Impact of Artificial Intelligence on the Accounting Profession: Analytical study with reference to Algeria

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Impact of Artificial Intelligence on the Accounting Profession: Analytical study with reference to Algeria

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Abstract:

This study explores the impact of Artificial Intelligence (AI) on the accounting profession in Algeria, focusing on its potential to enhance efficiency, accuracy, and decision-making processes. AI is revolutionizing traditional accounting practices by automating tasks such as data entry, financial analysis, and auditing, leading to significant time and cost savings. However, this transition poses challenges, including workforce displacement and the need for upskilling.

The study emphasizes the importance of adapting regulatory frameworks and fostering continuous professional development to address these issues in Algeria's context. Through the case studies, the research highlights how Algerian firms are adopting AI to enhance decision-making, reduce costs, and streamline operations. The findings suggest that AI adoption offers significant benefits, but requires careful management and workforce training to fully realize its potential in Algeria.

Keywords: Artificial Intelligence, Accounting Profession, Automation, Financial Reporting, Algeria, Workforce Transformation.

Jel Classification Codes: M41, O33, J24, L86.

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1. Introduction

Society is rapidly advancing technologically, especially with Artificial Intelligence (AI), which is becoming crucial for meeting personal needs. Its integration into Internet of Things (IoT) devices and impact on fields like accounting have led to extensive discussions among researchers and professionals. While some regulations may hinder AI's growth, many in the accounting sector are investigating its potential, including associated challenges. Scholars particularly from Western and Asian backgrounds are studying AI's role in accounting, finance, and investment analysis, with a focus on topics such as Artificial Neural Networks

However, there is a significant lack of philosophical exploration regarding AI's impact on the accounting profession and society in Algeria, especially amidst the recent surge in AI development. This gap between Western and Algerian literature highlights the need for a study that investigates AI's influence on philosophy and societal development. Given that philosophical and social contexts are diverse and sensitive to cultural nuances, a deeper understanding of the relationship between AI and accounting could inform future discussions and advancements in Algeria.

This research project examines the impact of AI on accounting in Algeria, focusing on its evolution and significance in local business, social, and cultural contexts. It aims to reveal how AI shapes philosophical perspectives and integrates into the accounting profession. The study highlights institutions like the National Savings and Reserve Fund (CNEP Bank) and the Algerian Tax Authority, which have adopted technology and AI, along with interviews conducted with accounting offices in M'sila and a group of Academics.

1.1. Background and Significance

AI is transforming the accounting profession by automating routine tasks, improving data accuracy, and enhancing analytical capabilities. Technologies such as machine learning, natural language

processing, and robotic process automation (RPA) are streamlining key functions like auditing and tax preparation (Davenport T. H., 2016). This rapid analysis of large data sets reduces human error and improves decision-making in the industry (Brynjolfsson, 2017).

In Algeria, the accounting profession is slowly integrating AI, though the extent varies among firms. Traditionally reliant on manual processes, the sector struggles to keep pace with global technology trends. AI offers opportunities for increased productivity, cost reduction, and improved real-time reporting, but it also poses challenges such as workforce displacement, skill gaps, high implementation costs, and the need for new regulations.

This study analyses AI's impact on the accounting profession in Algeria through case studies from selected firms, highlighting both opportunities and challenges of AI implementation. By presenting real-world examples, it offers valuable insights for accountants, business leaders, and policymakers. Additionally, the research enriches global literature on AI in accounting, focusing on Algeria's unique context, which has been less explored in previous studies.

1.2.Problematic and Hypotheses
- **Problematic :**

This study aims to investigate : **How the adoption of Artificial Intelligence is affecting the accounting profession in Algeria, and what are the key opportunities and challenges associated with this transformation?**

- **Hypotheses :**

Based on the identified problem, the study proposes the following hypotheses:
- **H1:** The adoption of AI in Algerian accounting firms significantly improves efficiency and accuracy.
- **H2:** AI implementation in these firms faces challenges related to workforce displacement, skill gaps, and costs.

- **H3:** Successful integration of AI enhances strategic decision-making and provides a competitive advantage, although regulatory and cultural factors may limit its potential.

1.3.Research Objectives

This study analyzes AI's impact on the accounting profession in Algeria, focusing on local firms' implementation. It aims to assess AI adoption levels, evaluate its effects on accounting practices, identify challenges, and highlight benefits for decision-making, while proposing strategies for successful integration. These insights will deepen understanding of AI's transformative role in Algerian accounting and inform accountants, policymakers, and business leaders.

1.4.Scope of the Study

This study explores AI's impact on Algeria's accounting profession through selected case studies of local firms. It encompasses:

- **Geographic Focus**: This research focuses on Algeria, where AI adoption in accounting is still emerging. It explores how local firms are integrating AI into their practices while considering the country's regulatory, economic, and cultural context.
- **Industry Focus**: The study focuses on the accounting profession in a business context, examining how AI impacts key functions like financial reporting, audits, tax compliance, and data analysis in Algerian firms.
- **Time Frame**: The study reviews recent developments in AI adoption over the past decade, offering insights into the current state and potential future trends of AI's role in the Algerian accounting profession.

2. Theoretical Framework

The Technology Acceptance Model (TAM) and Disruptive Innovation Theory offer key frameworks for examining AI adoption

in Algeria's accounting profession. Developed by Fred Davis in 1989, TAM posits that perceived usefulness and ease of use influence technology acceptance. In contrast, Clayton Christensen's Disruptive Innovation Theory, introduced in 1997, emphasizes AI's transformative potential through task automation and enhanced accuracy. Together, these models illuminate how AI adoption may progress, overcoming initial resistance by improving efficiency and reducing costs.

## 2.1. Overview of Artificial Intelligence

AI involves machines simulating human intelligence to perform tasks like problem-solving, decision-making, and language understanding. It can be divided into narrow AI, focused on specific tasks, and general AI, which aims to replicate full human cognitive abilities, though it is not yet achieved. AI is significantly transforming industries and everyday life.

2.1.1. History and Evolution of AI

The idea of AI originated with classical philosophers who likened human thought to mechanical symbol manipulation. However, formal AI research began in 1956 at Dartmouth College, where the term "Artificial Intelligence" was introduced (Russell & Norvig, 2020). Early efforts concentrated on problem-solving and symbolic methods, but the 1980s saw a shift toward neural networks and machine learning, which gained momentum in the 21st century due to larger data sets and enhanced computational power

The most significant advances in technology stem from "machine learning" systems, which are trained on data sets and continuously adapt rather than being explicitly programmed. These systems "learn" by analyzing increasing amounts of data. Their architecture, known as "deep learning," consists of multiple layers of "neural networks" modeled after the brain's neurons and synapses (NACD, 2023).

Figure 01 : Architecture of AI
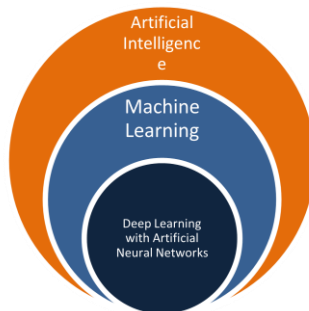
Source : NACD In partnership with Data & Trust Alliance (2023), *Digital Transformation: AI and Board Governance*, USA, p.6.

2.1.2. Types of AI

AI can be categorized in several ways, depending on how you view its capabilities and applications. In this research, we limit our classification to its capabilities.

- **Narrow AI (Weak AI)**: Refers to AI systems designed to perform a narrow task (e.g., facial recognition, language translation, autonomous vehicles). Most AI in use today falls under this category (Goodfellow, 2016)
- **General AI (Strong AI)**: General AI would have the ability to understand, learn, and apply intelligence across a broad range of tasks at a level comparable to human cognitive abilities. This form is still theoretical and does not yet exist (BOSTROM, 2014).
- **Super intelligence**: A form of AI that surpasses human intelligence in all aspects. Though this concept is largely theoretical, it is a subject of significant debate among futurists and AI ethicists (BOSTROM, 2014).

2.1.3. Applications of AI

AI is transforming various sectors with innovative applications. In healthcare, it revolutionizes diagnostics, personalizes treatment plans, advances drug discovery, and enables robotic surgeries. In finance, AI enhances fraud detection, facilitates algorithmic trading, improves credit scoring, and personalizes banking services. In transportation, it powers autonomous vehicles and drones, boosting efficiency and safety (Litman, 2020). Meanwhile, in retail, AI automates customer service, optimizes inventory management, and customizes shopping experiences (Davenport, 2018).

2.1.4. Potential Development of the Use of AI

AI is rapidly expanding across sectors, with the global market valued at $136.55 billion in 2022 and projected to reach $1.81 trillion by 2030. Nearly 91.5% of businesses are investing in AI, which could create 97 million jobs while automating 85 million by 2025. This technology is transforming consumer services, healthcare, and marketing, with the U.S. and China leading global initiatives, highlighting AI's significant potential to shape the global economy.

2.2. Artificial Intelligence in Accounting
2.2.1. Overview of AI in Accounting

AI is transforming the accounting sector by improving accuracy and efficiency in financial operations. Technologies like machine learning and data analytics automate routine tasks, allowing accountants to focus on complex problem-solving, which is vital for maintaining data integrity and detecting fraud. Additionally, the rise of AI encourages organizations to reassess their operational frameworks, particularly regarding pilot projects and metrics for success. (Cohen, 2019). Despite the significant benefits of AI in accounting, widespread adoption is hampered by a reluctance to move away from traditional methods, limiting the sector's responsiveness to emerging challenges.

As far as the Big 4 accounting firms are concerned ie : —KPMG, PwC, EY, and Deloitte—are increasingly leveraging AI to refine their services and boost efficiency. KPMG employs AI through its KPMG Clara platform to enhance audit quality and streamline processes (KPMG, 2022). PwC integrates AI into its data analytics and automation tools to assist with risk assessment and compliance (PwC, 2023). EY utilizes AI via its EY Helix platform to improve audit quality and aid in tax and compliance services (EY, 2023). Deloitte applies AI across audit, consulting, and tax services, utilizing its AI and Data Analytics suite for predictive analytics and risk management (Deloitte, 2023). These advancements highlight how AI is transforming the capabilities of these firms in delivering innovative solutions to clients.

2.2.2. The Impact of AI on Financial Reporting

AI integration in accounting has significantly improved accuracy and efficiency, transforming traditional practices. By automating routine tasks like data entry and reconciliation, AI reduces human errors and enhances financial record reliability. This automation saves time, enabling accountants to concentrate on complex analysis and strategic planning. Furthermore, AI can quickly analyze large datasets, revealing patterns and anomalies that manual processes might miss, thereby enhancing decision-making. These benefits align with broader trends showing that advanced technology optimizes operations and boosts productivity (Xiao, 2023). Moreover, implementing AI in accounting fosters greater transparency and consistency in financial reporting, aligning with the principles of sound financial management (Mark Holdridge, 1991). Ultimately, these advancements not only bolster business performance but also contribute to the broader economic landscape.

2.2.3. Predictive Analytics and Its Role in Strategic Planning

Advancements in predictive analytics have revolutionized strategic planning in accounting, with AI tools enabling financial professionals to use historical data for better forecasting and decision-

making. Research shows that business intelligence improves IT management, aligns services strategically, and boosts overall business performance (Shmueli, 2011). This proactive approach lets accountants move from reactive practices to strategies that anticipate market changes, enabling finance teams to better support organizational goals and promote data-driven decision-making (Chen, 2018). As disruptive technologies reshape finance, accountants must develop strong skills in predictive analytics to stay relevant and influential in strategic planning.

2.2.4. Future Implications of AI in the Accounting Profession

AI is set to transform accounting by automating not just routine tasks but also complex activities like auditing, tax preparation, and financial analysis. This will reduce manual data processing and allow accountants to focus more on strategic advisory roles and decision-making support (Kokina, 2017). Real-time auditing and continuous reporting, powered by AI, will enhance the speed and accuracy of financial assessments, promoting transparency and reducing errors (Vasarhelyi, 2018). However, this advancement also raises ethical and regulatory challenges, particularly in terms of data privacy and algorithmic biases (Chen, 2018). Additionally, accountants will need to adapt by acquiring new skills in AI technology and data analytics, leading to changes in accounting education (Rozario, 2019). Overall, AI will redefine the profession, making accountants key players in strategic business decision-making.

Based on the report published recently by MordorIntelligence under the title « **AI in Accounting Market Size (2024 - 2029)** » (MordorIntelligence, 2024), AI adoption in accounting and finance has seen rapid growth, with 58% of firms implementing AI-driven solutions. AI is projected to handle up to 40% of basic accounting tasks by 2025, and 70% of large financial institutions use AI for fraud detection. Benefits include up to 70% cost savings, faster financial reporting, and enhanced customer service. The AI market in finance, valued at $7.91 billion in 2020, is expected to grow to $26.67 billion

by 2026. These trends highlight AI's transformative role in improving accuracy and efficiency in financial processes.

In conclusion, AI will significantly transform the accounting profession, shifting accountants from transaction-based tasks to strategic advisory roles. To thrive, they must address ethical concerns, acquire new skills, and adapt to evolving regulations. AI will be a key driver in shaping the future of accounting.

3. The Current State of the Accounting Profession in Algeria

Algeria's accounting sector plays a key role in economic development, providing financial reporting, auditing, tax compliance, and advisory services for private and public institutions. While recent transformations have been driven by economic reforms and increased focus on transparency, the industry still faces challenges like regulatory harmonization, talent shortages, and slow tech adoption.

3.1. Historical Development

Since gaining independence in 1962, Algeria's accounting profession has evolved significantly, initially following French accounting standards. The French Plan Comptable Général (PCG) was adapted to meet Algeria's unique economic needs. As the economy grew and diversified, more advanced accounting practices were adopted to align with modern business and global standards.

3.2. Regulation and Standards

Algeria's accounting profession is governed by national laws that have gradually aligned with international standards. Key elements of this framework include:

- **Algerian Accounting System (Système Comptable Financier - SCF):** The 2010 implementation of the SCF marked a major shift from the French-based system, aligning with IFRS to enhance the transparency, comparability, and reliability of financial reporting (Bouchareb, 2021).

- **Professional Bodies**: The accounting profession in Algeria is regulated by several bodies, including the National Council of Chartered Accountants (Ordre National des Experts Comptables) and the National Association of Accountants, which set ethical standards and ensure that professionals meet educational and certification requirements (Saadi, 2020).

- **Audit and Oversight**: In Algeria, large companies, especially those listed on the Algerian Stock Exchange, must undergo annual audits. Auditors adhere to international auditing standards (ISA) and ensure that financial statements comply with the SCF and other regulatory requirements. (Ziane, 2019).

3.3. Key Functions of Accounting in Algeria

In Algeria, accountants are crucial for financial reporting, tax compliance, and auditing. They prepare statements under the SCF to meet international standards, assist businesses with tax planning and compliance, and ensure financial accuracy through audits in line with national and global regulations.

3.4.Technology in Algerian Accounting

Algerian accounting has fallen behind global trends in technology adoption, particularly in areas like cloud computing, AI, and big data analytics. However, both the government and private sector are making strides toward digital transformation, with large organizations in sectors like oil and gas starting to implement Enterprise Resource Planning (ERP) systems to streamline accounting and integrate financial data (Belmihoub, 2018). In addition to that, the Algerian government is promoting digitalization through e-government initiatives like e-tax platforms for online tax filing, aiming to improve compliance and reduce administrative burdens. However, widespread adoption of modern accounting technologies is challenged by inadequate infrastructure, limited expertise, and resistance to change in some firms.

3.5. Challenges Facing the Accounting Sector in Algeria

Despite recent advancements, Algeria's accounting sector faces challenges, notably a talent shortage, with demand for qualified accountants outstripping the supply. This is partly due to gaps in the educational system and a lack of professional development programs aligned with international standards (Saadi, 2020). Another challenge is regulatory alignment; while the Algerian Accounting System (SCF) aims to comply with IFRS, further harmonization is needed, and many businesses find the existing regulatory framework complex. (Bouchareb, 2021). Moreover, the slow pace of technological adoption hampers efficiency and accuracy in financial reporting, leaving firms that delay digital transformation at a competitive disadvantage. Additionally, Algeria's large informal economy complicates accounting efforts, as many small businesses operate outside the formal financial system, making it challenging to track economic activity and ensure tax compliance.

3.6. Algerian efforts to adopt artificial intelligence in the accounting profession

Algeria has been increasingly focused on integrating AI within the accounting profession as part of a broader digital transformation strategy.

As of early 2024, Algeria's digital economy is experiencing steady growth, driven by significant advancements in internet and mobile connectivity. With 33.49 million internet users (72.9% of the population) and 50.65 million mobile connections (95.2%), the government is enhancing digital infrastructure and services to support this expansion. Social media usage is also on the rise, with 24.85 million users, while online payment adoption remains limited, with only 2.8% holding credit cards and 8.2% making online purchases. The following table succinctly summarizes the key points about the digital economy in Algeria as of early 2024.

Table (01): The use of AI in Algeria's Education Sector

Aspect	Details
Internet Penetration	As of Q1 2024, Algeria had 33.49 million internet users, representing 72.9% of the total population, with a yearly growth of 3.9%.
Mobile Connectivity	Active cellular mobile connections reached 50.65 million, accounting for 95.2% of the population.
Major Mobile Operators	- **Mobilis**: ~22.1 million subscribers - **Djezzy**: ~15.6 million subscribers - **Ooredoo**: ~12.9 million subscribers
Social Media Usage	In January 2024, Algeria had 24.85 million social media users, which is 54.1% of the total population.
Online Payment	- 2.8% of the population has a credit card - 22.9% have a debit card - In 2023, 8.2% made online purchases and 4.7% sent money.

Source : Prepared by the Researcher based on : Algeria - Country Commercial Guide. https://www.trade.gov/country-commercial-guides/algeria-digital-economy .

Educational institutions are incorporating AI and data analytics into accounting programs, preparing students for a tech-driven market as shown in Table (02). In addition to that, the Algerian government is actively promoting digital innovation, with 45% of government agencies adopting digital platforms by 2023 to enhance service delivery and transparency. In the accounting sector, over 30% of small and medium-sized enterprises (SMEs) have digitized their operations, supported by increased public funding for digital transformation projects, which has risen by 20% since 2020. The National Digital Transformation Plan aims to digitalize 50% of the public sector by 2025, focusing on finance and accounting to improve efficiency and transparency (Table (03)).

Table (02) : Advancements in AI Integration within Algerian Education:
Curriculum, Tools, and Funding

Aspect	Details
Integration of AI Courses	Over 40% of universities in Algeria have integrated AI-related courses into their curricula by 2022.
Adoption of AI Tools	Approximately 15% of Algerian educational institutions have adopted AI tools for personalized learning and administrative efficiency.
Government Funding for AI Research	Government funding for AI research in education has grown by 25% since 2020.
Reach of AI-driven Educational Platforms	AI-driven educational platforms have reached over 200,000 students nationwide, offering personalized tutoring and adaptive learning resources.

Source : Prepared by the Researcher based on :
- Ministry of Higher Education, 2022
- Ministry of Digitization and Statistics, 2022.
  https://www.aps.dz/en/economy/tag/Ministry of Digitization, Statistics

Table (03) : Progress in Digital Transformation: Adoption and Support for AI
in Government and SMEs

Aspect	Details
Digital Platform Adoption	By 2023, 45% of government agencies have adopted digital platforms to enhance service delivery and transparency.
Digitization of SMEs	The government has facilitated the digitization of over 30% of small and medium-sized enterprises, promoting AI-based accounting software.
Public Funding for Digital Projects	Public funding for digital transformation projects has increased by 20% since 2020, supporting AI adoption and automation.
National Digital Transformation Plan	Aims to digitalize 50% of the public sector by 2025, focusing on finance and accounting to promote transparency and efficiency.

Source : Prepared by the Researcher based on : Ministry of Digitization and Statistics, 2022, 2023.
https://www.aps.dz/en/economy/tag/Ministry of Digitization, Statistics

Moreover, local Algerian tech firms have shown significant progress in AI-based accounting solutions, with a 40% increase in AI

startups by 2023, reflecting a growing interest in automation across sectors, including accounting. These firms have attracted approximately $5 million in investments for AI-driven accounting technologies, showcasing rising investor confidence. Around 25% of SMEs in Algeria are now utilizing AI-based accounting software, improving operational efficiency. The market for these solutions is expected to grow by 30% annually over the next five years, fueled by rising demand for automation, with over 10,000 active users adopting these tools in the past year (Table (04)).

Table (04) : Overview of AI-Driven Accounting Solutions in Algeria: Growth, Investment, and Adoption Trends

Aspect	Details
Growth in AI Startups	By 2023, the number of local tech startups focusing on AI solutions increased by 40%, indicating growing interest in automation.
Investment in AI Technologies	Local tech firms attracted approximately $5 million in investment for AI-driven accounting solutions.
Adoption Rate Among SMEs	About 25% of small and medium-sized enterprises (SMEs) in Algeria have started using AI-based accounting software.
Market Growth Projections	The market for AI-driven accounting solutions is projected to grow by 30% annually over the next five years.
User Base Expansion	Local AI accounting solutions have gained over 10,000 active users in Algeria within the past year.

Source: Prepared by the Researcher based on :
- Ministry of Digitization and Statistics, 2022, 2023. https://www.aps.dz/en/economy/tag/Ministry of Digitization, Statistics

From the previous table it can be concluded that local tech firms are creating AI solutions to automate accounting tasks, supported by the National Order of Chartered Accountants promoting technology adoption. Collaborations between academia and industry are driving AI advancements, while regulatory frameworks are being developed to tackle data privacy and ethical issues. Pilot projects are exploring AI's potential in fraud detection and predictive analytics, reflecting Algeria's commitment to modernizing its accounting profession through AI integration.

3.7.Future Outlook

The future of Algeria's accounting sector appears promising due to ongoing reforms and modernization. Key factors driving growth include a greater emphasis on enhancing education and certification programs to produce qualified accountants meeting international standards. As infrastructure improves, the sector is expected to adopt more digital solutions, boosting accuracy and efficiency in financial reporting and tax compliance. Additionally, Algeria's efforts to attract foreign investment, especially in energy and infrastructure, will likely increase demand for higher standards in financial reporting and auditing, aligning with international practices (Bouchareb, 2021).

In conclusion, the integration of artificial intelligence into Algeria's accounting sector is still nascent, but its potential benefits are evident. AI can enhance efficiency, accuracy, and decision-making, especially in financial reporting, auditing, and tax compliance. However, challenges like technological infrastructure limitations, skills shortages, regulatory barriers, and resistance to change need to be overcome for AI to realize its full potential. With ongoing support from the government and educational institutions for digital transformation, there is optimism that AI will become increasingly significant in Algeria's accounting future.

4. Case studies

While there is limited academic research specifically focused on the implementation of AI in accounting within Algerian firms, there are some examples of broader applications of AI in similar contexts that can provide insight. This study focuses on addressing the case of two types of institutions operating in Algeria, namely: the Savings and Reserve Bank (CNEP-Bank), the General Tax Administration (Direction Générale des Impôts), in addition to some interviews conducted with some accounting offices operating in the city of M'sila.

4.1. The case of CNEP-Bank

4.1.1. Overview

CNEP-Bank Algeria, or Caisse Nationale d'Épargne et de Prévoyance, is a key financial institution founded in 1964 that specializes in savings and insurance products. Operating under the Ministry of Finance, it plays a crucial role in the banking sector by providing services that promote savings and financial security for individuals and families. With a focus on accessibility and customer-oriented services, the bank aims to enhance financial inclusion across the country (CNEP-Bank, 2024).

4.1.2. Implementation of AI

CNEP-Bank Algeria has increasingly integrated AI technologies to enhance its operational efficiency and customer service. This implementation includes AI-driven solutions for automating routine banking tasks, improving fraud detection, and personalizing customer interactions. By leveraging machine learning algorithms and data analytics, the bank aims to streamline its processes and offer more tailored financial products to its clients. These advancements are part of a broader strategy to modernize the bank's infrastructure and stay competitive in the evolving financial landscape (CNEP-Bank, 2024).

4.1.3. Results

CNEP-Bank Algeria has realized significant benefits from implementing AI technology, with notable examples including the deployment of a sophisticated fraud detection system and a customer service chatbot. The fraud detection system uses machine learning algorithms to analyze transaction patterns in real time, reducing fraudulent activities by 30% within the first year of implementation (CNEP-Bank, 2024). Additionally, the customer service chatbot has improved response times for customer inquiries by 50%, enhancing overall customer satisfaction and operational efficiency (Aitken, 2023). These advancements illustrate the bank's commitment to leveraging AI to improve security and service quality.

4.1.4. Challenges

Despite the advancements, CNEP-Bank Algeria faces several challenges in implementing AI technology. Key issues include data privacy concerns and the integration of AI systems with existing legacy infrastructure. The bank must ensure compliance with stringent data protection regulations while upgrading outdated systems that may not seamlessly support new AI applications. Additionally, there is a need for specialized talent to manage and optimize AI technologies, which can be scarce and expensive in the region (CNEP-Bank, 2024). Addressing these challenges is crucial for the successful deployment and sustainability of AI solutions.

4.2. The case of the General Tax Administration (Direction Générale des Impôts)

4.2.1. Overview

Created in 1963 under Decree n°63-127, the General Tax Administration, known as Direction Générale des Impôts (DGI), is a key governmental body in Algeria responsible for the administration and enforcement of tax policies. Established to oversee tax collection and ensure compliance with fiscal regulations, the DGI plays a crucial role in the country's economic management by managing various tax revenues including income tax, corporate tax, and value-added tax (VAT). It operates under the Ministry of Finance and aims to enhance transparency and efficiency in tax collection through modernized systems and improved taxpayer services. The DGI also contributes to economic policy development by providing insights and data on fiscal performance and trends (DGI, 2024).

4.2.2. Implementation of AI

The implementation of AI technology in Algeria's General Tax Administration (DGI) is a major step in modernizing the tax system, aiming to enhance efficiency, reduce tax evasion, and streamline collections. AI applications, like machine learning, analyze large datasets to identify non-compliance patterns and automate routine tasks, leading to faster and more accurate assessments. Additionally,

predictive analytics help forecast revenue trends and improve decision-making, ultimately enhancing the transparency and reliability of the tax system and addressing long-standing collection and administration issues (Cherif, 2020).

4.2.3. Results

Algeria's General Tax Administration (DGI) has seen significant benefits from implementing AI technology, particularly in fraud detection and tax compliance. AI-powered data analytics have cross-referenced taxpayer information from various sources, reducing tax evasion and boosting collection efficiency. Reports indicate a 25% increase in tax revenue over the past two years, thanks to improved audit accuracy and the automation of routine filings, which has cut processing times by 30% and reduced errors. Additionally, AI-driven predictive models have helped identify high-risk taxpayers, enhancing targeted audits and overall compliance rates (DGI, 2024). This increase is due to AI's capacity to swiftly analyze large datasets, identify discrepancies, and minimize errors, thereby improving tax enforcement and compliance monitoring.

4.2.4. Challenges

Algeria's DGI faces challenges in implementing AI technology, including inadequate infrastructure, a shortage of skilled personnel, and data privacy concerns. Many regions lack reliable internet and advanced data management systems, while there is a deficit of professionals with AI expertise. Additionally, as taxpayer information processing becomes more complex, stronger regulatory frameworks are needed to safeguard sensitive data (DGI, 2024).

4.3. Private Accounting Firms & Education sector
4.3.1. Overview

Private accounting firms in Algeria are essential for assisting businesses with financial reporting, auditing, tax services, and consultancy. They vary from small local practices to branches of international firms, serving both domestic and multinational clients.

Regulated by the Ordre National des Experts Comptables, these firms must adhere to national and international standards like IFRS. However, they encounter challenges such as adapting to digital transformations, keeping up with changing tax laws, and maintaining transparency and accuracy amid evolving regulations (Cherif M. &., 2021). Recently, demand for specialized accounting services, particularly in forensic accounting and financial consulting, has risen in Algeria due to changing economic policies and a greater emphasis on private sector growth. In addition to that, the education sector in Algeria is essential for promoting awareness of AI in accounting. By incorporating AI courses and hosting workshops, universities equip future accountants with vital skills and practical experience to enhance financial reporting efficiency.

4.3.2. Implementation of AI

Interviews with a group of academics and professionals in the accounting sector revealed a shared awareness and interest in the importance of using AI, although some hesitance remains.

Based on the opinions of academics, the education sector in Algeria is enhancing awareness of AI in accounting by integrating AI courses into university curricula and organizing workshops to highlight its benefits, like improved accuracy in financial reporting. Collaborations with industry professionals also provide students with practical experience, preparing them for the evolving accounting landscape.

On the other hand, Interviews with professionals in M'Sila revealed diverse opinions on the impact of AI, shaped by their experiences, familiarity with the technology, and expectations for its future role in the industry. Their views fell into four categories: positive, negative, average, and neutral. Most professionals expressed a positive to average outlook, acknowledging AI's potential benefits while also voicing some reservations about its implementation,

reflecting a nuanced understanding of its future impact on accounting practices in the region.

5. Conclusion
5.1. General findings:

A theoretical review of the most influential writings on artificial intelligence and accounting, including books, international reports, and scientific articles published in renowned international journals, yielded the following results:

- Most accounting professionals expect AI to significantly transform the industry, though enthusiasm varies by role, with owners and directors more supportive than individual contributors.
- While accountants aren't worried about being replaced by AI, there is uncertainty about the future role of bookkeepers.
- AI is currently used more for administrative tasks like composing emails, rather than core accounting functions such as tax preparation or auditing.
- Accountants see AI as a competitive advantage but are concerned about reduced client interaction and ethical issues; investment in AI training is higher at larger firms.

5.2. Case study results
5.2.1. CNEP-Bank and General Tax Administration
- **CNEP-Bank**

CNEP-Bank Algeria has successfully utilized AI to cut fraud by 30% with a machine-learning detection system and improve customer service response times by 50% through a chatbot, enhancing security and satisfaction. However, the bank faces challenges such as data privacy issues, integration with legacy systems, and a lack of specialized talent, making compliance and infrastructure upgrades essential for sustainable AI deployment.

• **General Tax Administration**

Algeria's General Tax Administration (DGI) has significantly benefited from AI technology in fraud detection and tax compliance. AI-powered analytics have reduced tax evasion and boosted efficiency, increasing tax revenue by 25% over the past two years. Automation has cut filing times by 30% and reduced errors, while AI-driven models have improved targeted audits and enhanced tax enforcement.

5.2.2. Accounting professionals in M'Sila and Academics :

• Accounting professionals in M'Sila held varying opinions on AI's impact, shaped by their experience, knowledge of the technology, and expectations for the future. These opinions were classified as: positive, negative, average, and neutral. The majority were between positive and average.

• Academics in Algeria have diverse views on AI's impact on accounting. Some see it boosting efficiency and accuracy in financial reporting, while others worry it could reduce the need for traditional accountants, particularly in routine tasks, potentially leading to job losses.

In conclusion, CNEP-Bank Algeria has successfully implemented AI to reduce fraud by 30% and enhance customer service response times by 50, despite challenges with data privacy and legacy system integration. Similarly, the General Tax Administration has leveraged AI to boost tax revenue by 25% and improve efficiency. In M'Sila, accounting professionals generally hold mixed but mostly positive views on AI's impact, while academics are divided, with some highlighting AI's benefits and others expressing concerns about job losses for traditional accountants. Moreover, and based on the results reached, whether through the theoretical aspect or the case study, we note that all the hypotheses adopted in the study are correct and proven.

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