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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE ACCOUNTING PROFESSION IN THE DIGITAL TRANSFORMATION ERA: CURRENT STATUS, CHALLENGES, AND SOLUTIONS

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ABSTRACT

Artificial intelligence (AI) is emerging as a key driver of digital transformation in the finance and accounting sector. The rapid advancement of machine learning, deep learning, and natural language processing has enabled AI to be integrated into various stages of the accounting process, including transaction recording, financial reporting, data analysis, financial forecasting, fraud detection, and compliance risk management. Drawing on a synthesis and analysis of published literature and industry survey reports, this paper systematizes the theoretical foundations of AI, evaluates the current state of AI adoption in accounting practices, and examines its dual impact—encompassing both opportunities and challenges—for the accounting workforce and the profession as a whole. The findings indicate that AI has been widely adopted across several accounting functions, while simultaneously presenting significant challenges related to employment, professional ethics, and the costs of technological transformation. On this basis, the paper proposes several sets of solutions to help accounting professionals and enterprises proactively adapt to and effectively leverage the potential of AI.

KEYWORDS: Artificial Intelligence, AI, accounting, digital transformation, accounting automation.

1. INTRODUCTION

Artificial Intelligence (AI) is a branch of computer science focused on building systems capable of simulating the thinking, learning, and decision-making processes traditionally associated with human beings, based on machine learning and deep learning algorithms.

Unlike traditional software, which merely executes pre-programmed rules according to a fixed script, AI can continuously improve its performance by learning from real-world data, gradually taking on tasks that require judgment, such as classification, forecasting, pattern recognition, and anomaly detection. This characteristic has made AI a foundational technology with the potential to profoundly affect nearly every profession, with accounting - characterized by the processing of large volumes of rule-based data - being one of the fields most clearly affected.

The pace of development and adoption of AI in business operations in recent years has been unprecedented. Having started as an experimental technology applied to isolated tasks, AI has rapidly become a pervasive infrastructure present throughout production, business operations, corporate governance, and service delivery. A recent global survey of nearly 2,000 business leaders across 105 countries found that about 78% of organizations now use AI in at least one business function, yet only about 39% report a clear impact on profitability, and the group of organizations extracting the most value from AI - achieving more than a 5% impact on earnings before interest and taxes - accounts for less than 6% of respondents [3]. The gap between the level of technology adoption and the actual value generated is a critical point that enterprises - including those operating in the accounting and auditing field - need to consider when formulating their digital transformation strategies.

For the finance and accounting function specifically, the pace of AI adoption has been recorded as faster than the general economic average, with the share of finance departments having adopted AI in some form reaching about 97% in 2026, a sharp rise from 76% the previous year [10]. A study published in 2017 estimated that AI alone could add roughly USD 15.7 trillion to global GDP by 2030 [9], illustrating the very large scale of this technology's potential impact on the economy as a whole. This surge, coupled with the continuously growing volume of scientific research published annually on AI, indicates that this is no longer a transient technological trend but has become a foundation reshaping how the accounting profession will operate in the years ahead. Against this backdrop, the paper sets out three specific research objectives: to systematize the theoretical foundations of AI and its relationship with accounting activities; to assess the current state of AI adoption in key accounting functions, along with the associated effects and challenges; and to propose groups of solutions to help accountants and enterprises adapt effectively amid digital transformation.

2. MATERIALS AND METHODS

This paper adopts a qualitative research approach in the form of a descriptive-analytical review, based on collecting, systematizing, and analyzing secondary data from industry survey reports, publicly available statistics, and published thematic literature related to the application of artificial intelligence in the finance and accounting field. This approach is well suited to the objective of synthesizing a comprehensive picture of a rapidly evolving technological trend, rather than testing a specific statistical hypothesis on a narrow survey sample.

The literature selected for synthesis includes large-scale enterprise survey reports, industry statistics, and thematic publications released in recent periods, with content directly relevant to the application of AI in accounting operations, corporate finance, or financial risk management. Priority was given to sources that are systematic and whose data or findings can be cross-checked; purely promotional materials or sources that do not clearly state their data basis were excluded from the scope of synthesis.

On this basis, the synthesized content is organized around four cross-cutting analytical themes: the current state of AI adoption across major accounting functions; the impact of AI on human resources and professional ethics; the level of organizational readiness and investment cost; and the corresponding groups of adaptive solutions. This analytical framework provides the basis for presenting the results in the following section in a systematic manner, avoiding both duplication and the omission of important aspects.

3. RESULTS

The synthesized findings show that the most common and intuitive application of AI in accounting is the automation of transaction-recording tasks. Optical character recognition systems combined with natural language processing enable software to automatically extract information from invoices, vouchers, and contracts to generate journal entries, reconcile receivables and payables, and flag discrepancies without manual data entry, thereby freeing up accountants' time for higher-value analytical and advisory work. A global survey on the state of AI adoption in the accounting profession reports that drafting and editing client-facing communications is currently the most common AI application among accountants (about 64%), followed by workflow automation (about 41%) and the summarization of meetings and professional documents (about 40%) [6]. In addition, thanks to its ability to process large volumes of data at a speed far exceeding human capacity, AI also provides strong support for forecasting revenue, costs, and cash flow, as well as identifying abnormal spending patterns - a foundation for the early detection

of financial fraud; machine learning algorithms can cross-reference vast numbers of transactions within a short time to uncover relationships that traditional manual review methods find difficult to detect. In the broader financial sector, some reports note that AI adoption has improved fraud-detection accuracy by around 40% and reduced customer-service response times by around 60% at organizations that have deployed the technology [1].

Alongside these applications, conversational AI is increasingly being integrated into accounting and finance platforms to support regulatory lookup, answer operational queries, and guide procedures in real time, thereby reducing the burden on direct advisory staff and optimizing human resources for work requiring deeper expertise. At the risk-management level, AI is widely applied to risk management and compliance work through big-data analytics systems that reconcile source documents against filing obligations and detect unusual signs in pricing, quantity, or transaction chains; a recent industry survey found that the three most common AI use cases in finance departments today are knowledge management (49%), accounts-payable automation (37%), and error/anomaly detection (34%) [10]. Many real-world implementations demonstrate clear effectiveness in identifying high-risk entities and in helping to recover significant financial losses, with the quality of input data identified as the foremost factor determining the effectiveness of such applications. Finally, blockchain technology, with its immutable data characteristics, when combined with AI creates a dual layer of assurance for the integrity of accounting data: blockchain ensures that records cannot be altered once verified, while AI undertakes pattern analysis and anomaly detection, a combination regarded as a promising direction for real-time accounting models in the near future.

Table 1 summarizes the five main groups of AI applications in accounting activities, along with the core value that each group delivers.

Table 1. Main groups of AI applications in accounting activities.

Application group	Core value delivered
Bookkeeping and financial reporting automation	Reduces processing time and limits manual data-entry errors
Data analytics, forecasting, fraud detection	Improves forecasting accuracy and provides early risk alerts
Virtual assistants and intelligent chatbots	Shortens response time and reduces direct advisory workload
Financial risk management and compliance	Detects anomalies at scale and supports loss recovery
Blockchain combined with AI	Ensures data integrity and enables real-time accounting

Beyond these positive findings, the synthesis also reveals several notable effects and challenges that AI poses for the accounting profession. The most evident effect is a shift in employment structure, particularly among entry-level staff - the group most often responsible for repetitive, easily automated tasks; a median of about 17% of organizations report having reduced headcount due to AI over the past year, a figure expected to rise to around 30% in the year ahead [3]; among large audit firms specifically, recent recruitment data show notable cuts to graduate intake, ranging from roughly 6% to nearly 30% depending on the firm [10], though most organizations overall continue to hire, or even expand hiring, for positions directly related to technology and data analytics. At the same time, delegating professional decisions to AI systems carries risks where algorithms operate opaquely or where input data is inaccurate; a substantial body of research affirms that independence, adherence to ethical standards, and professional judgment remain the core foundations that AI cannot replace [8], since material accounting and auditing decisions always require judgment, professional skepticism, and legal accountability that only humans can bear.

At the organizational level, a survey of 1,446 senior finance and accounting leaders worldwide reveals a notable paradox: about 88% of respondents believe AI will be the most transformative technology trend over the next 12-24 months, yet only about 29% (8% describing their organization as very well prepared and 21% as well prepared) consider their organization genuinely ready, with the gap in technological skills identified as the greatest barrier [5]. At the same time, deploying AI requires substantial investment in infrastructure, software licensing, and training, placing greater pressure on small and medium-sized enterprises; multiple reports confirm that the accounting profession remains at an early stage of AI adoption overall [4], indicating that the level of technology acceptance across the industry is still uneven and will require further time to become widespread.

4. DISCUSSION

The synthesized results indicate that AI is not merely a technical support tool but is gradually becoming a factor that restructures the value chain of accounting work, shifting the focus from data processing toward analysis and strategic advisory. On this basis, several solution implications can be drawn for accountants and enterprises. First, accounting and auditing training programs need to be adjusted to integrate knowledge of data analytics, critical thinking, and AI tool usage alongside the traditional accounting knowledge base, while enterprises should build continuous in-house training mechanisms so that current staff can gradually adopt new technology without disrupting their day-to-day professional work.

Enterprises also need to proactively review and digitize existing accounting processes, eliminate duplicated manual processing steps, and progressively integrate accounting platforms capable of connecting with AI and deep-learning tools, with a transformation roadmap suited to each organization's actual scale and resources rather than following an investment trend indiscriminately.

As the volume of sensitive financial and accounting data being processed continues to grow, organizations need to establish multi-layered security mechanisms, strictly comply with data-protection regulations, and build internal control procedures for the data used to train and operate AI models. At the same time, internal policies for the responsible use of AI should be established, clearly defining the scope of work that may be delegated to AI, the human-review mechanism applied to its outputs, and accountability when errors occur. More broadly, stakeholders within the accounting and auditing profession need to continue refining professional guidance on the use of AI in preparing and auditing financial statements, while promoting the exchange of experience to keep pace with good practices as they emerge and develop.

Table 2 summarizes a comparison of the main opportunities and challenges that AI presents for the accounting profession, drawn from the findings presented in Section 3.

Table 2. Comparison of opportunities and challenges of AI for the accounting profession.

Dimension	Opportunities	Challenges
Operational efficiency	Automates bookkeeping and shortens reporting time	High upfront investment cost, especially for SMEs
Information quality	Detects fraud and provides earlier, more accurate risk alerts	Risk of errors when algorithms lack transparency or data quality is poor
Human resources	Frees up time for higher-value analysis and advisory work	Risk of job displacement among entry-level staff lacking digital skills
Organization and governance	Supports large-scale, real-time risk and compliance management	Gap between expectations and actual organizational readiness

Finally, several limitations of this study should be acknowledged when interpreting its findings. Because the study relies on a secondary-literature review, it does not collect independent primary data to verify the published figures, so its accuracy depends on the quality of the original sources. In addition, the industry survey reports synthesized here may lag somewhat behind the very rapid pace of AI development, and the scope of synthesis is

general in nature, without delving into the specific characteristics of individual types, sizes, or sectors of enterprise. Future research could address these limitations by combining this review with primary quantitative surveys conducted on a specific sample of organizations.

5. CONCLUSION

Artificial intelligence is profoundly reshaping how the accounting profession operates, from automating transaction recording, data analysis, and fraud detection to financial risk management. The actual degree of impact depends on the pace of adoption, an organization's ability to master the technology, and each individual accountant's capacity to adapt.

The overview findings show that AI cannot fully replace human beings, because the core value of the accounting profession - professional judgment, independence, and professional skepticism - remains inherently human [4], [8]. What AI can do is enhance productivity and broaden the scope of analysis, thereby allowing accountants to shift from the role of record-keeper to that of strategic advisor for their organizations.

In this context, proactively investing in training, building a data-governance and ethics framework, and refining professional standards are the keys to enabling the accounting profession not only to adapt but also to effectively harness the opportunities brought by the wave of artificial intelligence. Future research directions could involve primary quantitative surveys to verify and further substantiate the findings synthesized in this paper.

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