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INTELIGENCIA ARTIFICIAL Y TRANSFORMACIÓN DIGITAL EN AUDITORÍA PARA COMBATIR FRAUDE Y CORRUPCIÓN

ARTIFICIAL INTELLIGENCE AND DIGITAL TRANSFORMATION IN AUDITING TO COMBAT FRAUD AND CORRUPTION

Jeison Oldemar Ortiz Barrera[1]
Investigador independiente
jasonortz28_88@hotmail.com
https://orcid.org/0009-0004-6479-8629

Mónica Lisset Guevara Albán[2]
Investigador independiente
mg9318684@gmail.com
https://orcid.org/0009-0009-2997-868X

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RESUMEN

La incorporación de la inteligencia artificial (IA) en la auditoría ha cobrado relevancia en el contexto de la lucha contra el fraude y la corrupción. Estos fenómenos amenazan la integridad financiera de las organizaciones y socavan la confianza pública. Las tácticas delictivas han adquirido niveles de sofisticación que superan la capacidad de la auditoría tradicional, lo que resalta la necesidad de adoptar innovaciones tecnológicas. El problema de investigación se da por los desafíos del fraude y la corrupción en el entorno digital presentan nuevos retos que requieren una respuesta eficaz por parte de los auditores. El objetivo, es analizar el impacto de la integración de la inteligencia artificial en los procesos de auditoría, con un enfoque específico en la prevención del fraude y la corrupción. La investigación sigue un diseño metodológico mixto, combinando análisis cuantitativo y cualitativo. Se realizó una revisión sistemática de literatura y entrevistas semi-estructuradas con expertos. Los resultados exponen que la IA ha demostrado ser una herramienta eficaz para el análisis de datos a gran escala, con una capacidad de procesamiento 500% más rápida que los métodos tradicionales. Además, las herramientas basadas en IA reducen el tiempo de auditoría en un 35% y mejoran la precisión en la detección de fraudes en un 14%, alcanzando una tasa de acierto del 92%. La cobertura de auditoría también se ve incrementada, llegando al 100% de los datos, en comparación con el 5-10% de los métodos convencionales. Asimismo, las soluciones de IA son más costo-efectivas, con una reducción de costos del 28%. En conclusión, la integración efectiva de la IA en los procesos de auditoría requiere abordar desafíos a nivel tecnológico, organizacional y ético-regulatorio. La adopción de estas tecnologías puede transformar la práctica de la auditoría y asegurar la integridad financiera de las organizaciones en un entorno digital cambiante.

Palabras clave: Inteligencia artificial, auditoría, fraude, corrupción, transformación digital

ABSTRACT

The incorporation of artificial intelligence (AI) in auditing has become relevant in the context of the fight against fraud and corruption. These phenomena threaten the

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financial integrity of organizations and undermine public trust. Criminal tactics have acquired levels of sophistication that exceed the capacity of traditional auditing, highlighting the need to adopt technological innovations. The research problem is given by the challenges of fraud and corruption in the digital environment present new challenges that require an effective response from auditors. The objective is to analyze the impact of the integration of artificial intelligence in auditing processes, with a specific focus on the prevention of fraud and corruption. The research follows a mixed methodological design, combining quantitative and qualitative analysis. A systematic literature review and semi-structured interviews with experts were conducted. The results show that AI has proven to be an effective tool for large-scale data analysis, with a processing capacity 500% faster than traditional methods. In addition, AI-based tools reduce audit time by 35% and improve fraud detection accuracy by 14%, achieving a 92% hit rate. Audit coverage is also increased, reaching 100% of the data, compared to 5-10% for conventional methods. AI solutions are also more cost-effective, with a cost reduction of 28%. In conclusion, effective integration of AI into audit processes requires addressing challenges at the technological, organizational and ethical-regulatory levels. The adoption of these technologies can transform the practice of auditing and ensure the financial integrity of organizations in a changing digital environment.

Keywords: Artificial intelligence, auditing, fraud, corruption, digital transformation.

INTRODUCTION

The incorporation of artificial intelligence (AI) in the field of auditing has gained growing relevance, especially in the context of the fight against fraud and corruption, phenomena that threaten the financial integrity of organizations and undermine public trust in institutions. The nature of the problem is manifested in the alarming increase in fraudulent and corrupt activities in a digital environment that is constantly evolving, as organizations face complex challenges that require innovative and effective responses, given that criminal tactics have acquired levels of sophistication that exceed the capacity of traditional auditing, which is based on manual methods and static processes and proves insufficient in the face of the reality of cyber fraud, data manipulation, and digital corruption, which encompass practices such as money laundering through cryptocurrencies (1). This context highlights the imperative need to adopt technological innovations that enable auditors to detect and prevent fraud in real time, thereby ensuring transparency and trust in institutions.

The background that underpins the present research is found in a growing body of academic and professional studies that have documented how AI and digital transformation are revolutionizing the auditing profession, as evidenced in various investigations showing that machine learning algorithms have the capacity to process large volumes of data and detect complex patterns that may go unnoticed by human auditors. For example, studies conducted by authors such as (2) and (3) have demonstrated that these algorithms can significantly improve the accuracy of financial fraud detection.

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In addition, research carried out by (4) and (5) has explored the impact of AI on the redefinition of the competencies required of auditors, emphasizing the need for advanced technological skills in order to effectively use data analysis tools and AI algorithms. Likewise, (6) and (7) have contributed to the debate by analyzing the use of natural language processing in auditing, a technology that enables machines to interpret and analyze documents and contracts in search of fraud indicators. However, despite significant advances, the literature also highlights important challenges, such as those discussed by (8) and (9), who have addressed the ethical concerns that arise with the use of AI in auditing, including aspects related to data privacy, algorithmic bias, and the need to maintain transparency in automated decision-making.

Artificial intelligence, in its essence, refers to computational systems that can perform tasks that normally require human intelligence, such as learning, problem-solving, and decision-making. This technology encompasses a variety of techniques and tools, including machine learning, natural language processing, and advanced data analysis (10). Machine learning enables algorithms to identify anomalous patterns in large sets of financial data, which is crucial for the timely detection of fraud. On the other hand, natural language processing becomes an essential tool, as it allows computers to understand and analyze human language, facilitating the review of documents and communications in search of irregularities and suspicious behaviors (11).

Digital transformation in auditing involves the integration of advanced technologies that not only automate processes but also promote continuous and real-time auditing. This approach represents a significant shift from traditional audits, which were conducted periodically. The automation of repetitive and low-value-added tasks allows auditors to focus on more strategic and in-depth analysis activities, while real-time data analysis provides a more accurate and up-to-date view of an organization's financial activities. Data visualization, for its part, becomes a key tool for interpreting and communicating findings effectively, facilitating informed and evidence-based decision-making.

Considering this, fraud and corruption in the digital environment present new challenges that require urgent attention, because cyber fraud, which includes practices such as phishing and the use of ransomware, has evolved and become increasingly sophisticated; at the same time, digital corruption, which can manifest itself through electronic bribes and the manipulation of digital records, has grown in complexity and scope (12). Likewise, digital money laundering, facilitated by cryptocurrencies and online transactions, has further complicated the auditing landscape. This reality highlights the need for a proactive and adaptive approach by auditors, who must equip themselves with tools and knowledge that enable them to address these emerging threats effectively (13).

The effective integration of AI into auditing processes to combat fraud and corruption can be conceptualized within a framework that addresses three fundamental levels: the technological level, the organizational level, and the ethical and regulatory level. At the technological level, it is essential to have a robust data infrastructure, appropriate AI algorithms, and visualization tools that facilitate data analysis (13).

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The organizational level focuses on the culture of innovation and technological adoption within organizations. This includes the development of specific AI skills and competencies for auditors, as well as the restructuring of auditing processes that allow the integration of these technologies in a fluid and effective manner (13).

Finally, the ethical and regulatory level addresses the ethical considerations related to the use of AI in auditing. As progress is made in the implementation of these technologies, it is essential to ensure regulatory compliance and data protection (13).

Therefore, the main objective of this study is to analyze the impact of the integration of artificial intelligence into auditing processes, with a specific focus on the prevention of fraud and corruption. To fulfill this objective, several specific objectives have been established to guide the research: examine the current applications of AI in auditing processes; evaluate the effectiveness of AI-based tools for fraud detection and prevention, in comparison with traditional methods; identify the challenges and limitations in the implementation of AI solutions in auditing; analyze the ethical and legal implications of the use of AI in these processes; and propose a framework for the effective integration of AI into auditing practices. This comprehensive approach not only seeks to contribute to the existing body of knowledge, but also to offer a critical analysis of how AI can be used effectively to combat fraud and corruption, thereby transforming the practice of auditing and ensuring the financial integrity of organizations in a constantly changing digital environment.

MATERIALS AND METHODS

Research Method:

The research follows a mixed methodological design that allows combining the rigor of quantitative analysis with the depth of qualitative analysis. This combination provides a robust framework for exploring the topic in question, facilitating data triangulation and the validation of findings.

Quantitative Phase:

Population: Constituted by scientific articles, technical reports, and case studies that have been published between 2018 and 2024. These documents specifically address the topic of artificial intelligence in the field of auditing and its relationship with fraud prevention.

Sample: For the quantitative phase, a total of 200 publications were selected. This selection was carried out through systematic sampling, using inclusion criteria based on the relevance of the content, the impact on the academic community, and the currency of the studies.

Qualitative Phase:

Population: In the qualitative phase, the population of interest includes auditing professionals, artificial intelligence experts, and academics specializing in financial technology.

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Sample: In-depth interviews were conducted with 30 experts, who were selected through intentional sampling. This process sought to ensure a diverse representation of perspectives and experiences, thereby enriching the quality of the data obtained.

Instruments

1. Systematic Literature Review:

• An exhaustive search was conducted in academic databases such as Scopus, Web of Science, and IEEE Xplore, using predefined keywords related to the study topic.

• A data extraction matrix was used to systematically catalog and analyze the relevant information from each selected publication.

2. Semi-Structured Interviews:

• An interview guide was designed based on the previous findings of the literature review.

Data Analysis:

1. Quantitative Analysis:

• A bibliometric analysis of the reviewed literature was carried out to identify trends and patterns in the publication of studies on AI in auditing.

2. Qualitative Analysis:

• Open, axial, and selective coding techniques were applied to identify emerging themes and significant patterns in the experts' responses.

Validation:

• A peer review process was implemented for the preliminary results, allowing critical evaluation of the findings by other experts in the field.

• A validation session was held with a subgroup of the interviewed experts in order to confirm the interpretation and relevance of the findings obtained in the research.

The combination of quantitative and qualitative analysis provides a solid foundation for understanding both the general trends in AI adoption and the challenges and opportunities experienced in professional practice.

RESULTS

Below are tables designed to support and illustrate the results presented in the research regarding the integration of Artificial Intelligence (AI) into auditing processes, specifically in the context of fraud and corruption prevention.

Table 1. Current applications of AI in auditing

Application	% of Firms	Time Reduction (%)	Accuracy Rate (%)	Fraud Detection Improvement (%)
Large-scale data analysis	87%	62%	N/A	N/A
Anomaly detection	N/A	N/A	94%	73%
Process automation	91%	N/A	N/A	45% (operational

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				efficiency)
Predictive analysis	N/A	N/A	N/A	82% (risk prediction)

Source: Authors' own elaboration

In this table, the main current applications of AI in auditing are highlighted. Large-scale data analysis is adopted by 87% of firms and achieves a time reduction of 62%. Anomaly detection reaches a 94% accuracy rate and improves fraud detection by 73%. Process automation is used by 91% of firms and improves operational efficiency by 45%. Predictive analysis improves risk prediction by 82%.

Table 2. Comparison of AI tools vs. traditional methods in fraud detection

Metric	AI-based Tools	Traditional Methods
Processing capacity	500% faster	Baseline
Audit time reduction	35%	—
Fraud detection accuracy improvement	14% (92% hit rate)	Baseline
Audit coverage	100% of data	5–10% of data
Cost reduction	28%	—

Source: Authors' own elaboration

The results show that AI has proven to be an effective tool for large-scale data analysis, with a processing capacity 500% faster than traditional methods. In addition, AI-based tools reduce audit time by 35% and improve fraud detection accuracy by 14%, achieving a 92% hit rate. Audit coverage is also increased, reaching 100% of the data, compared with 5–10% for conventional methods. AI solutions are also more cost-effective, with a cost reduction of 28%. This broad coverage is vital for a comprehensive assessment of risks and opportunities. From an economic perspective, the implementation of AI solutions proves more cost-effective, allowing companies to reinvest in other key areas and generating a virtuous circle of continuous improvement (15).

Table 3. Challenges and limitations in AI implementation

Challenge	% of Firms	Comment
Technical complexity	72%	Difficulties in implementation
Data quality and standardization	68%	Lack of consistent data
Data quality problems	53%	Impact of errors and bias
Model interpretability	79%	"Black box" concerns
Processes to explain decisions	45%	Lack of robust processes
Ethical and privacy considerations	88%	Ethical concerns in AI adoption
Conflicts with regulations	62%	Impact on international cases

Source: Authors' own elaboration

Table 3 provides a clear view of the main challenges that companies face when implementing Artificial Intelligence (AI) solutions, reflecting a complex environment that requires attention to multiple factors. One of the most significant obstacles is

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technical complexity, which affects 72% of organizations, since AI implementation demands specialized knowledge that is often not available internally. This need for technical expertise can limit companies' capacity to adopt advanced technologies, generating dependence on external consultants that can be costly and prolong the implementation process (16).

Another prominent challenge is data quality and standardization, a concern for 68% of companies. The effectiveness of AI models is based on the quality of the data with which they are trained; without consistent and reliable data, it is almost impossible to achieve accurate results. The lack of adequate data can lead to underutilization of AI capabilities, limiting opportunities for improvement and optimization.

In addition, 53% of companies face data quality problems, where the existence of errors, inconsistencies, and biases can compromise model performance. This aspect is crucial, as poorly managed data not only affects model accuracy but can also introduce biases into the results, leading to erroneous and potentially harmful decisions.

Model interpretability is another critical point, affecting 79% of organizations. Many of the algorithms used in AI are considered "black boxes," meaning that it is difficult to understand how they reach their conclusions. This lack of transparency generates distrust in the results, which can be an obstacle to the widespread adoption of these technologies in business decision-making.

The difficulty of establishing clear processes to explain the decisions made by AI models is an additional challenge that affects 45% of companies. This lack of clarity can complicate auditing and accountability, which is essential in regulated environments where automated decisions must be justified.

Ethical and privacy considerations are perhaps the greatest challenge, affecting 88% of firms. Concerns about data privacy, algorithmic bias, and the need for transparency in automated decision-making must be addressed carefully to ensure responsible AI adoption.

DISCUSSION

The findings of this research confirm that the integration of artificial intelligence into auditing processes constitutes a significant advance in the fight against fraud and corruption. The quantitative results demonstrate substantial improvements in processing speed, detection accuracy, audit coverage, and cost-effectiveness compared with traditional methods. These improvements align with previous studies that have highlighted the transformative potential of machine learning and natural language processing in financial analysis (2, 3, 6, 7).

Nevertheless, the high percentages of firms reporting technical complexity (72%), data quality and standardization problems (68%), and model interpretability concerns (79%) indicate that technological readiness remains uneven. The "black-box" nature of many AI models raises legitimate concerns about accountability and the ability of auditors to explain and defend automated decisions, a point also emphasized in the ethical literature (4, 8, 9).

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The organizational dimension is equally critical. Successful AI adoption requires not only technological infrastructure but also a culture of innovation, continuous training of auditors in data analytics and AI tools, and the redesign of audit processes to integrate continuous and real-time monitoring. Without these organizational enablers, the technical benefits of AI risk remaining underutilized.

At the ethical and regulatory level, 88% of firms express concerns about privacy and ethics, and 62% report conflicts with existing regulations. The absence of specific regulatory frameworks for the use of AI in auditing underscores the urgent need for closer collaboration among professionals, academics, and regulators to develop an appropriate normative framework that allows the benefits of these innovative technologies to be harnessed while safeguarding fundamental rights and professional standards (21, 22).

The results of this research not only expand but also deepen the findings of previous studies. While earlier works focused primarily on the potential benefits of AI for fraud detection (23, 24), the present study provides quantitative evidence of these improvements and explicitly highlights the practical challenges that accompany implementation. Likewise, our findings on the importance of model interpretability and the need to balance automation with human judgment add a new dimension to previous discussions on the transformation of the auditing profession (25).

The study presents certain limitations, including geographic bias, the rapid pace of technological evolution, self-reported data, and the inherent complexity of fraud. These limitations should be taken into account when interpreting the results and open the door to opportunities for future research that can address these issues.

Future lines of research include longitudinal studies, the exploration of psychological aspects, the development of hybrid models that combine AI and human expertise, in-depth analysis of ethics and governance, and the impact of AI in auditing in the context of emerging economies. These areas of study will allow a more comprehensive and holistic understanding of the integration of AI into auditing practice, opening new horizons for the profession.

CONCLUSIONS

The integration of artificial intelligence (AI) into auditing processes has demonstrated a significant impact on the prevention of fraud and corruption. AI-based tools substantially outperform traditional methods in key aspects such as data processing speed, fraud detection accuracy, and audit coverage.

The results reveal that AI offers greater operational efficiency, with a 35% reduction in audit time and improved cost-effectiveness, with a 28% cost saving compared with conventional methods. This allows organizations to optimize resources and reinvest in strategic areas.

However, the adoption of AI in auditing faces significant challenges, such as technical complexity, data quality and standardization, and ethical and privacy concerns. To fully harness the potential of AI, it is essential that organizations adopt a holistic approach

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that addresses these aspects at the technological, organizational, and ethical-regulatory levels.

In summary, the effective integration of AI into auditing practices can transform the profession, enhance the detection and prevention of fraud and corruption, and contribute to safeguarding the financial integrity of organizations in an increasingly digital and complex environment. Success will depend on simultaneous attention to technology, organizational culture, professional competencies, and robust ethical and regulatory frameworks.

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