to the formalization of the concept of AI as a new field of scientific study. Among them, the concept that it is possible to reproduce human intelligence in artificial machines was established, which remains valid to this day.⁽⁴⁾

The first AI computer program emerged with Allan Newell and Herbert Simon, known as the "Logic Theory Machine." These authors sought to demonstrate, through a heuristic approach, a theory in symbolic logic using multiple combinations of simple and complex operations.⁽¹⁾

The creation of these great authors' program gave rise to two new paradigms of research in AI, known as symbolic AI and connectionist AI. Symbolic AI is known as the development stage, where human reasoning was transformed into a symbol-processing computer, that is, human knowledge was used to build a computer program through rules and symbols. Connectionist AI gave rise to a new concept known as the "perceptron," proposed by psychologist Fran Rosenblatt, who brought a biological perspective by adapting the learning of a neuron based on weighting coefficients for each input to the neuron. Although this study proved to be very promising, it was tarnished by Marvin Minsky and Seymour Papert, who published a book demonstrating through an example that the model failed miserably, which slowed down interest and research in AI for more than ten years.⁽⁵⁾

Between 1986 and 2018, numerous events occurred that marked history and contributed to the evolution of AI. Among them we can find the defeat of world chess champion Garry Kasparov, who competed against a computer developed by the technology company IBM known as Deep Blue, the creation of "Roomba," a robot vacuum cleaner developed for home cleaning, the launch of imageNet, which allowed free access to millions of images through a database; neural networks that compete to generate new data used to create images, videos, and voice (adversarial generative networks); the launch of an intelligent virtual assistant known as Alexa, software created to develop machine learning projects, a new defeat of a world champion in a board game called Go developed by Google AI, and the creation of a new language known as BERT, which is capable of performing various tasks without supervision.⁽⁶⁾

As can be seen, artificial intelligence has been present in the global world for many years, both in computer programs and in smartphones with facial recognition, voice assistants, devices connected by GPS geolocation, e-commerce, and robotics in homes, ranging from a washing machine that can be programmed remotely to lights that turn on by themselves and are controlled from a smartphone. However, it was with the launch of ChatGpt that AI began to be seen as a protagonist and its positive and negative effects began to be debated. A research.⁽⁵⁾ mentions that this new development has generated some controversy, as it has been considered everything from the best artificial intelligence chatbot to a massive catastrophe that will have negative effects on the fields of education and scientific production by eliminating the ability to reason and produce one's own texts, among other examples.

Thus, with the evolution and development of AI, a scenario of uncertainty arises not only in everyday activities that affect everyone in general, but also in the professional sphere, as the dynamics of many work processes have changed, mainly

in administrative and accounting positions, where a decline in the labor market has been observed due to the digitization and automation of tasks caused by AI, as indicated by the World Economic Forum.⁽³⁾

As a result, it is necessary to start talking about the impact that the use of these technologies may have on accounting processes and auditing in general. Accounting is known to be used as an analytical tool that provides information to companies to facilitate decision-making. Espinosa Manriquez⁽⁴⁾ states that: accounting must provide the necessary background information for decision-making, allowing for the prediction of the results of decisions, the verification of the results of the various management processes within the company, the identification of the causes of deviations from the planned results, the facilitation of the control functions of the external bodies empowered to do so, and the presentation of information required by third parties or prepared for them.

Along these lines, the information provided by accounting is necessary for both the company and its internal users, as well as for external users. This gives rise to the need to analyze aspects related to the economic development of companies and to ensure their compliance within a legal regulatory framework, which is achieved through the application of auditing. Auditing is understood as the set of clearly defined steps and procedures for carrying out a task in an orderly and structured manner, through which evidence is obtained and objectively evaluated in activities carried out in different organizations, ranging from public or private companies to environmental, IT, and forensic entities, among others. Thus, among the different types of audits, we can find financial, environmental, administrative, academic, operational, and tax audits, among others.⁽¹⁾

Within financial auditing, there are two types of audits: internal auditing and external auditing. Internal auditing is based on all the procedures carried out within the company as internal control mechanisms. External auditing, on the other hand, is carried out by an independent auditor who is not part of the company and is responsible for issuing an opinion on the organization's financial statements. The auditor assumes responsibility both to the company and to the various users of the information, such as investors, banks, stock exchanges, and supervisory and control bodies.

It should be noted that external auditors must comply with various standards when assuming this type of responsibility. Auditing standards are intended to ensure the quality of the audit. The International Federation of Accountants was responsible for developing international auditing standards and promoting their adoption in all countries. This was due to the rapid global development that created a need to unify different regulatory bodies and, through international consensus, give greater authority to these standards.⁽⁵⁾

The standards therefore serve to ensure that the auditor's work is carried out within the appropriate legal framework, with the latter assuming responsibility for reporting any misleading or fraudulent information, as well as the misappropriation of assets. In this regard, considering the use of new technologies, especially artificial intelligence, is extremely helpful, as they make it possible to detect accounting irregularities or financial fraud more quickly by reducing the possibility of human error, increasing the efficiency and speed of analysis, and enabling the handling of large volumes of data, which would improve the quality of accounting audit processes.⁽⁶⁾

In this regard, several authors^(1,2,6) state that AI works with numerous tools embedded in different systems that adapt to the enormous volume of data and improve operational decision-making. Through these AI systems, it is possible to identify shortcomings, errors, trends, or patterns that would not be possible to detect without the support of technology. These include: expert audit systems that choose the best option from several available, which would facilitate decision-making; artificial neural networks that offer statistical methods for fraud detection; intelligent agents in audits capable of continuously collecting data from different sources that can be useful to the auditor in preparing their report and making judgments.

CONCLUSIONS

Artificial intelligence (AI) is no longer a mere futuristic projection but has established itself as a tool with a real impact in multiple disciplines, especially accounting and auditing. Throughout its evolution, from its theoretical foundations proposed in the 1950s to its practical application in expert systems and complex algorithms, AI has demonstrated immense potential to transform processes, improve efficiency, and reduce human error. In the accounting context, this technology has made it possible to automate routine tasks, freeing professionals to focus on more strategic tasks, such as critical analysis of information and the preparation of useful reports for business decision-making.

In the field of auditing, AI has introduced significant innovations by facilitating the detection of fraud, anomalies, and errors through advanced techniques such as artificial neural networks and intelligent agents. These tools enable large volumes of data to be analyzed quickly and accurately, thereby raising the quality of procedures and strengthening compliance with international regulations. However, this technological transformation also poses considerable challenges. Concerns about job replacement, loss of human skills, and ethical dilemmas regarding the use of AI need to be addressed responsibly and critically.

On the other hand, automation and digitization have caused a shift in the structure of the accounting and financial labor market, creating uncertainty among professionals in the sector. This situation highlights the importance of adapting regulatory, ethical, and educational frameworks to the new technological reality, promoting a balanced coexistence between human capabilities and automated systems. The key to maximizing the benefits of AI in accounting and auditing lies in its conscious, regulated, and common good-oriented implementation, without losing sight of the need to ensure the transparency, security, and quality of financial information.

In conclusion, AI should not be seen as a threat, but as a strategic ally that, when used properly, can contribute to economic development, institutional strengthening, and improved business decision-making. The challenge lies in finding the right balance between technology and humanity in professional practice.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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