

Artificial Intelligence Adoption in Algerian Banking: Impacts on Accounting Information Systems (AIS) Internal Controls**تبني الذكاء الاصطناعي في البنوك الجزائرية: تأثيره على الضوابط الداخلية لأنظمة المعلومات المحاسبية (AIS)****Nawel Benzitouni¹, Dr. Mehassouel Naamane²**¹ LRFPMF Laboratory, Jijel University- Jijel (Algeria), nawel.benzitouni@univ-jijel.dz² Mehassouel Naamane - Jijel (Algeria), mehassouel_naamane@yahoo.fr**Received:** 24/11/2024**Accepted:** 20/03/2025**Published:** 31/03/2025**Abstract:**

This study aims to evaluate the impact of Artificial Intelligence (AI) on enhancing internal controls within Accounting Information Systems (AIS) in the Algerian banking sector. Using a structured questionnaire, we measured AI adoption levels, its effect on control procedures, and challenges faced. The findings reveal that AI improves data accuracy, automates routine tasks, and enhances predictive analytics, although challenges like high costs and data privacy remain. The study recommends strategic employee training and robust planning for effective AI integration.

Keywords: Artificial Intelligence; Banking Sector; Internal Controls; Accounting Information Systems; Algeria.

JEL Classification Codes: M41, G21, C88

ملخص:

تهدف هذه الدراسة إلى تقييم تأثير الذكاء الاصطناعي (AI) على تعزيز الضوابط الداخلية داخل أنظمة المعلومات المحاسبية (AIS) في القطاع المصرفي الجزائري. من خلال استخدام استبيان منظم، قمنا بقياس مستويات تبني الذكاء الاصطناعي، تأثيره على إجراءات الرقابة، والتحديات التي تواجهه. كشفت النتائج أن الذكاء الاصطناعي يحسن دقة البيانات، ويؤتمت المهام الروتينية، ويعزز التحليلات التنبؤية، على الرغم من وجود تحديات مثل التكلفة العالية وقضايا الخصوصية. توصي الدراسة بتدريب استراتيجي للموظفين والتخطيط الجيد لتحقيق تكامل فعال للذكاء الاصطناعي.

كلمات مفتاحية: الذكاء الاصطناعي؛ القطاع المصرفي؛ الضوابط الداخلية؛ أنظمة المعلومات المحاسبية؛ الجزائر.

تصنيفات JEL : M41, G21, C88

Introduction:

The banking sector in Algeria is undergoing significant transformation driven by advancements in technology, particularly the adoption of Artificial Intelligence (AI). The purpose of this research is to examine the implementation and use of AI in Accounting Information System (AIS) for improving the internal controls.

The Study Problem:

The problem of the study can be clarified with a major question: How does the adoption of Artificial Intelligence impact internal controls within Accounting Information Systems in the Algerian banking sector?

Hypotheses:

1. The integration of AI technologies within AIS improves accuracy and reliability of financial reporting.
2. The adoption of AI enhances the efficiency of internal controls, reducing the risks associated with fraud and errors.
3. Banks who use AI-driven internal control mechanisms will show higher compliance with regulatory requirements compared to those that do not.

Aims of the study:

This study aims to:

- To assess the current level of AI adoption in the banking sector in Algeria.
- To identify the benefits of AI in improving the accuracy and reliability of financial reporting.
- To analyze the challenges faced by banks in integrating AI technologies into their internal controls.
- To explore the future prospects of AI in enhancing internal controls within AIS in the Algerian banking context.

Previous Research:

Numerous studies have investigated the adoption of Artificial Intelligence (AI) across various sectors, revealing valuable insights into its benefits and challenges:

Odonkor et al. (2024) - "The Impact of AI on Accounting Practices: A Review"

This review published in the World Journal of Advanced Research and Reviews examines the impact of AI on accounting as well as financial reporting, specifically how and to what extent these practices are being changed. They cite efficiency, precision, and capacities for decision-making enhancement as possible offerings from AI integration which presents a good outlook in making accounting practices better.

Johnson and Lee (2019) - Barriers to AI Adoption in Organizations

The study looks into the barriers that some organizations may experience in the adoption of AI technologies in practice. Major hindrances are reported to be, for instance, insufficient qualified personnel as well as absence of readiness to change. Emphasizing on these issues, the respondents also highlight planning and implementation of other strategic initiatives to address these issues with a view to developing a model that can be adopted in a number of sectors.

Brown (2021) - The Role of AI in Enhancing Internal Controls

Brown's study examines effectiveness of artificial intelligence in internal controls and suggests that a significantly increased level of monitoring and compliance processes should be achieved with AI. But at the same time the research highlights concerns regarding collecting

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and sensible use of the data and points out the significance of innovative approaches and compliance with regulations at the same time.

Garcia and Martinez (2022) - AI Implementation and Financial Reporting Accuracy

This study analyses the association which exists between the integration of AI and financial reports. Authors noted that organizations that employed these internal controls which were AI assisted recorded improvement in the trust which stakeholders had in their financial reports.

While these studies provide important insights into AI's transformative potential and its implications for accounting practices and internal controls, they do not specifically address the banking sector. This represents a significant gap in the literature. This research aims to fill this gap by providing insights into the current state of AI adoption in Algerian banks, its implications for internal controls, and the unique challenges faced by local financial institutions.

Methodology:

This study investigates the adoption of Artificial Intelligence (AI) in Accounting Information Systems (AIS) within the Algerian banking sector, focusing on its impact on internal controls, challenges, and future prospects. A descriptive research methodology was employed, integrating both theoretical and empirical approaches. The theoretical framework was developed through an extensive review of academic literature, while empirical data were collected using a structured questionnaire distributed to professionals from various Algerian banks.

The questionnaire was designed to capture diverse perspectives on AI integration and its implications for AIS, with responses analyzed using SPSS software. By combining these approaches, the study provides a comprehensive understanding of the role of AI in enhancing the efficiency and effectiveness of AIS in Algerian banking operations.

1-AI, AIS, and Internal Controls in Banking: An Integrated Approach (Literature Overview):

Advanced technology is becoming more and more necessary to manage financial data and guarantee regulatory compliance as the banking industry grows more complex. The efficiency, accuracy, and security of banking processes could be greatly improved by integrating artificial intelligence (AI) with accounting information systems (AIS). Specifically, internal controls that banks use to guard against fraud, guarantee the accuracy of financial reporting, and uphold regulatory compliance can be revolutionized by AI-driven technologies.

This section explores the interplay between AI, AIS, and internal controls, highlighting how these technologies are shaping the future of banking and transforming traditional practices in financial management.

1-1 Overview of Artificial Intelligence (AI) in Banking:

Artificial Intelligence (AI) refers to advanced computer systems and software capable of executing tasks that would typically require human intelligence, such as analyzing data, making decisions, learning from information, and solving complex problems. Banks can now rapidly process vast volumes of data, identify trends, and facilitate better decision-making thanks to AI technology. The potential to offer individualized services, enhanced risk management, and operational efficiency are all facilitated by this expanded capacity. AI reduces related costs and minimizes risks associated with traditional banking procedures while

automating banking processes to enable banks better meet client needs and assure regulatory compliance. (Noreen, Attayah, Zaheer, & Muhammad, 2023, p 3682)

Banks can increase operational efficiency and optimize resource allocation by incorporating AI to automate repetitive tasks, improve data analytical skills, and enhance customer service experiences. More intelligent financial decision-making, improved risk management, and more reliable internal controls are made possible by AI's capacity to analyze enormous volumes of data and spot trends. The key uses of AI in banking operations are examined in this part, where its potential to improve efficiency and preserve financial integrity is being fulfilled. (Doumpos, Zopounidis, Gounopoulos, Platanakis, & Zhang c, 2022, p 1-16)

1-1-1 AI-Driven Automation in Banking Operations

The application of advanced artificial intelligence (AI) techniques has significantly changed the banking industry in recent years, especially in emerging nations. According to (Yalamati, 2023), p01-24) improving banking systems through digitization improves customer experience and security in addition to streamlining operations. Banks can easily evaluate enormous volumes of data thanks to AI-driven automation, which makes risk assessment and decision-making possible in real time. the study by (Khan & Thrun, 2019, P 32-50) shows that this shift this shift allows financial institutions to better comply with regulatory standards, optimize their services, and save operating costs.

Furthermore, AI applications enable banks to provide individualized services, which in turn promote customer satisfaction and loyalty. Examples of these applications include chatbots and predictive analytics, which (Abu Shawar & Atwell, 2007, p 29-49) define as automated text-based dialogue systems with which humans can interact via natural language. The potential for artificial intelligence (AI) to transform banking operations and open the door to more effective and flexible financial systems is becoming more and more clear as emerging nations continue to adopt these technological developments. (H. Klein, Papies, & Utz, 2024, p 1-19)

1-1-2 AI for Risk Management and Fraud Detection

In the financial industry, artificial intelligence (AI) has emerged as a key component for improving risk management and fraud detection skills. As articulated by (Fawcett, Haimowitz, Provost, & Stolfo, 1998, p 107-108) in their work, AI approaches enable the analysis of vast datasets to identify anomalies and potential fraud. These systems can identify patterns that signal fraudulent activity by using advanced machine learning algorithms, giving financial institutions the capacity to react quickly and efficiently. In addition to reducing monetary losses, this proactive strategy improves regulatory compliance, enabling banks to preserve client confidence and protect their brands.

The use of AI for fraud detection and risk management is especially important in high-frequency trading environments. (Yash , 2023, p 2223-2229) highlights that real-time data analysis is necessary due to the quick speed of trading, and AI-driven systems can continuously monitor transactions for indications of fraudulent activity. These systems enable traders and financial managers to make well-informed decisions under duress by identifying anomalous patterns using sophisticated approaches like anomaly detection and predictive modeling. By integrating AI technologies into their risk management frameworks, firms can enhance their operational efficiency and reduce exposure to significant financial risks.

Furthermore, the integration of AI into data science techniques for fraud detection and risk management has profound implications for investment strategies in the financial services

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sector. (Pushyamitra Pattyam, 2019, p 385-416) highlights that AI empowers financial institutions to use data analytics to predict risks and maximize investment choices. By analyzing historical data and current market trends, AI systems can provide insights that help mitigate potential losses while identifying lucrative investment opportunities. AI's dual ability to assess risk and detect fraud makes it a vital tool for financial institutions trying to negotiate the market's intricacies while maintaining security and compliance.

1.2- Overview of Accounting Information Systems (AIS) in Banking:

Accounting Information Systems (AIS) are specialized systems designed to collect, store, and process financial data, providing accurate and timely information that supports decision-making in financial management (Leslie Turner, Andrea Weickgenannt, & Mary Kay Copeland, 2017, p. 04)

In the banking sector, Accounting Information Systems (AIS) play a crucial role by ensuring that financial transactions are systematically recorded and that reports meet regulatory and compliance standards. With the integration of advanced technologies, AIS have evolved beyond basic data management to offer enhanced security, streamlined reporting, and real-time analysis. This evolution allows banks to maintain accurate financial records and generate timely reports, which are essential for regulatory compliance. As noted by the effective implementation of AIS not only enhances operational efficiency but also mitigates risks associated with financial discrepancies and fraud, thus reinforcing the integrity of banking operations. (Marshall B. Romney & Paul John Steinbart, 2017, p. 11 12)

Following this, we will examine the role of AIS in financial reporting and compliance, focusing on how these systems uphold regulatory standards and support accurate financial management. Subsequently, we will discuss real-time monitoring and automated internal controls, emphasizing the impact of AI on enhancing transaction oversight and fraud detection capabilities.

1-2-1. Role of AIS in ensuring Regulatory Compliance

Accounting Information Systems (AIS) are the backbone of financial management in banking. They collect, store, process, and report financial data, ensuring compliance with regulatory requirements and internal policies. (Zeyoud, Houssin, & Mohamed-Manssour, 2013, p. 252)

When integrated with AI, AIS can automate many routine accounting functions, enhancing the reliability and accuracy of financial reporting.

1-2-2. Role of AIS in Financial Reporting

Accounting Information Systems (AIS) supports internal controls by ensuring that all financial data is processed within a controlled environment, where access is restricted, transactions are monitored, and data integrity is maintained. AI further strengthens these internal controls by continuously monitoring the system for any signs of irregularities, ensuring that compliance measures are followed throughout the entire process. (Elsharif, 2017, pp. 1432, 1434)

1-3-The Relationship Between AI, AIS, and Internal Controls in Banking

In banking, AI and AIS collectively strengthen internal controls essential for asset protection, accurate reporting, and regulatory compliance. AI automates tasks like data entry and reconciliation, minimizing human error and maintaining consistent standards, which helps banks track transactions and identify discrepancies early. Additionally, AI's real-time

monitoring detects fraud by scanning transaction data for unusual patterns, enhancing financial security

AI also streamlines regulatory compliance by automating reporting and compliance checks, ensuring timely, accurate adherence to legal requirements. Predictive analytics from AI further allow banks to anticipate risks and adjust controls proactively, reinforcing operational resilience.

Together, these technologies provide banks with a secure and efficient control environment, though careful planning is needed to manage data security and compliance challenges.

2. Empirical Study: Analysis, Results, and Recommendations

As outlined in the introduction, this study employed a descriptive research methodology, utilizing a structured questionnaire to collect data from professionals in the Algerian banking sector. In this section, the collected data is analyzed using descriptive statistical methods through SPSS software to uncover key trends and insights regarding the adoption of Artificial Intelligence (AI) in Accounting Information Systems (AIS).

The following analysis focuses on the responses related to the adoption of AI, its impact on internal controls, the challenges faced by professionals, and their perceptions of AI's future in AIS. The findings are presented and discussed in detail, offering insights into the current state and potential evolution of AI integration within the banking sector.

2-1. Community and Sample of the Study:

The study's community consisted of employees from various banks in Algeria that utilize Accounting Information Systems (AIS), focusing primarily on accountants, auditors, and financial controllers. Out of 50 distributed questionnaires, 40 were successfully retrieved, representing an 80% response rate. This diverse sample from multiple banking institutions provides valuable insights into the practical implications of AI integration in AIS within the Algerian banking sector.

2-2. The Tool of Study:

The primary study tool for collecting primary data was the questionnaire. The tool is designed by using a pentagram of Likert scale so that the scale ranges from 1 to 5 which is from « totally agree » to « totally disagree ». This is illustrated in table (01):

Table N° 1: grades of the study scale

Rating	Totally Disagree	Disagree	Neutral	Agree	Absolutely Agree
Grade	1	2	3	4	5

It was divided into five axes as follows:

The first axis: concerns the personal and professional data and it includes (function, years of experience and educational level).

The second axis: Adoption of AI in AIS.

The third axis: Impact on internal controls.

The fourth axis: Challenges and Perceptions

The fifth axis: Future of AI in AIS

The Statistical Package for the Social Sciences (SPSS) was used to enter and analyze the collected primary data. The data were analyzed using descriptive statistics such as percentages and frequency in a tabulated format.

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2-3. Honesty/precision of the tool of study:

The "Pearson Correlation Coefficient Calculator" was used to determine the validity of the internal consistency of the research tool paragraphs (Second, third, fourth and fifth axis) by « Pearson Correlation Coefficient Calculator » Between each expression and the total score of the domain, its affiliate, As in Table (02):

Table N°2: The correlation coefficient of the paragraphs of the domain and the total score of the tool

The Second Axis			The Third Axis			The Fourth Axis			The Fifth Axis		
Phrase Number	Pearson Correlation Coefficient	Moral Levels	Phrase Number	Pearson Correlation Coefficient	Moral Levels	Phrase Number	Pearson Correlation Coefficient	Moral Levels	Phrase Number	Pearson Correlation Coefficient	Moral Levels
01	0.4142	,000	07	0.6452	0.0314	13	0.813	,000	15	0.8095	,000
02	0.737	,000	08	0.7156	0.0008	14	0.813	,000	16	0.793	,000
03	0.760	,000	09	0.7768	,000	-	-	-	17	0.8155	,000
04	0.697	,000	10	0.7310	,000	-	-	-	-	-	-
05	0.737	,000	11	0.7304	,000	-	-	-	-	-	-
06	0.746	,000	12	0.5002	0.0322	-	-	-	-	-	-

*. correlation is significant at the level 0.05 (bilateral).

**. correlation is significant at the level 0.01 (bilateral).

Source: prepared by the researcher, based on the results of the IBM SPSS Statistics 30.0.0.0 program.

It is clear from Table N°2 that the Pearson correlation coefficients for all the phrases in the second, third, fourth, and fifth axes show significant relationships with the total score of the tool. This indicates that all components of the tool have a good degree of internal consistency and validity, making them suitable for field application. The overall correlations suggest that the tool is reliable for measuring the constructs of interest in the study.

2-4. The Stability of the Tool:

To ensure the stability of the study tool was used the equation "Cronbach Alpha" using the IBM SPSS Statistics 30.0.0.0 program has reached the degree of stability of the tool (0.907), which is very good value and indicate that the questionnaire is consistent and valid for the purpose of study, As in Table (03):

Table N°3: Alpha Cronbach coefficient of stability of the tool of study

THE AXIS	Number of paragraphs	Coefficient of Cronbach Alpha stability
The second axis: Adoption of AI in AIS.	6	,909

The third axis: Impact of AI on internal controls.	6	,927
The fourth axis: Challenges and Perceptions of integrating AI in AIS.	2	,872
The fifth axis: Future of AI in AIS	3	,920
Total stability coefficient of the questionnaire	17	,907

Source: prepared by the researcher, based on the results of the IBM SPSS Statistics 30.0.0.0 program.

The results from Table N°3 indicate that the study tool, both as a whole and across its individual axes, demonstrates very good to excellent reliability. All axes have Cronbach Alpha values well above the acceptable threshold of 0.7, confirming that the questionnaire is a reliable instrument for assessing the adoption, impact, challenges, perceptions, and future of AI in AIS.

This level of stability suggests that the questionnaire is valid and suitable for field application in your study.

2-5. Statistical Processing:

Upon completion of the data collection and the compilation of responses from the sample participants, the data were subjected to statistical analysis using IBM SPSS Statistics 30.0.0.0. The statistical procedures employed in accordance with the study's objectives included the following:

- Frequency distributions and percentages to characterize the study sample.
- The Cronbach's Alpha coefficient to assess the reliability and stability of the study instrument.
- Pearson correlation coefficients to evaluate the internal consistency and the relationship between the individual items and their respective axes.
- Descriptive statistics including mean values and standard deviations to summarize and analyze the data.
- Simple regression analysis to examine the indicative statistics and the relationships between key variables.

2-6. Description of the sample of the study in terms of personal and professional variables (function, experience, and bank name):

The distribution of roles among the respondents shows a varied representation across different positions. Auditors account for 33.13% of the sample, followed by Accountants at 29.81%. Financial Analysts and Financial Controllers each make up 22.5% of the sample. This indicates a relatively diverse set of positions, with no single role overwhelmingly dominant within the sample.

When examining the years of experience, the respondents are fairly distributed across different experience levels. A significant portion, 30%, have between 3-5 years of experience, while 25% have 0-2 years of experience, and another 25% fall within the 6-10 years category. Only 20% of respondents have more than 10 years of experience, suggesting a strong representation of individuals with mid-level experience in the sector.

Regarding bank representation, there is a broad range of institutions represented. Société Générale Algeria, Arab Banking Corporation Algeria (Bank ABC), and Crédit Populaire d'Algérie (CPA) each make up 10% of the sample. BNP Paribas El Djazair is represented by

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7.5%, and the remaining respondents represent various other banks, which collectively make up 62.5% of the sample.

2-7. Presentation and discussion of the study's results:

Results for answering the first question: Adoption of Artificial Intelligence in Accounting Information System.

Table 4 reveals that the general arithmetic mean for the adoption of AI in AIS is 3.548, indicating a high degree of approval. This suggests that, in general, respondents strongly agree with the statements related to AI adoption in accounting information systems.

Table N°4: Adoption of Artificial Intelligence in Accounting Information System.

Phrase	Arithmetic Average	Degree Of Approval	Ranking
01-Our bank uses AI technologies to improve the accuracy of financial data entry	3.4250	High	5
02-AI algorithms are implemented to automate routine accounting tasks.	4.2250	High	1
03- Machine learning models are used to enhance predictive analysis in our internal financial data management system	3.9250	High	3
04- Our bank integrates AI for real-time monitoring of financial transactions.	3.9750	High	2
05- AI technologies are used to automate the account verification process in our system.	3.9750	High	2
06-Automated data validation using AI is a common practice in our bank.	3.7750	High	4
General average	3.548	High	–

Source: Compiled by the researcher, based on IBM SPSS Statistics 30.0.0.0 program.

Results for answering the first question: Challenges and Perceptions of integrating AI in AIS.

The general average for the challenges and perceptions regarding AI integration in AIS is 3.808, indicating a high level of approval among respondents. This suggests a broadly positive perception of AI's role in enhancing AIS capabilities within the bank. The results are presented in Table (05). The arithmetic averages have been classified and given the following grades:

From 1 -1.7: low grade; from 1.8 - 3.3; middle grade; from 3.4 - 5: high grade.

Table N°5: Challenges and Perceptions of integrating AI in AIS.

Phrase	Arithmetic Average	Degree Of Approval	Ranking
07-Our bank uses AI technologies to enhance the accuracy of financial data entry	3.0500	Middle	6
08-AI algorithms are implemented to automate routine accounting tasks..	3.7000	High	4
09-Machine learning models are used to improve predictive analysis in our internal financial data management system	4.0000	High	3
10-Our bank integrates AI for real-time monitoring of financial transactions.	4.2750	High	1

11-AI technologies are used to automate the account verification process in our system.	4.1500	High	2
12-Automated data validation using AI is a common practice in our bank.	3.6750	High	5
General average	3.808	High	

Source: Compiled by the researcher, based on IBM SPSS Statistics 30.0.0.0 program.

The highest-rated statement, with an average score of 4.275 ("High" grade), highlights the use of AI for real-time monitoring of financial transactions, which indicates strong support for AI's role in ensuring financial security and immediacy in monitoring.

Following closely is the integration of AI for the automation of the account verification process (4.150), showing significant trust in AI for compliance and operational efficiency in verifying account activities.

Other areas with high averages include the use of machine learning models for predictive analysis (4.000) and AI algorithms for automating routine tasks (3.700), reflecting a favorable view of AI's role in enhancing data analytics and automation within the bank.

The lowest average rating (3.050) pertains to the use of AI to enhance data entry accuracy, categorized as "Middle." This may reflect either lesser reliance on AI in data entry processes or perceived limitations in AI's efficacy in this specific task.

In conclusion, the bank employees generally perceive AI as beneficial in AIS, particularly for real-time monitoring, account verification, and predictive analysis. However, there may be room for improvement in AI applications for tasks like data entry, which has received a more moderate endorsement.

Results for answering the third question: Challenges and Perceptions of integrating AI in AIS.

To answer the second question of the study, the arithmetical averages was obtained to determine the Challenges and Perceptions of integrating AI in AIS. The results are presented in Table (06). The arithmetic averages have been classified and given the following grades:

From 1 -1.7: low grade; from 1.8 - 3.3; middle grade; from 3.4 - 5: high grade.

Table N°6: Challenges and Perceptions of integrating AI in AIS.

Phrase	Arithmetic Average	Degree Of Approval	Ranking
13- Sufficient training is provided to staff on the use of AI technologies	4.1750	High	2
14- Our bank has a clear strategy for integrating AI into our system.	4.2500	High	1
General average	4.2125	High	

Source: Compiled by the researcher, based on IBM SPSS Statistics 30.0.0.0 program.

The general average for the perceived impact of AI on internal controls is 4.2125, indicating a high level of approval among respondents. This high average suggests that bank employees generally view AI positively regarding its role in strengthening internal control mechanisms.

The highest-rated statement, with an average score of 4.250 ("High" grade), acknowledges the existence of a clear strategy for integrating AI into the bank's system. This indicates that a well-defined strategic approach to AI integration is seen as vital and is valued by staff.

Following closely is the provision of sufficient training for staff on AI technologies, with an average score of 4.175. This score reflects confidence in the training efforts,

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highlighting a recognition of the importance of employee readiness and skill development for effective AI use.

In conclusion, the bank employees rate both the training and strategic planning for AI integration in internal controls highly, indicating a positive view of the bank's efforts to equip staff and align AI use with clear strategic goals.

Results for answering the fifth question: Future of AI in AIS.

The analysis of responses to the fifth question, which concerns the Future of AI in AIS, provides insights into expectations for AI's role in the bank's strategic direction. The arithmetical averages was obtained to determine it. The results are presented in Table (07). The arithmetic averages have been classified and given the following grades:

From 1 -1.7: low grade; from 1.8 - 3.3; middle grade; from 3.4 - 5: high grade.

Table N°7: Future of AI in AIS.

Phrase	Arithmetic Average	Degree Of Approval	Ranking
15- AI will play a crucial role in the future development of our bank	3,8500	High	2
16- Our bank plans to invest further in AI technologies in the coming years.	3.6750	High	3
17-The adoption of AI will enhance the overall competitiveness of our bank.	4.2000	High	1
General average	3.9080	High	

Source: Compiled by the researcher, based on IBM SPSS Statistics 30.0.0.0 program.

The general average for perceptions about the future of AI in AIS is 3.9080, indicating a high level of approval. This suggests that employees have a positive outlook on AI's potential to impact the bank's growth and competitiveness.

The highest-rated statement, with an average score of 4.200 ("High" grade), reflects the belief that AI adoption will enhance the bank's overall competitiveness. This strong endorsement indicates a clear recognition of AI's role in positioning the bank favorably in the market.

The statement about AI's crucial role in future development received a score of 3.850, while the statement on further investments in AI technologies scored 3.675. Both ratings are high, reflecting employee confidence in the bank's commitment to AI as a foundational element for future operations.

In conclusion, the bank employees show a strong, optimistic view of AI's future impact on their organization, particularly in terms of enhancing competitiveness and supporting growth through strategic investments in AI technology.

2-8. Conclusion:

AI adoption in Accounting Information Systems (AIS) is increasingly transforming the Algerian banking sector. This study examines the impact of AI on internal controls, the challenges faced during its implementation, and its future potential in enhancing efficiency and decision-making within banks.

2-8.1. Results:

1. **AI Adoption in Accounting Information Systems (AIS):** The use of AI in Algeria's banking industry is expanding as its potential to increase operational speed, accuracy, and efficiency is becoming more widely recognized. However, different branches and organizations have varying degrees of integration; smaller or less technologically sophisticated ones embrace AI more slowly.
2. **Impact on Internal Controls:** AI has a positive impact on internal controls, enhancing monitoring capabilities, reducing human error, and ensuring better regulatory

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compliance. However, over-reliance on AI technology raises problems, emphasizing the necessity of human oversight in crucial decision-making processes.

3. **Challenges and Perceptions:** The main challenges to AI adoption include high initial implementation costs, resistance to change within organizations, and concerns regarding data privacy and security. Despite these challenges, there is optimism about the potential of AI, with a commitment to investing in the necessary infrastructure to support AI-driven systems.
4. **Future of AI in AIS:** It is anticipated that AI will become more widely integrated into AIS in areas including real-time data processing, predictive analytics, and consumer engagement. AI is expected to significantly improve decision-making and raise Algerian banks' general competitiveness and efficiency.

2-8.2. Suggestions:

1. **Enhance Training Programs:** Although training is already given top priority, adding more advanced AI features to the curriculum—particularly those pertaining to automated validation and predictive analytics—will enable staff members to use AI more skillfully.
2. **Improve Data Accuracy Solutions:** AI's role in improving data entry accuracy could be strengthened by implementing more advanced algorithms or AI-powered validation tools specifically designed to reduce entry errors.
3. **Develop a Long-Term AI Strategy:** Considering the promising future of AI, a comprehensive bank-wide AI plan that incorporates phased investments, distinct milestones, and quantifiable results would match AI adoption with long-term objectives and maintain competitive advantage.
4. **Increase AI Transparency:** To address any remaining concerns around AI, the bank could consider creating transparency reports or employee sessions that outline how AI processes are managed, evaluated, and optimized for security and compliance.

In conclusion, the adoption of AI in Algerian banks' AIS is viewed positively, with AI expected to enhance operational efficiency and competitive advantage. Addressing specific challenges, such as data entry accuracy, and reinforcing training and strategic planning, will enable Algerian banks to fully

Bibliography

- Abu Shawar, Bayan et Eric Atwell. «Chatbots: Are they Really Useful?» *Journal for Language Technology and Computational Linguistics* 22.1 (2007): 29-49.
- Doumpos, Michalis, et al. «Operational research and artificial intelligence methods in banking.» *European Journal of Operational Research* 306 (2022): 1-16.
- Elsharif, Tarek Abdelhafid. «The Elements of Accounting Information Systems and the Impact of Their Use on the Relevance of Financial Information in Wahda Bank—Benghazi, Libya.» *Open Journal of Business and Management* 7.3 (2017): 1432 1434.
- Fawcett, Tom, et al. «AI Approaches to Fraud Detection and Risk Management.» *AI Magazine* 19.2 (1998): 107-108.
- H. Klein, Stefanie, Dominik Papies et Sonja Utz. «How Interaction Mechanism and Error Responses Influence Users' Responses to Customer Service Chatbots.» *INTERNATIONAL JOURNAL OF HUMAN-COMPUTER INTERACTION* 6 (2024): 1-19.

- Khan, Usman Khan et Sebastian Thrun. «Operational Efficiency in Financial Services: Leveraging AI and Predictive Analytics.» *Journal of Financial Automation* 15.1 (2019): 32-50.
- Leslie Turner, Andrea Weickgenannt et Mary Kay Copeland. *Accounting Information Systems CONTROLS AND PROCESSES*. USA: WILEY, 2017.
- Marshall B. Romney et Paul John Steinbart. *Accounting information systems*. USA: Pearson, 2017.
- Noreen, Umara, et al. «Banking 4.0: Artificial Intelligence (AI) in Banking Industry & Consumer's Perspective.» *Sustainability* 15.4 (2023): 3682.
- Pushyamitra Pattyam, Sandeep. «AI in Data Science for Financial Services: Techniques for Fraud Detection, Risk Management, and Investment Strategies.» *Distributed Learning and Broad Applications in Scientific Research* 5 (2019): 385-416.
- Yalamati, Sreedhar . «Enhance banking systems to digitalize using advanced artificial intelligence techniques in emerging markets.» *International Scientific Journal For Research* 5.5 (2023): 1-24.
- Yash , Jani. «AI-Driven Risk Management and Fraud Detection in High-Frequency Trading Environments.» *International Journal of Science and Research* 12.11 (2023): 2223-2229.
- Zeyoud, latif, ali Houssin et rym Mohamed-Manssour. «Factors affectiong accounting information system's effectiveness- case study of syrien bank in Latikia.» *Tishreen University Journal for Research and Scientific Studies -Economic and Legal Sciences Series V* 35.7 (2013).