Artificial Intelligence and Financial Auditing in Morocco: Towards a Redefinition of Practices and Skills.

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Abstract

This article explores the impact of artificial intelligence (AI) on financial auditing, particularly its influence on auditor practices and skills. Using qualitative methodology, we conducted semi-structured interviews with industry professionals to identify challenges, opportunities and expectations related to integrating AI into audit processes. The results reveal a gradual transformation of auditing practices, marked by the automation of repetitive tasks, improved efficiency and the need for auditors to develop new technical skills. However, concerns related to the impact of AI on the integrity of professional judgments and the continuing education of auditors have emerged. The study highlights the importance of training auditors so that they can fully exploit AI tools while preserving the ethics and rigor of the profession.

Keywords : artificial intelligence, financial audit, challenges, opportunities, efficiency.

Introduction

The emergence of artificial intelligence (AI) marks a decisive step in the transformation of professional practices, particularly in the field of financial auditing. AI-powered tools such as machine learning, predictive algorithms and big data analytics are redefining the way audits are performed. These technologies promise to automate repetitive tasks, improve anomaly detection, and increase the accuracy of financial reporting. However, their integration raises crucial questions regarding the necessary skills, ethical implications and the ability of organizations to adopt these innovations.

Despite the growing interest in the subject, the scientific literature remains fragmented regarding the concrete impact of AI on financial audit practices and results. Furthermore, few studies explore the perceptions of professionals who are directly affected by these changes. In this regard, this article aims to answer the following question: how do auditors perceive the impact of artificial intelligence on their practices, and what are the main challenges and opportunities they encounter?

To answer this question, a qualitative methodology based on semi-structured interviews was adopted. These interviews provide an in-depth exploration of financial auditors' experiences and perspectives on AI integration. The sample includes professionals from different backgrounds, working in audit firms or financial departments of companies, and having direct or indirect experience with the use of AI tools. The analysis of the data collected is based on a thematic approach, aiming to identify trends, divergences and relevant insights.

The first section of the paper will be dedicated to a literature review consisting of an analysis of existing studies on the use of AI in financial auditing, highlighting current advances, gaps and debates.

Next, we will highlight the methodology pursued in our work to describe in detail the process of collecting and analyzing qualitative data through semi-structured interviews.

The results obtained will then be discussed, highlighting auditors' perceptions of the opportunities offered by AI, the challenges they encounter and the implications for their profession.

Finally, we conclude with a summary of the main lessons, accompanied by practical recommendations to facilitate the adoption of AI in financial auditing and suggestions for future research.

Based on testimonials from practitioners, this article aims to make a significant contribution to understanding the transformations underway in the field of financial auditing, while offering concrete perspectives for players in the sector.

1. Literature review

Artificial intelligence (AI), although conceptually present for some time, experienced a significant turning point from the end of 2019, thanks to the emergence of AI tools and their presentation to the general public . These innovations have proposed solutions attracting growing interest. As a result, AI is now defined in various ways, depending on the perspectives taken.

Indeed, it was defined by Norvig & Russell (2010) as "the emulation of human cognitive processes, including perception, reasoning, learning and problem solving. »

In contrast, Floridi & Cowls (2022) point out the following: "with the advent of narrow or weak AI, which excels in specific tasks such as image recognition or language translation, the definition of AI has expanded to include systems designed for particular functions. »

The integration of artificial intelligence (AI) into financial auditing represents a major revolution, transforming traditional practices by introducing powerful analysis and automation tools. This section examines the main contributions of the scientific literature, highlighting the opportunities offered by AI, the challenges related to its adoption, and its impact on the auditing profession.

Automation and improving efficiency

One of the most significant contributions of AI to financial auditing lies in its ability to automate repetitive tasks and process massive volumes of data. Studies show that AI significantly reduces the time spent on processes such as verifying transactions and analyzing financial documents, while increasing their accuracy (Richard & Reix, 2002) . Indeed, thanks to machine learning algorithms, auditors can focus on higher value-added tasks, such as strategic analysis and decision-making (Jacob et al., 2020).

These technologies also make it possible to process data in real time, offering better responsiveness and continuous monitoring of companies' financial activities (Cerruti & Richard, 2008). This approach, called "continuous audit", is considered a major innovation in the field.

Anomaly detection and fraud prevention

AI is also distinguished by its ability to identify atypical patterns or anomalies in complex data sets. According to (Hutzli, 2021) , AI tools outperform traditional methods in fraud detection, thanks to their ability to analyze non-linear patterns and learn autonomously from historical data.

For example, natural language processing (NLP)-based solutions can quickly review large volumes of contracts and financial reports, identifying potential inconsistencies or red flags (Du & Elston, 2022). These advances strengthen the quality and reliability of audits, while reducing the risks associated with human errors.

Technical and human challenges

Although AI offers considerable opportunities, its adoption in financial auditing presents challenges. From a technical point of view, auditors must master complex tools and understand the underlying principles of algorithms to correctly interpret their results (OMIDI FIROUZI & Wang, 2020). Furthermore, the initial implementation costs of AI solutions can represent a barrier for small and medium-sized enterprises (SMEs) (Tietz et al., 2020).

From a human perspective, resistance to change is a notable obstacle. Many auditors perceive AI as a threat to their traditional role, although it is actually more of a complement than a replacement (Julia Kokina & Stephen Kozlowski, 2016).

Ethical and regulatory considerations

The use of AI in financial auditing also raises ethical and regulatory concerns. Data confidentiality, the potential for algorithmic bias, and the transparency of the models employed are significant issues (Türegün, 2019). To address these challenges, ethical frameworks must be developed to ensure the responsible use of such technologies (Gerke et al., 2020).

Furthermore, regulators are urged to adapt auditing standards to oversee AI usage while promoting innovation (Lee, 2020). These adjustments are crucial for maintaining stakeholders' trust in audit outcomes.

Impact on the role of auditors

AI profoundly reshapes expectations regarding auditors. They are required to develop new skills, particularly in data analysis and technological project management (Stancheva-Todorova, 2018). Rather than replacing auditors, AI offers the opportunity for human-machine collaboration, where human expertise and technological capabilities complement each other to deliver more precise and relevant audits (Maharani et al., 2024).

In summary, the literature highlights the transformative impact of AI on financial auditing. While it promises efficiency gains, improved fraud detection, and evolving practices, its adoption necessitates strategic management of technical, human, and ethical challenges. These findings provide the basis for our qualitative study, which explores auditors' perceptions of this technological revolution.

2. Methodological framework

2.1 Presentation of the qualitative study

The objective of this research is to explore the influence of artificial intelligence on financial auditing practices through a qualitative study, providing a deep understanding of the perceptions, experiences, and challenges auditors encounter in light of this technological evolution. To achieve this, a semi-structured interview approach was selected, as it is particularly well-suited for collecting detailed data on complex and underexplored topics.

Semi-structured interviews guide discussions around specific themes while offering the necessary flexibility to allow participants to freely share their opinions and experiences.

The target population for this study consists of auditors working in medium- to large-sized audit firms, as well as professionals in financial audit departments of multinational companies. The auditors selected to participate in the survey were chosen based on their expertise in financial auditing and their exposure to AI technologies in their work. A sample of 35 auditors was retained, a number sufficient to ensure data saturation while guaranteeing a diversity of perspectives.

Sampling is directly influenced by the research objectives, aiming to build a relevant empirical corpus. The sample size, within the framework of convenience sampling, is determined by various criteria, such as the characteristics of the target population, the context of data collection, and the time available to conduct the study. Taking these factors into account, two fundamental criteria justify the composition of our sample: the size of the sample and the specificities of the study context.

The issue of sample size arises when determining the point at which data collection should cease. This process continues until information saturation is reached (Glaser & Strauss, 2010). Semantic saturation occurs when newly collected data no longer provide substantively new insights, merely reiterating points already expressed by previous participants.

The diversity of participants enables the identification of variations in opinions and experiences based on the type of firm, the extent of AI integration, and the specific roles of auditors within their organizations.

Each semi-structured interview was designed to last 60 minutes. This format was deemed suitable to allow for an in-depth discussion while respecting the time constraints of the professionals. The interviews were conducted in person, via videoconference, or, when necessary, by telephone, depending on the participants' preferences.

A pre-designed interview guide was developed, covering key topics such as auditors' perceptions of AI's impact on their work, challenges faced during the implementation of these technologies, and observed changes in the quality and efficiency of audits. The guide was used flexibly, allowing participants to express their viewpoints naturally while steering the discussion toward specific subjects.

Conversely, data collection was carried out through audio recording of the interviews, with the prior consent of the participants, to ensure an accurate and complete transcription of the discussions. Once the interviews were conducted, the recordings were carefully transcribed verbatim to avoid any loss of information and to allow for a thorough analysis of the data.

In addition to the interviews, notes were taken during the sessions to capture contextual elements that might be relevant for interpreting the results. Participants were also invited to provide documents, such as internal reports or presentations of AI tools used in their audits, to enrich the collected information.

The interviews conducted underwent thematic content analysis. By combining vertical analysis, which examines each interview individually, with horizontal analysis, which explores themes across all interviews, a comprehensive set of findings emerged. As highlighted by Wacheux (1996), qualitative data analysis involves condensing information, categorizing it, and connecting the categories to achieve a coherent description, explanation, or framework.

This approach facilitated the grouping of various responses into categories based on the themes addressed by participants, such as the reduction of human errors, the perceived benefits of AI for fraud detection, resistance to change, and ethical concerns.

The codes were refined throughout the analysis, with particular attention paid to variations in participants' perceptions based on their experience and role in the auditing process. The analysis also highlighted correlations between AI adoption and certain organizational factors, such as the size of the firm or the type of audit engagements carried out. The results were interpreted

within the context of existing theories on the impact of technological innovation in regulated professions, and more specifically in the financial sector.

To ensure the validity and rigor of the study, several measures were taken. First, a triangulation process was employed, cross-referencing data from the interviews with organizational documents to verify the information and broaden the perspective of the results. Second, the interviews were conducted with a sufficiently large and diverse sample to ensure that the participants' viewpoints covered a representative range of the realities experienced in the field of financial auditing. Finally, a process of result validation was carried out by presenting the preliminary conclusions to the participants, allowing for the refinement of interpretations and enhancing the credibility of the analysis.

This methodology allows for a detailed and nuanced understanding of auditors' perceptions regarding the integration of artificial intelligence into their professional practices, while considering the human, organizational, and technological dimensions of this evolution.

2.2 Analysis of responses

The interviews conducted with auditors revealed several key themes related to the impact of artificial intelligence (AI) on financial auditing practices. The responses from participants were organized around four major themes: the perception of AI's benefits, the challenges and obstacles to its adoption, changes in the nature of auditors' work, and ethical and regulatory concerns. These themes helped to better understand not only the benefits perceived by auditors but also the hesitations and challenges faced when implementing AI in financial auditing.

The perception of the benefits of AI

The auditors interviewed agree that the integration of artificial intelligence into auditing offers significant advantages, mainly in terms of efficiency and audit quality. A key point of consensus among respondents is the ability of AI to automate repetitive and time-consuming tasks, allowing auditors to focus on more strategic and analytical aspects of their work.

Some participants particularly highlighted the improvement in the delivery of results thanks to the use of data analysis algorithms. These algorithms enable the examination of large volumes of financial data with greater speed and accuracy, thus reducing the risk of human error. "AI helps us to examine vast sets of data in much more depth. What used to take us weeks can now be done in just a few hours," said an auditor from a large international firm.

The participants also mentioned the positive impact of AI on detecting anomalies and fraud. By using AI tools to analyze transactions and financial behaviors, auditors can identify fraud

patterns or anomalies that would otherwise be difficult to spot. A respondent from a mid-sized firm clarified, "Thanks to AI, we can detect irregular patterns that would go unnoticed in traditional audits. This improves the quality of our reports and strengthens client trust."

2.3 Challenges and Obstacles to AI Adoption

Despite these advantages, the introduction of AI in financial auditing has not been without its challenges. The majority of respondents mentioned several obstacles that hinder the adoption of these technologies. One major obstacle cited is the lack of skills and training among auditors. "One of the biggest challenges is that many auditors are not trained in data analysis or in using AI tools," stated a participant. This gap in technical skills requires considerable investment in training and talent development within auditing firms.

Additionally, auditors expressed concerns regarding the complexity of AI tools. Several indicated that they often feel disconnected from technological decisions made within their firms and noted a certain resistance to change. "There are always hesitations among those who prefer traditional methods. Some auditors, especially those who have been in the field for a long time, are more reluctant to change and adopt new technologies," pointed out a participant working in a small auditing firm.

Another challenge mentioned by interviewees is the potential margin of error with AI tools, particularly when algorithms are faced with unstructured or irregular data. "Although AI is extremely useful, it is not infallible. If it encounters poor-quality data, this can skew the results and cause us to miss essential information," added another auditor.

2.3 The changes in the nature of auditors' work

The introduction of AI also changes the nature of auditors' work. A majority of the respondents observed that the automation of certain repetitive tasks has freed up time for more value-added activities, particularly strategic analysis and decision-making. Several participants stated that AI allows them to focus on more creative and analytical aspects of auditing, such as risk assessment or formulating strategic recommendations for their clients.

Some participants also noted that AI helps to better personalize auditing services. Through more detailed data analysis, auditors are able to provide advice that is more tailored to the specific needs of each client. "We can now offer more targeted services, by analyzing not just the numbers but also the specific contexts of the businesses," explained an auditor from a medium-sized firm.

However, a number of auditors have expressed concerns about the evolution of their role. While the automation of routine tasks is viewed positively, some are questioning whether their profession risks becoming too technology-driven, reducing the importance of their professional judgment. "I fear that one day, auditing will only be about data analysis, and the human aspect of our work will be sidelined," confided an auditor working at an international firm.

2.4 Ethical and regulatory concerns

Participants also raised ethical and regulatory issues related to the use of AI in financial auditing. Transparency of algorithms and the protection of sensitive data were recurring concerns. "One of the big challenges is that AI relies on algorithms that are not always transparent. How can we ensure that these algorithms do not make biased decisions or that they adhere to the ethical standards of our profession?" wondered one participant. The issue of accountability in the case of AI errors was also discussed, with several auditors expressing concerns about who would be held responsible if an AI tool incorrectly detects fraud or anomalies.

Finally, regulatory concerns were raised. While AI is a significant asset for auditors, it is not yet uniformly regulated by global standards. "We need a clear regulatory framework to ensure that AI is used responsibly and in accordance with the ethical standards of auditing," concluded one participant.

3. Results and discussion

The results of this qualitative study reveal a profound transformation in financial auditing due to the integration of artificial intelligence. All respondents agree that AI represents a major innovation driver, altering not only work methods but also the role of auditors and the expectations of stakeholders.

The interviewees described a significant shift in professional practices. The automation of repetitive tasks and AI's enhanced ability to analyze vast volumes of data in reduced time has allowed auditors to redirect their efforts toward strategic analyses. However, this progress is accompanied by new challenges. While AI facilitates the detection of anomalies and improves the accuracy of audits, it raises concerns about auditors' understanding and control over algorithmic models, highlighting the need for a balance between technology and human intervention.

Moreover, the rise of AI is redefining the skills required to work in the field. Respondents expressed an increased need for training in digital technologies, highlighting a tension between

the opportunities offered by AI and the adaptation challenges faced by traditional auditors. These developments point to a transformation in the auditor's role, which is becoming that of an interpreter and supervisor of technologies, rather than just an executor.

Finally, the study highlights ethical and strategic concerns, particularly regarding data security and confidentiality. While AI promises to enhance transparency, respondents emphasized the need for regulatory safeguards to prevent potential misuse.

In summary, the results highlight the ambivalence of AI in financial auditing: while it is seen as a catalyst for transformation and efficiency, its deployment requires a thorough reflection on the skills, responsibilities, and ethical values inherent in the auditing profession. This synthesis paves the way for future research exploring how professionals can fully embrace these technologies while navigating the challenges they present.

Conclusion

The integration of artificial intelligence in financial auditing marks a major transformation in the profession, both operationally and strategically. Through this qualitative study, we have highlighted the opportunities offered by AI, particularly in terms of automation, improving the quality of audits, and enhancing objectivity. These advancements allow for a redefinition of the auditor's role, now required to evolve toward advanced technological skills while maintaining the critical judgment and human expertise that are essential.

However, this transition is accompanied by significant challenges. Concerns related to understanding algorithms, data confidentiality, and auditor training highlight the importance of developing robust regulatory frameworks and ethical practices. AI cannot replace the intuition and discernment inherent to professionals, but it serves as a complementary tool, amplifying their ability to generate high-quality audits.

In summary, the future of financial auditing relies on a hybrid approach where humans and technology interact harmoniously. Our findings open promising perspectives for further research on optimizing AI tools in the specific context of financial auditing and on the implications of this transition for academic and professional training.

Thus, this work encourages stakeholders to reflect on ways to integrate AI responsibly and effectively, in order to maximize its benefits while managing its risks. Through enhanced collaboration between researchers, practitioners, and decision-makers, it will be possible to tackle these challenges and build a future where artificial intelligence fully contributes to the reliability and transparency of financial systems.

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