

**The Use of Artificial Intelligence in Accounting:
A study of tools and future perspectives at the national and international level**

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Abstract:

Algeria is undergoing a significant technological transformation, with the growing integration of artificial intelligence (AI) across various sectors, including accounting. These advancements help optimize accounting processes by replacing paper formats with digital systems, but they also present challenges, particularly in data management, security, and professional training. To overcome these obstacles, Algeria has adopted clear strategies and established partnerships with international companies. (AI) plays a key role in simplifying accounting tasks and improving the profession. Through this study, we explore the impact of (AI) on accounting by examining its tools and future prospects. We use a descriptive and analytical method to describe the current (AI tools) in accounting and analyze the perspectives for its development at both the national and international levels.

Keywords: Artificial Intelligence, Accounting Field, Tools, Future Prospects.

JEL Classification : M41, O33, O32, O34

1. Introduction:

Algeria is undergoing a major technological transformation, marked by the increasing integration of artificial intelligence (AI) across various sectors, including healthcare, telecommunications, agriculture, education, energy, and accounting. These technological advancements play a crucial role in improving sectors and actively contribute to the country's technological development.

AI enables a significant evolution in accounting processes, which have shifted from traditional paper formats to digital systems, thus optimizing data and transaction management. However, despite the numerous benefits of AI, its adoption in the accounting field presents challenges and risks, particularly in data management, security, and professional training. To overcome these obstacles, Algeria has implemented clear strategies and established partnerships with international consulting and IT companies to foster innovation and support technological development. These efforts reflect the country's commitment to modernizing its accounting practices and promoting a digital transformation that benefits all economic sectors, thus contributing to the growth and competitiveness of the national economy.

Indeed, the use of artificial intelligence in the accounting field is of great importance, both for simplifying accounting tasks and for improving the profession itself. This is why the significance of this study lies in the relevance of the topic.

1.1 Research problem:

This research paper aims to investigate the integration of artificial intelligence in the field of accounting by addressing the following central question: **What are the main artificial intelligence tools currently used in accounting, and what are the future prospects for their development and adoption at both national and international levels?**

1.2 Research questions:

The following secondary questions arise from this main research problem:

- What is artificial intelligence ?
- What are the most commonly used artificial intelligence tools and techniques in accounting today?
- How does artificial intelligence contribute to improving the quality of accounting data?
- To what extent are Algerian companies ready to adopt artificial intelligence in accounting and what challenges do they face?
- What is the impact of artificial intelligence in the field of accounting?
- What are the future prospects of this technology?

1.3 Research hypotheses :

H1. Artificial intelligence is a set of technologies capable of performing tasks by replicating the human thought process.

H2. Artificial intelligence is transforming modern accounting practices through automation,

big data analysis, and the prediction of financial trends.

H3. Artificial intelligence improves the quality of accounting data by automating data collection and error correction, which increases accuracy, reduces human errors, and speeds up decision-making.

H4. The adoption of artificial intelligence in accounting by Algerian companies remains limited due to technological, financial, and human constraints.

H5. Artificial intelligence has revolutionized the field of accounting by using innovative technologies to simplify and enhance accounting practices.

H6. Artificial intelligence is rapidly expanding, and all countries, including Algeria, are making progress in its adoption across various sectors.

2. Definition of artificial intelligence:

Artificial intelligence (AI) is a field of computer science aimed at recreating a form of intelligence similar to that of humans. "AI is the science of programming computers to perform tasks that require intelligence when carried out by humans." - Marvin Lee Minsky.

Invented in 1955 by two mathematicians, John McCarthy and Marvin Lee Minsky (Emmanuel ESTEVES, 2020), the term "artificial intelligence" is commonly abbreviated as "AI." "Artificial" refers to the use of computers or advanced electronic systems, while "intelligence" refers to the goal of mimicking human behavior (BOURI, 2021).

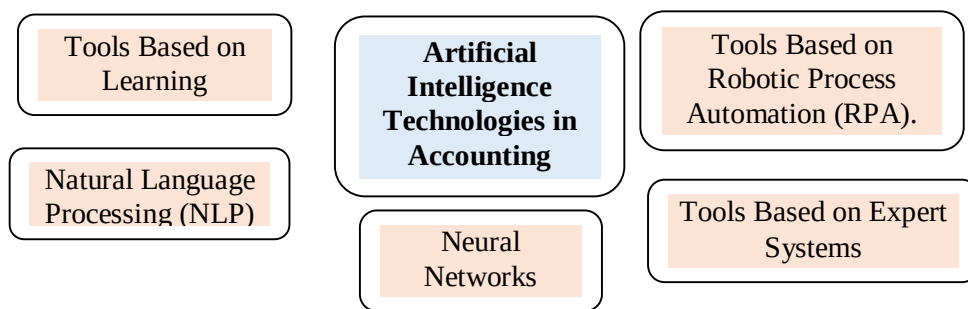
According to the European Parliament, AI refers to any tool used by a machine capable of "replicating human behaviors, such as reasoning, planning, and creativity" (DJALLAL, 2024).

Indeed, artificial intelligence is not a single technology, but rather a set of technologies and tools developed to enable machines to learn, adapt, communicate, and interact with their environment in a complex manner.

3. Artificial Intelligence Technologies in Accounting:

For over 30 years, (AI) and Machine Learning have been used in finance to automate document management, such as purchase orders or medical billing forms. Initially, these technologies facilitated data entry from structured documents. Twenty years later, the automated processing of invoices emerged, a more complex challenge due to the variable structure of documents. Although less efficient at the time, these solutions were already aimed at simplifying and optimizing repetitive tasks for accountants.

Today, new (AI) based technologies have emerged to further simplify the accounting profession and have revolutionizing core accounting processes like auditing and financial reporting. We present the main (AI tools) in the accounting sector, such as robotic process automation (RPA) for transaction recording and AI-powered analytics platforms like QuickBooks Advanced, as well as other tools presented below.



Source: Elaborated by the author based on various references.

3.1 Robotic Process Automation (RPA) tools:

Robotic Process Automation (RPA) allows tasks to be automated by capturing and manipulating data from various computer applications. Easy to use even for those with limited programming skills, it enables the creation of robots to automate specific processes. For example, in accounting, an employee can create a robot to automatically reconcile data from different sources (such as QuickBooks accounting software, Excel, and invoices) and identify discrepancies in less than a minute (Tietz.w, Caina.J,2020).

The example below explains this technology in detail to provide a clear understanding. Example of tasks performed by a supplier account management robot (Tietz,2020):

1. The robot monitors an inbox to detect supplier invoices in PDF format. When it finds a document, it automatically downloads and saves it in a dedicated online folder
2. The robot extracts key information from the supplier invoices (such as the name, date, purchase order number, and quantity purchased) and automatically transfers it into an Excel spreadsheet.
3. The robot searches for the purchase order number on the invoice and, if found, compares it with the purchase order. It then decides either to approve the invoice or to flag the exception for human review.
4. The robot accesses the company's supplier account management system and initiates the supplier payment process.
5. the robot follows all the company's rules regarding supplier payments. In case of an exception, it flags the transaction for human review
6. The robot sends a confirmation email to the accounts payable employee to indicate that the task has been completed.

RPA systems offer numerous benefits for businesses, such as reducing input errors, improving efficiency and productivity, lowering costs, and enhancing customer service. By automating repetitive tasks, robots free up employees from time-consuming tasks, allowing them to focus on higher-value tasks (Tietz,2020). Moreover, robots ensure constant availability and can process large volumes of data without requiring additional human resources.

Moreover, the majority of RPA projects worldwide are related to the accounting, finance, and supply chain sectors. This is confirmed by a study conducted by (Sorin ANAGNOSTE, 2018) in a consulting company's automation lab, which demonstrates how

RPA automation has emerged and led to the complete automation of business processes, also impacting the accounting profession, as shown in the following table:

Table 1. Potential Automation by Business Function.

Function	Sub-process	Process automation potential (%)	Potential time savings	Quick win
General accounting	*Fixed assets / FMM / closing and reporting	25 %-30%	10%-15%	Yes
	*Local tax accounting	10%-15%		No
Controlling	*Costing	5%-10%	15%-20%	No
	*CO-operation/reporting	10%-15%		
	*Business controlling support	10%-15%		
	* BI and systems	10%-15%		
Finance (other)	* Group financial controlling	5%-10%	30%-50%	Yes No No yes
	*Intercompany	25%-30%		
	* Account and bank reconciliations	15%-20%		
	* Financial planning and analysis	25%-50%		
Order to cash	* Tax	40%-60%	40%-60%	Yes Yes Yes Yes No yes
	*Customer master data management	25%-30%		
	*Credit management	25%-30%		
	*Customer service support	25%-30%		
	* Account receivables management	0%-5%		
	*Incoming payments	25%-30%		
	* Deductions and disputes management	25%-30%		
Human resources	*HR general services	25%-30%	60%-80%	Yes no
	* Expat management	10%-15%		
Source to pay	*Source to purchase	25%-30%	50%-70%	Yes Yes yes
	* Purchase to Pay	25%-30%		
	*Projects support	10%-15%		
Supply chain	*Supply chain planning	10%-15%	10%-15%	No No No No No
	*Transport planning	10%-15%		
	*Supply planning	10%-15%		
	* Project management	10%-15%		
	*General supply chain services	10%-15%		

Source: (ANAGNOSTE. S,2018)

Several studies have already addressed the advantages, opportunities, and challenges that this technology represents for the accounting profession worldwide. Robotic Process Automation (RPA) enables companies to reduce costs, improve quality, and accelerate processes by automating repetitive tasks in departments such as finance, supply chain, and human resources. This technology offers significant savings, 24/7 operations, and a quick return on investment. In Romania, it boosts competitiveness while creating well-paid jobs (ANAGNOSTE Sorin, 2018).

3.2. Natural Language Processing (NLP):

Natural Language Processing (NLP) is a key artificial intelligence technology that enables computer systems to understand and communicate using natural languages, such as English (Victoria Chukwuani, 2018).

NLP empowers machines to process spoken and written language. This mimics human communication patterns. To do this, machines must understand natural language in order to perform actions and respond effectively.

In accounting, this technology enables the analysis, understanding, and processing of unstructured textual data (such as documents, emails, invoices, or financial reports) in human language. Natural Language Processing (NLP) allows for the extraction of key data from numerous invoices per hour with high accuracy, thereby reducing manual work.

3.3. Machine Learning-based tools:

Machine learning allows machines to recognize and apply patterns based on existing data, thereby improving their performance autonomously. In accounting, this technology is used to analyze patterns and make forecasts, as well as to automate tasks such as recording transactions in accounting ledgers. It also aids in fraud detection by identifying abnormal activities based on patterns of "normal" behavior (Stancheva-Todorova, 2018). Tools like PwC's GL.ai leverage ML to spot transactional anomalies. They analyze vast datasets impartially and improve their accuracy over time. Machine Learning reduces manual errors by up to 90% in ledger recording (Stancheva-Todorova, 2018), while cutting fraud detection time from days to hours.

3.4. Neural Networks:

Neural networks, a key aspect of artificial intelligence, are inspired by the neural structures of the human brain and rely on learning mechanisms based on experience. These electronic models, similar to natural neural networks, use computational methods suited for computer systems.

Neural networks streamline accounting processes through:

- Financial statement analysis
- Automating data entry tasks
- Optimizing receivables/payables by learning from client/supplier histories.

Neural network models can predict late payments with high accuracy by analyzing clients' payment behavior over an extended period.

Additionally, this innovation enables the execution and automation of bank reconciliation by comparing the accounting records within the company with bank statements. This helps quickly identify discrepancies and suggest corrections.

3.5. Tools based on expert systems:

An expert system is a computer program that uses artificial intelligence to imitate the skills and reasoning of a human expert in a specific field (Raphael Kassel, 2024). It is designed to solve complex problems by utilizing pre-existing knowledge and experiences, typically in the form of conditional rules such as "if-then." For example, in a medical system, relationships between symptoms and diseases can be expressed by rules such as: "If fever and persistent cough, then flu" (Kassel, 2024).

In accounting, an expert system can help accountants and auditors improve the quality of their services, particularly in audit planning, internal control assessment, and risk

identification. These expert systems are also used in the field of taxation, where they provide tax treatment for equity investments. They offer advice on corporate tax management, the tax planning process, value-added tax (VAT), income tax return preparation, as well as corporate tax planning (Steve Jacob, 2020).

Studies show that this technology is particularly useful in key areas of financial accounting, such as cash flow assessment, investment decision-making, financial ratio analysis, and various financial reports.

The ACCA (the Association of Chartered Certified Accountants, 2023) has shown that artificial intelligence (AI) is significantly transforming the accounting sector by automating repetitive tasks, such as data entry and invoice processing, thereby freeing up time for strategic functions.

(AI) goes beyond the automation of standardized processes, including advanced applications such as machine learning for financial planning, auditing, and fraud detection. Generative (AI) also offers possibilities such as automating report generation, enhancing risk assessment, and scenario modeling.

Indeed, (AI) tools enable the customization of services, improve predictive analytics, and provide support in managing complex data. However, the successful and ethical adoption of these technologies depends on the skills and responsibility of the organization or individual using them. Thoughtful implementation will be key to fully harnessing the potential of these tools.

4. The prospects of artificial intelligence in the field of accounting on a global scale:

Artificial intelligence is playing an increasingly important role in the field of accounting, particularly due to its applications that simplify the tasks of this profession.

In this section of the article, the focus is on the evolving prospects of (AI) in the accounting sector through an analysis of the results from a recent and significant survey conducted by the ACCA (Association of Chartered Certified Accountants) in 2023 (Digital Horizons, 2023). The survey gathered 1,074 responses from ACCA members worldwide, primarily professionals working across various sectors and regions (students were not included). Additionally, twelve roundtable discussions were held, with 81 participants from the Asia-Pacific region, the UK and Europe, Africa, and North America.

Analyzing the results of the study, ACCA members are generally optimistic about the potential of artificial intelligence (AI) to save them time, and half of them would be willing to use it for essential business tasks. There is a general consensus that (AI) can improve the efficiency and performance of processes. However, there is less agreement on the goals to be achieved in terms of efficiency gains and the extent to which (AI) can be used to drive more radical change.

Many professionals see (AI) as an evolution similar to past technological transitions, such as the shift from Excel to Business Intelligence tools. However, with the acceleration of business increasing the demands on financial teams, it may become necessary to rethink tasks, recognizing that technology plays both the role of a skills facilitator and a value creator.

Furthermore, generative (AI) models are valued for their ability to quickly analyze large amounts of information and create new content from them (BRISTOURNE, 2023). These technologies open up new prospects in areas like reporting, research, and risk assessment, provided they are used responsibly. However, their application still carries risks, particularly in cases of misuse, especially when generative (AI models) have not been specifically trained for a particular purpose or on the most relevant and up-to-date data.

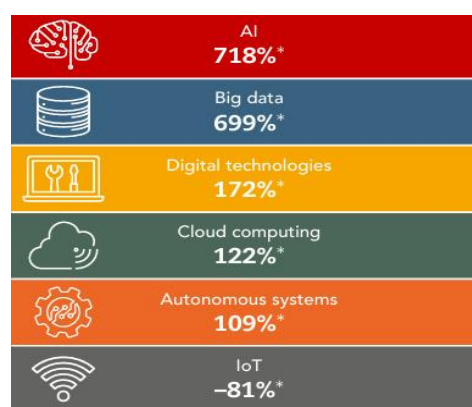
4.1. The impact of new technologies on jobs in finance:

The impact of (AI) on jobs in finance sparks concerns about the increasing complexity of tasks, requiring careful management. However, (AI) enhances the role of finance professionals in overseeing critical processes. Although it contributes to improved productivity, (AI) does not replace critical thinking or the analysis of contextual factors. By transforming certain tasks, it also opens up new opportunities, particularly in sustainability reporting and algorithm audits. Professionals will need to develop skills in (AI) and data analysis to remain essential in the future of their organization.

In this study, patents reflect major technological developments and ongoing commercial applications (Figure N° 01). In recent years, artificial intelligence and big data have seen significant development, alongside the rapid rise of connectivity technologies, cloud computing, and autonomous systems such as robots and self-driving vehicles. This momentum is accompanied by growing enthusiasm from an increasing number of companies, within a rapidly expanding market.

In contrast, the Internet of Things (IoT) has seen a decline in activity, partly due to challenges related to scalability and costs, as well as its technological maturity. Despite this, IoT remains essential for the technological future, particularly for innovations such as "digital twins.

Figure N° 01: The growth of various digital technologies from 2016 to 2020, measured by the number of patents granted.



*Growth of technologies as percentage of total patents' average growth, 2016–2020 (WIPO 2022)

Source: Brisbane -ACCA-2023

The study shows that: Digital technologies, such as big data, the Internet of Things (IoT), virtual reality (VR)/augmented reality (AR), and digital twins, play an increasingly important role in the accounting profession.

It also shows that emerging technologies such as computer vision, connectivity, advanced robotics, and blockchain play a key role in the evolution of accounting. We classify these technologies and their accounting applications in Table N°2:

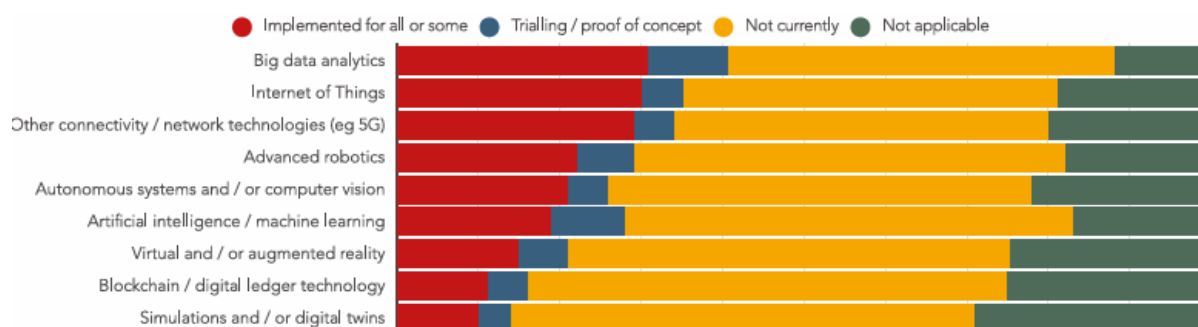
Big data	They allow for the analysis of large amounts of data to uncover hidden trends, helping businesses identify new opportunities, improve efficiency, and make informed decisions. In accounting, big data analytics is used to detect anomalies, assess risks, and forecast revenue trends.
Internet of Things (IoT)	This network of interconnected physical devices generates real-time data, useful for asset management and decision-making. In accounting, IoT allows for tracking the condition and usage of assets, making it easier to manage depreciation and maintenance costs.
VR/AR Virtual Reality and Augmented Reality)	these technologies provide an immersive experience or add digital information to the real world. They can revolutionize the way financial data is visualized and manipulated. For example, auditors could overlay financial data on physical assets during an audit.
Digital twin	A virtual model of a physical system, used to simulate and analyze the performance of that system. In accounting, digital twins can be used to simulate financial scenarios, improve planning, and assess the financial impacts of potential disruptions in supply chains
Computer vision	It allows for the automation of visual tasks such as scanning receipts or invoices, thereby reducing manual data entry.
Connectivity	Technologies such as 5G enable faster and more reliable data transmission, facilitating real-time access to accounting systems and remote work.
Advanced robotics	Capable of automating complex tasks in industry, it could also enhance operational efficiency and data management in sectors such as accounting.
Blockchain	By securely and transparently recording transactions, it could transform auditing by providing verifiable and tamper-proof evidence of transactions.

Source: Developed by the author based on the results of the ACCA study (Birsbourne, 2023)

Indeed, these new technologies offer numerous opportunities to develop and improve efficiency, security, and transparency in the accounting field.

Furthermore, the technological assessment (Bisbourne, 2023) shows that ACCA members are active in adopting new technologies, but there is still significant potential to expand the use of technologies like AI and machine learning (Figure No. 02). There is a notable gap between large organizations and SMEs or small practitioners, suggesting not only a difference in resources but also challenges in terms of skills.

Figure No. 02: Percentage of ACCA members who have implemented various new technologies, % of the total



Source: Bisbourne-ACCA-2023

From this figure, we interpret the results regarding the application of new technologies by the respondents.

A. Partial or full implementation (30-40%): A significant number of respondents (around 30 to 40%) indicated that they have implemented these new technologies in whole or in part within their activities. This reflects a gradual adoption of digital technologies, where some businesses are beginning to recognize their potential and integrate them into their processes. However, this adoption is not yet widespread among all respondents, which may indicate a selective approach, often based on specific needs or organizational priorities.

B. Not currently (60-70%): The majority of respondents (between 60 and 70%) stated that they have not yet implemented these technologies. This high proportion suggests that, although the technology is widely recognized, many organizations have not yet taken the step of adoption. This could be due to barriers such as budget concerns, lack of internal skills, or a lower priority compared to other investments.

C. Not applicable (few respondents): A small proportion of respondents chose the "not applicable" option. This could indicate that these technologies are not relevant in their current context, or that they have not faced needs that justify their adoption.

D. In trial/proof of concept (minority): The minority of respondents who indicated they are in the trial or proof of concept phase suggests that some organizations are in an exploratory or validation phase before full implementation. This reflects a natural caution toward new technologies, where businesses want to first evaluate their viability and potential return on investment.

As a result, although the majority of respondents have not yet integrated these new technologies or are still in the experimentation phase, a significant number have already begun to adopt them partially or fully. This reflects a growing awareness of the importance of digital technologies, while highlighting that large-scale adoption remains a challenge, influenced by factors such as technological maturity, available resources, and the strategic priorities of organizations.

The Big Four accounting firms are making massive investments in AI to transform their audit and tax services (Bisbourne, 2023).

PwC announced a \$1 billion investment over three years to develop its (AI) technologies, including the creation of an internal chatbot, ChatPwC. KPMG plans to invest \$2 billion over five years to expand its partnership with Microsoft and use (AI) in tax management and auditing, with tools like ChatGPT to assist its clients. Deloitte and EY are also launching pilot projects to integrate (AI) into their tax and audit services. These investments aim to improve the efficiency, security, and quality of services while training their professionals to use (AI) technologies.

5. Artificial Intelligence in the Accounting Field in Algeria: Issues, Challenges, and Evolutionary Prospects:

For Algeria, artificial intelligence represents a major issue due to its key role in technological development. That is why, like other countries, it is giving particular attention to its development.

Algeria has made significant progress in integrating artificial intelligence (AI) across various sectors, including healthcare, telecommunications, agriculture, education, the energy sector, and others. A national strategy has been implemented to encourage innovation and entrepreneurship, with start-ups such as Farm AI and Tarik Education Center receiving international awards (LAHDIRI, 2024). The organization of the African Startups Conference in 2024 will provide a platform to discuss the impact of (AI) on economic development.

In the energy sector, major national companies such as Sonatrach and Sonelgaz are beginning to adopt (AI) to improve their operations, particularly in energy, with solutions for gas leak detection and partnerships with local start-ups. For example, Sonatrach highlighted the strategic importance of artificial intelligence in its activities by incorporating (AI positions) for the first time in its recruitment competition. (Algeria Press Service, 2024).

The agricultural sector is also a pioneer in the application of (AI), with projects such as those by the Souakri group to improve cherry tomato production and the start-up Farm (AI), which uses drones to detect plant diseases. Other initiatives focus on forest fire prevention and the optimization of aquaculture.

(AI) is seen as a crucial lever for the technological transformation of Algeria, a key sector for the national economy.

In the accounting field, Algerian companies face challenges related to inventory cost valuation due to outdated accounting systems, that require complex and costly operations in terms of time and human resources. This leads to risks of accusations and frequent audits by the tax administration to verify the accuracy of accounts (MADI, 2024).

However, Algerian accounting is undergoing a digital transformation, with significant technological advancements and partnerships with major consulting and IT companies. (AI) is transforming accounting in Algeria, with diverse applications across several key sectors. For example, large companies like Cevital and ArcelorMittal Algeria use (AI) to optimize inventory management and production costs. In the banking sector, institutions such as BNA and BDL are integrating (AI) technologies for fraud detection and improving loan

processes (MADI, 2024). The Algerian government is also using (AI) to enhance the efficiency of tax audits and tax collection.

Finally, private accounting firms, such as PwC and EY, are leveraging (AI) to reduce audit timelines and improve human resource management. This digitalization process aims to enhance productivity, increase the competitiveness of Algerian businesses in the international market, and provide more efficient management of accounting data and customized reporting.

However, (AI) like any technological advancement, comes with a set of risks that must be identified and managed appropriately. It is crucial to establish suitable legislation and policies while promoting research and development to encourage (AI technologies) that uphold ethical values and ensure social justice, transparency, and accountability.

Additionally, the integration of artificial intelligence (AI) in the accounting field presents several major challenges and obstacles. Implementing (AI) in accounting requires substantial investments in development, updates, and maintenance. These high costs often pose a major barrier, necessitating detailed cost-benefit analyses. The quality of the data used in predictive models is another crucial factor, requiring rigorous data validation processes (Jacob,2020).

On the other hand, the widespread adoption of (AI) presents several risks, such as job loss due to automation, vulnerabilities in the protection of personal data, and discriminatory biases in (AI systems). Additionally, cybersecurity threats, the worsening of economic and social inequalities, and changes in the relationship between humans and technology raise concerns. Finally, the environmental impact associated with the high energy consumption of (AI systems) is also a significant challenge to consider.

In summary, while (AI) offers benefits for the accounting sector, it requires careful management of costs, complexity, and ethical and legal implications. Despite these challenges, Algeria has taken proactive steps and made significant progress in this field by integrating the technology into university curricula and establishing the National Higher School of Artificial Intelligence. The country has implemented an ambitious national strategy for 2031 aimed at fostering innovation, developing AI skills, building a digital ecosystem, and strengthening digital sovereignty (S. DJALLAL, 2024).

The National People's Assembly (APN) is also focused on (AI), incorporating it particularly for cybersecurity, automatic transcription of debates, and legal text analysis. A partnership with the Center for Research on Scientific and Technical Information has been established to develop voice-to-text conversion solutions tailored to national dialects while ensuring confidentiality. The APN also plans to improve interaction with citizens through social media analysis and supports the (AI) startup ecosystem. A draft law to regulate the use of (AI) has been proposed.

The APN is implementing a clear strategy for (AI) in Algeria by engaging specialists, establishing an ethical charter, and investing in training and international collaboration.

In conclusion, the analysis of the research results highlights the significant difference between Algeria and developed countries in terms of the adoption of artificial intelligence (AI) in the accounting sector. In industrialized countries, firms such as PwC, KPMG, EY, and Deloitte integrate (AI) on a large scale into their accounting practices, using advanced solutions such as ChatPwC, automated auditing tools, and tax optimization platforms. This adoption is supported by a robust technological infrastructure, qualified professionals, and a regulatory framework conducive to innovation.

In Algeria, the adoption of (AI) remains more limited and experimental, mainly used by large companies like Cevital and Sonatrach. However, progress is being made through initiatives such as the national (AI) strategy for 2031, the creation of a Higher School of (AI), and the integration of intelligence artificial into university curricula.

Regarding training, while developed countries offer specialized programs and certifications, Algeria lags behind, with insufficient dissemination of training programs for accounting professionals.

Finally, Algeria faces specific challenges, such as inequalities between large companies and SMEs, lack of resources, and the inadequacy of existing tools. Nevertheless, public policies, technological partnerships, and the rise of start-ups offer promising prospects for broader (AI) adoption in the sector in the medium term.

6. Conclusion

This study examined the expanding role of artificial intelligence (AI) in accounting, highlighting its applications, advantages, and the challenges it presents. The analysis covered key AI technologies such as robotic process automation (RPA), natural language processing (NLP), machine learning, and expert systems, demonstrating their transformative potential in automating tasks and enhancing data management.

The study also highlighted the future prospects of (AI) in accounting, both globally and in Algeria. We found that (AI) offers significant opportunities to improve productivity and the competitiveness of businesses, but it also poses challenges, particularly in terms of technology adoption, cost management, and professional training.

The Algerian context reveals persistent digitization challenges; however, emerging (AI) integration initiatives—through corporate partnerships and upskilling programs—signal progress.

Finally, the hypotheses formulated in this study were generally confirmed in light of theoretical research, case studies, and empirical surveys conducted with Algerian companies. Artificial intelligence, as a set of technologies capable of replicating human reasoning (H1), is indeed transforming modern accounting practices through automation, big data analysis, and the forecasting of financial trends (H2). It also contributes to improving the quality of accounting data by automating data collection and error correction, thereby increasing accuracy, reducing human errors, and accelerating decision-making (H3). However, the study highlights that the integration of artificial intelligence in Algerian companies is still in its early stages, despite initiatives by some large enterprises, due to persistent technological, financial, and human constraints (H4). Nevertheless, the study also shows that artificial intelligence is gradually revolutionizing the accounting field through

the use of innovative technologies (H5) and that it is rapidly expanding, with notable efforts observed in several countries — including Algeria — toward its adoption across various sectors (H6).

To promote the adoption of artificial intelligence in Algeria, particularly in the accounting sector, it is crucial to enhance professional training, modernize business systems through public support, and strengthen partnerships between universities, start-ups, and companies. A clear regulatory framework, along with the development of technological infrastructure, is also essential to ensure the gradual and effective integration of (AI).

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