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THE CONTRIBUTION OF ARTIFICIAL INTELLIGENCE TO ACCOUNTING AUDIT PROCESSES

A CONTRIBUIÇÃO DE INTELIGÊNCIA ARTIFICIAL NOS PROCESSOS DE AUDITORIA CONTÁBIL

LA CONTRIBUCIÓN DE LA INTELIGENCIA ARTIFICIAL A LOS PROCESOS DE AUDITORÍA CONTABLE

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Abstract: Technological advances have significantly transformed the accounting field, particularly audit processes, which now use tools capable of enhancing analytical capacity and operational efficiency. In this context, Artificial Intelligence (AI) stands out for enabling task automation, the analysis of large volumes of data, pattern identification, and support for decision-making. This study investigates how AI can improve accounting audit processes, contributing to greater efficiency, higher-quality analyses, and risk identification, while also considering the technical and ethical challenges related to its use. The general objective is to analyze the impacts, benefits, risks, and requirements associated with the contribution of AI to accounting auditing. Specifically, the study seeks to define accounting auditing and AI, identify the contributions of this technology across the main stages of the audit process, analyze benefits related to the efficiency and reliability of audit work, and evaluate the auditor's role when using these tools. The research adopts a qualitative and exploratory approach and is based on a bibliographic review of previously published studies on the subject. The findings indicate that AI can contribute to the automation of repetitive activities, the analysis of large volumes of data, anomaly detection, and the continuous monitoring of operations, thereby improving the efficiency and quality of audit processes. Therefore, AI represents an important support tool for accounting auditing; however, it does not replace the auditor's role, since professional judgment, experience, and professional skepticism remain essential for interpreting results and issuing reliable conclusions.

Keywords: Accounting Auditing; Artificial Intelligence; Processes.

Resumo: Os avanços tecnológicos transformaram significativamente a área contábil, especialmente os processos de auditoria, que passaram a utilizar ferramentas capazes de ampliar a capacidade analítica e a eficiência operacional. Nesse contexto, a Inteligência Artificial (IA) destaca-se por possibilitar a automação de tarefas, a análise de grandes volumes de dados, a identificação de padrões e o apoio à tomada de decisões. Este estudo investiga de que forma a contribuição da IA pode aprimorar os processos de auditoria contábil, contribuindo para maior eficiência, qualidade das análises e identificação de riscos, considerando também os desafios técnicos e éticos relacionados à sua utilização. O objetivo geral consiste em analisar os impactos, benefícios, riscos e requisitos associados à contribuição da IA na auditoria contábil. Especificamente, busca-se conceituar a auditoria contábil e a IA, além de identificar as contribuições da tecnologia nas principais etapas da auditoria, analisar benefícios relacionados à eficiência e confiabilidade dos trabalhos e avaliar o papel do auditor diante dessas ferramentas. A pesquisa possui abordagem qualitativa, caráter exploratório e procedimento bibliográfico, fundamentando-se em estudos já publicados sobre o tema. Os resultados indicam que a IA pode contribuir para a automação de atividades repetitivas, análise de grandes volumes de dados, identificação de anomalias e monitoramento contínuo das operações, promovendo

maior eficiência e qualidade nos processos de auditoria, portanto, a IA representa uma importante ferramenta de apoio à auditoria contábil, sem substituir a atuação do auditor, cujo julgamento profissional, experiência e ceticismo permanecem essenciais para a interpretação dos resultados e a emissão de conclusões confiáveis.

Palavras-chave: Auditoria Contábil; Inteligência Artificial; Processos.

Resumen: Los avances tecnológicos han transformado significativamente el área contable, especialmente los procesos de auditoría, que ahora utilizan herramientas capaces de ampliar la capacidad analítica y la eficiencia operativa. En este contexto, la Inteligencia Artificial (IA) posibilita automatizar tareas, analizar grandes volúmenes de datos, identificar patrones y apoyar la toma de decisiones. Este estudio investiga cómo la IA puede mejorar los procesos de auditoría contable, aumentando la eficiencia y calidad de los análisis y la identificación de riesgos, además de considerar los desafíos técnicos y éticos de su uso. El objetivo general es analizar los impactos, beneficios, riesgos y requisitos asociados a la contribución de la IA en la auditoría contable. Específicamente, se busca conceptualizar la auditoría contable y la IA; identificar las contribuciones de la tecnología en las principales etapas de la auditoría; analizar sus beneficios para la eficiencia y confiabilidad de los trabajos; y evaluar el papel del auditor frente a estas herramientas. La investigación adopta un enfoque cualitativo y exploratorio y un procedimiento bibliográfico basado en estudios publicados sobre el tema. Los resultados indican que la IA puede automatizar actividades repetitivas, analizar grandes volúmenes de datos, identificar anomalías y monitorear continuamente las operaciones, mejorando la eficiencia y calidad de la auditoría. Por lo tanto, la IA es una importante herramienta de apoyo, pero no sustituye al auditor, cuyo juicio profesional, experiencia y escepticismo siguen siendo esenciales para interpretar los resultados y emitir conclusiones confiables.

Palabras clave: Auditoría Contable; Inteligencia Artificial; Procesos.

1 INTRODUCTION

Accounting auditing plays a fundamental role in ensuring the transparency, integrity, and reliability of financial statements, thereby contributing to the security of the information used by managers, investors, regulatory bodies, and other users. Advances in digital technologies have changed traditional audit processes, which are gradually being supplemented by automated tools capable of expanding the auditor's analytical capacity and reducing operational limitations found in conventional methods.

Among emerging technologies, Artificial Intelligence (AI) stands out for enabling task automation, pattern identification, analysis of large volumes of data, and decision-making support. Its contribution to accounting auditing represents an important evolution, allowing greater efficiency in the performance of procedures, increased capacity to detect inconsistencies, and improved quality of the evidence obtained during audit work.

Accounting Auditing is essential to ensure the reliability of financial information. According to Crepaldi (2023, p. 10): "Auditing is the accounting technique that, through specific procedures peculiar to it, applied to the examination of records and documents,

inspections, and the obtaining of information and confirmations, relates to the control of an entity's assets." Accounting auditing has a role within organizations that can raise their level by conveying greater reliability to users.

In recent years, technological advances and the increasing digitalization of organizational processes have significantly changed the business environment and intensified the complexity of auditing, since auditors now deal with an ever-growing volume of data, as well as greater speed, variety, and interconnection of information. The traditional approach based solely on manual sampling and isolated documentary examinations, although still relevant, is considered insufficient to capture the full dynamics of risk in highly automated environments.

With technological progress, AI has been incorporated into these processes, making them more efficient. In accounting auditing, these capabilities can be applied from planning through completion of the work, supporting preliminary risk analysis, transaction selection, contract reading, comparison of accounting and tax databases, identification of unusual entries, document review, and evidence organization.

Angonese (2021, p. 18) states that technology optimizes audit processes, requiring less time and fewer labor resources, because tasks that were entirely manual may be replaced by automated routines.

Considering the growth of organizations and the regulatory requirements that must be met, this article seeks to answer the following research question: How can the use of Artificial Intelligence contribute to accounting audit processes in terms of their efficiency, quality of analyses, and risk identification, and what technical and ethical challenges should be considered in its use?

The question is relevant because AI can expand the auditor's analytical capacity, but it can also introduce new risks if used uncritically or without adequate governance.

The general objective of this study is to analyze the impacts, benefits, risks, and requirements related to the contribution of Artificial Intelligence to accounting audit processes. Its specific objectives are to conceptualize accounting auditing and AI; identify AI applications in the main stages of the accounting audit process; analyze the benefits of using AI for the efficiency, quality, and reliability of audit work; and evaluate the auditor's role in the use of AI-based tools. This study adopts a qualitative approach, an exploratory nature, and a bibliographic procedure.

2 THEORETICAL FRAMEWORK

Auditing plays a fundamental role in the process of verifying organizations. Accounting auditing, in turn, aims to increase the degree of confidence of financial-statement users by obtaining appropriate and sufficient evidence and issuing a technical opinion on whether the statements comply with the applicable financial reporting framework. Artificial Intelligence emerges in this context as a set of technologies capable of performing tasks associated with human intelligence, such as classification, prediction, pattern recognition, textual analysis, anomaly detection, and the generation of data-based responses.

2.1 Accounting Auditing

Accounting auditing consists of the systematic verification of financial statements with the aim of ensuring their reliability. According to Crepaldi (2011), the main objective of accounting auditing is to verify whether financial records were made in accordance with accounting principles and whether the statements adequately represent the organization's financial position.

In this regard, Jund (2007, p. 25) states that "[…] to measure the adequacy and reliability of accounting records and statements, Accounting also uses a technique of its own, called Auditing." It can therefore be said that accounting auditing acts as an indispensable tool for organizations, whether commercial or industrial.

For Ishikawa and Bezerra (2002) and Crepaldi (2011), one of the main objectives of accounting auditing is to provide credibility to a company's financial statements. Internal auditing has a preventive focus and helps improve internal controls and reduce risk, whereas external auditing, because it has no ties to the company, can conduct a more impartial analysis of processes, providing greater assurance to investors, creditors, and other users of financial information.

A company with a consolidated internal audit function can identify its failures, work to mitigate its risks, and increase operational efficiency. According to William Attie (2018), auditing can be defined as a specialization of accounting intended to test the efficiency and effectiveness of the asset-control system implemented in entities. In this sense, auditing is not limited to identifying errors and fraud; it also contributes to improving internal processes and strengthening corporate governance.

In addition to information analysis, auditing helps determine whether all company transactions occurred correctly. In this regard, Hilário Franco and Ernesto Marra (2001) state

that auditing is an accounting technique intended to confirm the accuracy of entities' records and financial statements.

Accounting auditing allows greater control over company results because, as José Carlos Marion (2015) points out, auditing is essential for reducing the risks of fraud, errors, and irregularities and for assisting managers in decision-making. William Attie (2018) also states that auditing is essential to ensure the reliability of accounting information and strengthen organizations' internal controls.

For Crepaldi (2011), planning is a fundamental stage for ensuring efficiency and quality in the auditor's work, as it makes it possible to identify higher-risk areas and define the appropriate procedures for each situation. In other words, a reliable audit requires advance planning of what will be performed and how each stage will be carried out, thus ensuring proper conformity with the data presented.

In Brazil, accounting auditing is regulated mainly by the Brazilian Accounting Standards (NBCs), issued by the Federal Accounting Council (CFC), which establish technical procedures, ethical principles, and responsibilities applicable to independent and internal audit work (CFC, 2024). In addition to the NBCs, accounting auditing is also influenced by regulatory bodies such as the Central Bank of Brazil (BACEN).

Based on the foregoing, there is a strong interrelationship between accounting auditing and fraud prevention in organizational processes. With regard to data verification, both internal and external auditors are interested in assessing the effectiveness of the internal control system and the reliability of the accounting system, since these elements are essential to ensure that the financial statements adequately represent the entity's financial position (Vieira, 2008).

2.2 Artificial Intelligence

Artificial intelligence enables systems to perform complex tasks through data analysis and pattern identification. Its application has grown in several areas, including accounting. The expression "Artificial Intelligence" encompasses different techniques and systems, including machine learning, neural networks, natural language processing, computer vision, expert systems, intelligent automation, and generative AI. Advances in these techniques have been driven by greater computing capacity, the availability of large volumes of data, cloud storage, and the development of more sophisticated algorithms. The NIST AI Risk Management Framework (NIST, 2023, p. 1) defines AI risk management as a structured effort to incorporate trustworthiness attributes into the development, use, and evaluation of AI products, services, and systems.

AI has been incorporated into organizations as a support tool for various corporate activities, facilitating tasks that previously took much longer to perform. Ferreira (2024) highlights that, among the subfields of AI, machine learning plays an important role because it allows computers to learn and make decisions from data without specific programming.

Oliveira (2024) highlights Business Intelligence (BI) as an essential tool in today's organizations because it provides a broader and better-informed view, especially in their financial operations. The author also states that this level of transparency enables accountants to act as strategic partners to their clients, assisting them in decision-making.

According to Meira (2019), artificial intelligence has been applied in different organizational areas, including quality, human resources, marketing, and accounting, thereby increasing its relevance in management and control processes.

In addition, Issa et al. (2016) emphasize that AI techniques have great potential to automate audit processes. AI is no longer merely an operational tool and has begun to provide strategic support to organizations, enabling faster, more accurate, and predictive analyses. The adoption of AI is part of the digital transformation of accounting, in which processes become more integrated, automated, and data-driven.

Munoko, Brown-Liburd, and Vasarhelyi (2020, p. 209) observe that accounting firms report using AI in auditing and consulting, highlighting benefits such as time savings, greater accuracy, and faster analyses. The digital transformation of auditing requires accounting professionals to develop technological, analytical, and interpretive skills, expanding their role beyond traditional document-checking functions.

3 Artificial Intelligence Applied to Auditing

Accounting audit procedures are generally performed manually using the sampling method, which, according to NBC TA 530 - Audit Sampling, consists of applying audit procedures to less than 100% of the items in a relevant population, allowing the auditor to draw conclusions about the whole. However, the evolution and growth of companies created a need to modernize systems and processes, because more traditional methods require more time and cannot cover all company transactions.

According to Oliveira (2024), process automation through AI has brought about a major transformation in how auditors perform their activities. Because AI systems can process and analyze 100% of events, auditors can focus more on assessing results than, for example, on checking records, thereby optimizing time, reducing human error, and mitigating risks that may arise during the audit process. Accounting audits, conducted internally or externally at longer

intervals, had limitations regarding real-time results. This frequency particularly hindered the identification and investigation of fraud when there were signs of irregularities or process manipulation. Intervals of three to six months between audits made rapid investigation more difficult and reduced the time available to identify and correct processes. Kagermann (2018) states that AI has introduced continuous efficiency because it can monitor transactions in real time, making continuous auditing possible. Audit professionals must specialize so that they can assess AI-generated results, extract information, and obtain the best outcome for the company. Oliveira (2025) adds that implementation alone does not guarantee operational efficiency; strategic planning involving training, adaptation, and monitoring of the systems used is also necessary.

Ferreira (2024) points out that AI can handle large volumes of data, helping to identify patterns, trends, and anomalies in processes and to predict future risks based on historical data, which enables companies to protect themselves against fraud or financial problems in the medium and long term. Despite the many benefits, companies also face challenges. Implementation requires investment in specialized software, data infrastructure, and professional training, factors that may hinder adoption, especially in small and medium-sized enterprises. In addition, many organizations face employee resistance to change, since process automation creates insecurity regarding the replacement of traditional roles.

Adhikari and Baidoo Jnr (2025) reinforce that the adoption of machine-learning algorithms and predictive analytics has transformed audit practices in US firms, allowing the analysis of 100% of transactions instead of traditional sampling. Similarly, Law and Shen (2024) demonstrate that AI not only automates routine tasks but also reconfigures the organizational structure of audit firms, requiring new professional skills.

According to Sun (2019 apud Costa, Azevedo, and Souza, 2024, p. 6), “experienced auditors can use algorithm-generated analyses to support their decisions without relinquishing professional judgment and skepticism.”

Despite advances in AI in auditing, technology does not replace the auditor’s essential competencies. Professional experience, critical thinking, and skepticism remain fundamental for properly assessing the results produced by intelligent systems. AI serves as an aid to auditors’ decision-making, showing that technology does not replace the professional.

4 FINAL CONSIDERATIONS

This study aimed to analyze the contribution of AI to accounting audit processes, highlighting its benefits, challenges, and impacts on the work of professionals in the field.

The literature review showed that technological evolution has significantly transformed audit procedures, providing greater analytical capacity, agility in performing activities, and increased reliability of the information examined.

The results demonstrated that AI can make a significant contribution to accounting auditing through the automation of repetitive tasks, analysis of large volumes of data, identification of patterns, detection of anomalies, and continuous monitoring of operations. These characteristics make it possible to increase the efficiency of audit work, reduce failures arising from manual processes, and strengthen the quality of the evidence obtained.

However, it was also found that adopting AI requires care regarding governance, ethics, information security, data quality, and compliance with applicable professional standards. The use of these technologies does not eliminate the need for human auditors, since professional judgment, skepticism, and the auditor's experience remain fundamental for interpreting results, assessing risks, and issuing reliable conclusions.

AI has made a significant contribution to the evolution of accounting auditing, especially in three fundamental respects. First, AI increases the reliability of audit processes by reducing operational errors and enabling the analysis of large volumes of data with greater precision and consistency. Second, AI raises the quality of analyses by allowing patterns, anomalies, and risks to be identified more quickly and comprehensively. Finally, AI contributes to the development of new competencies among professionals in the field, who increasingly need knowledge of technology, data analysis, and critical thinking to properly interpret the results produced by intelligent systems.

It is therefore concluded that AI should not be viewed as a substitute for the auditor, but as a strategic support tool capable of enhancing the auditor's activities and expanding analytical capacity. The responsible and planned use of these technologies tends to strengthen accounting audit processes, contributing to greater transparency, reliability of financial statements, and organizational efficiency.

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