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Artificial Intelligence and Its Role in Designing Digital Auditing Programs

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ABSTRACT: Artificial intelligence (AI) plays a significant role in various aspects of life, including the design of digital auditing software for the Bank of Baghdad. This involves utilizing AI technologies to enhance audit procedures and improve the efficiency and effectiveness of auditors within the modern banking environment. The importance of this research stems from the expanding role of AI and digital transformation in the banking sector, which has compelled the auditing profession to adopt modern tools and techniques capable of handling vast amounts of financial and accounting data with speed and accuracy.

A descriptive-analytical approach was adopted to address the theoretical aspects of AI and digital auditing software, alongside an applied approach to examine the actual implementation of AI technologies in designing the digital auditing software at the Bank of Baghdad. Data were collected through interviews, documentation, and online sources, then analyzed using appropriate statistical measures to assess the nature of the relationships and impacts between the study variables.

The researcher reached several conclusions, most notably that AI has a direct impact on the design of digital auditing software by enhancing capabilities in risk assessment, financial data analysis, and the detection of potential errors and anomalies. Furthermore, AI contributes to increasing the efficiency of audit procedures and reducing the time and effort required to execute them. The results also indicated that the use of AI applications improves the quality of audit evidence and the reliability of the auditor's findings, thereby positively influencing the quality of financial reports and bolstering confidence in them. The researcher recommended expanding the use of artificial intelligence technologies at the Bank of Baghdad and providing the necessary technical infrastructure to support their applications. He also advocated for training auditors in the use of digital auditing tools and updating supervisory policies and procedures to align with the requirements of the modern digital environment and international auditing standards. Furthermore, the researcher emphasized the importance of establishing regulatory and professional frameworks to ensure the effective and secure use of artificial intelligence in digital banking audits.

KEYWORDS: Artificial Intelligence, audit software, digital auditing, Baghdad Private Bank, audit quality, digital internal control.

INTRODUCTION

Digital transformation in the fields of accounting and auditing has enhanced the speed and accuracy of audit programs through the use of artificial intelligence tools. These digital programs possess the capability to electronically analyze vast amounts of data, detect anomalies and fraud, and facilitate continuous, real-time auditing. To understand this context, one must first define an audit program: it is an action plan prepared by the auditor following an examination of the company's internal control system, multiple site visits, and a review of corporate records and internal systems—including the company's articles of association. Auditors may modify or expand this program to ensure that their procedures and steps validate the financial statements, confirm the efficiency of the internal control system, and achieve audit objectives. In this digital context, the auditor focuses on gathering digital audit evidence and achieving objectives efficiently and effectively. In contrast, traditional (paper-based) audit programs rely on physical files and printed documents; auditors manually record observations and annotate records and financial statements, manage the storage of physical papers and evidence, and use handwritten signatures—processes that render the audit slower.

When comparing traditional audit programs with digital or electronic ones, the differences lie in the methods of preparation, execution, documentation, and follow-up, even though the ultimate goal in both cases remains the same: structuring the audit procedures performed by the external auditor.

Artificial Intelligence and Its Role in Designing Digital Auditing Programs

Section One – Research Methodology

Research Problem:

Relying on paper-based or traditional auditing systems is no longer sufficient to meet the demands of the digital business environment, particularly in the banking sector, which is characterized by massive data volumes and rapid transaction speeds. Consequently, transitioning to digital auditing systems—supported by artificial intelligence (AI) and data analytics—has become essential to enhance audit efficiency, improve output quality, and mitigate operational risks. Paper-based auditing systems face numerous challenges in today's AI-driven work environment; these challenges include:

1. Low performance efficiency: Executing paper-based audit procedures requires significant time and effort for preparing, reviewing, and storing working papers, thereby prolonging the audit process.
2. High operational costs: Paper-based systems rely on extensive paper usage, printing, and archiving, as well as the need for dedicated file storage space, all of which drive up audit costs.
3. Increased likelihood of human error: There is a higher risk of errors arising from manual data entry or oversights during the execution of audit procedures, which compromises the quality and accuracy of audit results.
4. Difficulty handling big data: Paper-based systems lack the capacity to analyze vast amounts of financial and operational data, limiting the auditor's ability to examine all transactions and detect potential risks.
5.Lack of flexibility in updating and development

Modifying audit procedures or adding new tests requires the manual preparation of documents and forms, making the update process slow and costly.

6. Limited control and documentation; it is difficult to track modifications and revisions made to paper-based working papers, and the documentation of audit execution stages is less accurate compared to electronic systems.
7. Weak information security; paper files lack the advanced security measures found in digital systems, increasing the risk of unauthorized access to sensitive information.

Research Objective:

The research aims to utilize artificial intelligence (AI) technologies to design a digital auditing program that offers the following features:

1. Reliance on electronic systems and databases.
2. Electronic documentation of audit working papers.
3. Use of AI for big data analysis.
4. Rapid access to information via databases.
5. Capability for direct integration with other accounting systems.

Research Hypothesis:

A digital auditing program based on AI technologies represents a significant modern advancement in the auditing profession. It enhances the efficiency and effectiveness of audit operations by automating procedures, analyzing big data, and detecting risks with greater speed and accuracy. Furthermore, such a program drives a fundamental transformation in the profession—shifting from traditional auditing (based on sampling and manual examination) to intelligent auditing (based on comprehensive data analysis and continuous auditing). This shift enhances audit efficiency and effectiveness, improves the quality of professional decisions made by auditors, and increases the capacity to detect errors and fraud.

Research Significance:

The significance of this research lies in its use of artificial intelligence techniques to design a digital audit program for the Bank of Baghdad (Private). This technology enhances the program's performance in terms of speed, accuracy, and audit comprehensiveness, enabling the efficient and precise execution of routine operations. Furthermore, the digital audit program significantly reduces human errors attributable to the auditor or their assistants.

RESEARCH METHODOLOGY:

The research employed various data collection methods, including analytical approaches, interviews with auditors, and observation of the digital audit program's development process. It also utilized documents, reports, records, and digital archives.

Section Two – Theoretical Framework of Artificial Intelligence

The Concept of Artificial Intelligence:

Artificial Intelligence (AI) is a set of digital technologies aimed at designing systems capable of learning, reasoning, making decisions, and simulating human intelligent behavior by leveraging algorithms, data, and modern digital technologies.

Alternatively, it is defined as a system of computational technologies capable of mimicking human cognitive abilities—such as learning, analysis, inference, decision-making, language comprehension, prediction, and adaptation to data and the surrounding environment—to execute tasks that previously required human intervention. In the fields of digital accounting and digital auditing, AI is utilized for: (Wafaa et al., 2024, pp. 363–368)

1. Detecting errors and financial fraud.
2. Analyzing risks facing banking activities.
3. Automatically generating digital audit programs.
4. Predicting financial problems.
5. Improving the quality of financial reports and decisions.

Characteristics of Digital Audit Software:

1. Intelligent automation: Automatically executing routine procedures and minimizing human intervention in repetitive processes.
2. Advanced data analytics: Analyzing vast quantities of financial and non-financial data.
3. Risk prediction: Identifying accounts most susceptible to errors or fraud and intensifying efforts to safeguard them.
4.Continuous auditing: Monitoring banking and financial operations in real-time and immediately addressing any deviations.
5.Integration with electronic systems: Integrating with banking systems and databases, and linking with the bank's resource planning systems.
6.Information security and data protection: Utilizing cybersecurity technologies.

The Historical Evolution of Artificial Intelligence:

Artificial intelligence has undergone several historical stages, ranging from its theoretical inception to the emergence of modern intelligent technologies based on deep learning and big data analysis. This evolution can be categorized into the following stages:
First: The Conceptual and Theoretical Stage (Pre-1950) (Russell et al., 2021, p. 50) The concept of intelligent machines dates back to ancient times within philosophy and mathematics; however, significant development began with advancements in mathematics and computer science. A key figure was Alan Turing, who proposed the "Turing Test" in 1950 to measure a machine's ability to think and simulate human behavior.
Second: The Formal Foundation Stage (1956) The year 1956 marks the official beginning of artificial intelligence, coinciding with the Dartmouth Conference in the United States. It was here that John McCarthy first coined the term "Artificial Intelligence." The conference aimed to develop systems capable of thinking, problem-solving, learning, and language comprehension.
Third: The Expansion Stage (1960–1970) This period witnessed the development of programs capable of solving mathematical and logical problems and the emergence of expert systems. Artificial intelligence was applied in military and medical fields; however, technical capabilities were constrained by limited computing power and a scarcity of data. Fourth: The period of decline, or the "AI Winter" (1970–1980), during which interest in artificial intelligence waned due to inflated expectations, poor practical results, and limited computing power, leading to a drop in investment and research in the field.
Fifth: The era of expert systems (1980–1990), marked by a resurgence of interest in AI driven by the emergence of expert systems. These systems relied on encoding human expertise into computer programs to facilitate decision-making and were applied in fields such as medicine, accounting, diagnostics, and auditing.
Sixth: The machine learning era (1990–2010), characterized by a shift in focus toward machine learning and the emergence of robotics.
Seventh: The era of deep learning and big data (2010–present), representing the modern phase of AI. This period is defined by deep learning, artificial neural networks, big data analytics, cloud computing, and generative AI. Applications include autonomous vehicles, intelligent translation, medical diagnostics, and digital accounting and auditing.

Artificial Intelligence Standards

There are various international standards and principles regarding artificial intelligence (AI). These have emerged due to the rapid expansion of AI usage and the need to regulate it ethically, technically, and legally. These standards fall into several categories: (International Organization for Standardization, 2023)
First: Ethical Standards for AI.
These aim to ensure the safe, fair, and responsible use of AI. Key principles include transparency, fairness and non-bias, privacy and data protection, legal accountability, safety and security, and respect for human rights. Various entities have contributed to establishing these standards, including UNESCO, the OECD, and the European Union.
Second: International Technical Standards.
International standardization and control organizations have established standards to regulate the design and operation of AI

systems. Key examples include:

1. ISO/IEC 42001: Considered one of the most important modern standards for AI system management; it covers AI governance, risk management, oversight, accountability, and ethical compliance.
2. ISO/IEC standards specific to AI, such as:
   . ISO/IEC 22989: AI concepts and terminology.
   . ISO/IEC 23053: Machine learning use framework.
   . ISO/IEC 23894: AI risk management.

Third: Legal and Regulatory Standards. Some countries have begun enacting laws to regulate artificial intelligence. ...such as the European Union's AI Act, which classifies AI systems based on risk levels.

Fourth: Governance and oversight standards, which focus on human oversight of intelligent systems, the documentation of automated decisions, information security, and data protection. These standards are crucial in accounting, digital auditing, the banking sector, and government systems.

The Importance of AI Standards:

* Reducing the risk of errors and bias
* Enhancing trust in intelligent systems
* Protecting users and data
* Ensuring the responsible use of AI
* Supporting legal and ethical compliance

Section Three – Theoretical Framework of Digital Auditing and the Digital Audit Program

Concept of Digital Auditing:

Digital auditing is the process of examining and evaluating financial and administrative data and operations using digital technologies and electronic systems, rather than relying on traditional paper-based methods. It aims to verify the accuracy of information, system efficiency, and the effectiveness of internal controls by utilizing data analysis tools and modern software to execute audit procedures. In other words, digital auditing involves the use of information and communication technologies (ICT) and intelligent software to electronically analyze financial and administrative data. This process yields sufficient and reliable audit evidence, enabling the auditor to express an opinion on the fairness of the financial statements and their accurate reflection of the entity's activities.

Characteristics of Digital Auditing (International Federation of Accountants, 2023):

1. Reliance on computerized systems and databases.
2. Use of big data analysis software.
3. Speed in detecting errors and deviations.
4. Capability for continuous and real-time auditing.
5. Reduced reliance on paper documents.
6. Enhanced accuracy and efficiency of the audit process.

Objectives of Digital Auditing:

A digital audit program is a structured electronic work plan that includes audit procedures and methods implemented by the auditor using digital technologies and computer programs. Its purpose is to examine financial data, verify its accuracy, and assess the effectiveness of internal controls automatically or semi-automatedly. A digital audit program is an evolution of the traditional audit program, relying on information systems, databases, and data analysis tools instead of complete dependence on paper documents and manual procedures. Furthermore, a digital audit program is a set of pre-planned electronic procedures and instructions used by the auditor through digital systems and data analysis programs to obtain sufficient and appropriate audit evidence that supports a professional opinion on financial statements and electronic transactions. The audit program also leads to:

- Enhancing the reliability of financial information
- Faster detection of errors and fraud
- Assessing the security of information and electronic systems
- Improving the quality of financial reports
- Supporting managerial decision-making (Chiloane & Others, 2024).

Artificial Intelligence and Its Role in Designing Digital Auditing Programs

Traditional Auditing and Digital Auditing

Paper-based or Traditional Auditing	Digital Auditing
Relies on paper documents	Relies on electronic data
Manual procedures	Automated procedures and digital analysis
Limited sampling	Comprehensive examination of financial data
Takes longer	Higher speed and accuracy
Periodic or end-of-financial-period auditing	Can be a continuous audit process
Limited in fraud detection	Greater ability to detect errors and fraud.

The Historical Evolution of Digital Auditing (Chukwu ani, V. N., 2024)

Digital auditing has undergone several historical stages linked to the evolution of technology and information systems, transitioning from traditional manual auditing to the use of smart digital systems and big data analytics. The historical evolution of digital auditing can be outlined as follows:

First: The Traditional Manual Auditing Stage (Prior to the 1950s):

During this stage, auditing relied on paper records, accounting ledgers, and the manual examination of entries and documents using sampling techniques—necessitated by the difficulty of examining every transaction. The focus was on detecting errors and financial fraud, and the auditor's role centered on directly verifying the validity of financial transactions without the use of technology.

Second: The Stage of Computer Use in Accounting (1950s – 1970s):

Following the advent of electronic computers, organizations began using electronic systems to process accounting data. This led to a shift from paper-based to electronic data formats, the emergence of the concept of auditing electronic systems, and a requirement for auditors to understand the accounting information systems environment. This stage saw the emergence of "auditing *around* the computer," where the auditor reviewed inputs and outputs without examining the computer's internal processing operations.

Third: The Stage of Auditing *Using* the computer (1970s – 1990s):

This stage witnessed significant development driven by the proliferation of databases and accounting software. It was characterized by the use of electronic audit programs, the emergence of Computer-Assisted Audit Techniques (CAATs), the electronic examination of data (reducing reliance on paper documents), increased focus on electronic internal controls, and the emergence of "auditing *through* the computer," whereby the auditor... ...examining the electronic processes themselves.

Fourth: The Electronic and Internet-Based Auditing Stage (1990s – 2010):

With the proliferation of the Internet and resource planning systems, auditing evolved to encompass network-based electronic auditing, real-time data access, electronic data analysis, continuous auditing, and the assessment of information security and cybercrimes. During this period, global companies also began utilizing big data and electronically interconnecting their branches.

Fifth: The Intelligent Digital Auditing Stage (2010 – Present):

This is the most advanced stage, characterized by auditing processes that rely on artificial intelligence, big data analytics, cloud computing, blockchain technology, machine learning, software robots, predictive analytics, and automated fraud detection. Digital auditors gained the ability to examine entire datasets rather than just samples, detect errors in real-time, issue immediate audit reports, and monitor operations continuously.

(Wilson & Dennis, A. 2024)

Modern Trends in Digital Auditing

Key current trends in digital auditing include:

1. AI-driven auditing
2. Cloud auditing
3. Cyber auditing
4. Automated continuous auditing
5. Integration of blockchain technologies in transaction verification

(International Organization for Standardization, 2022)

Characteristics of digital auditing software:

1. Relies on electronic data.
2. Uses big data analytics software.
3. Enables continuous auditing.
4. Saves time and effort.

5. Increases the accuracy of results.
6. Helps detect electronic fraud.

Digital auditing software tools (Shivram, V., 2024):

Key tools used in digital auditing software:

1. Data analysis software (e.g., ACL, IDEA).
2. ERP systems.
3. Artificial intelligence.
4. Cloud computing.
5. Cybersecurity tools.
6. Blockchain technologies

Section Four – Practical Aspect

Case Study: Baghdad Bank (Private Joint-Stock Company)

Overview of the Research Sample (Baghdad Bank – Private Joint-Stock Company) Established in 1993, Baghdad Bank is an Iraqi bank operating under the supervision of the Central Bank. It provides diverse services to individual and corporate clients and ranks among Iraq's prominent private commercial banks. With an initial capital of 100 million Iraqi Dinars, the bank engages in the following activities:

1. Current and savings accounts
2. Personal and commercial loans
3. Domestic and international transfers
4. Electronic payment services (MasterCard, Visa Card)
5. Internet and mobile banking services

The bank maintains an extensive network of 36 branches within Iraq and operates a branch in Lebanon, alongside regional and international affiliations. These factors enhance its capacity to deliver modern, advanced banking services; notably, the bank was awarded the title of "Best Commercial Bank in Iraq" in 2024.

Table 1. Bank of Baghdad (Private Joint Stock Company) Income Statement for the Year Ending December 31, 2024

Details	2024/12/31 Amounts in thousands of Dinars	2023/12/31 Amounts in thousands of Dinars
Interest payable	75906174	52903454
Interest payable	(13076391)	(9896291)
Net interest income	12829783	43007163
Net commission income	260906747	134163500
Net interest and commission income	323736530	177170663
Net foreign exchange gains	142280831	53528587
Other investment income	299461	287539
Net capital gains (losses)	(1298117)	3116135
Total Income	465018705	234102927
Employee Salaries	(17526740)	(15702774)
Other Operating Expenses	(27884057)	(10753678)
Depreciation and Amortization	(3304749)	(2937149)
Miscellaneous Provisions	(5216350)	(3657404)
Total Expenses	(53931896)	(33051005)
Earnings Before Expected Credit Losses	411089809	201051922
Expected Credit Loss Provision Expense	(47357722)	(19221111)
Net Profit Before Tax	363729087	181830811
Tax	(56896722)	(26048820)
Net profit after tax	306832365	155781991
Basic and diluted earnings per share	0.877	0.613

Source: *From the Internet - Securities Commission – Baghdad*

Table 2. Bank of Baghdad (Private Joint Stock Company) Financial position as of December 31, 2024

Details	2024/12/31 Amounts in thousands of Dinars	2023/12/31 Amounts in thousands of Dinars
Cash and balances with the Central Bank (net)	2020046204	1294042234
Balances with banks and other financial institutions (net)	416469828	661476219
Investments in affiliates (net)	1871084	1372128
Financial assets at fair value (net)	4723549	8025607
Financial assets at amortized cost (net)	936827726	622465491
Direct credit facilities at amortized cost (net)	50259551	61630568
Property and equipment (net)	75114334	76063684
Intangible assets (net)	1205589	1082496
Right-of-use leased assets (net)	1302328	1834864
Other assets (net)	38141071	20504645
Total assets	3545961264	27484979450
Liabilities and Shareholders' Equity		
Liabilities		
Bank and Financial Institution Deposits	920976	11137855
Customer Deposits	2679348533	2170254205
Cash Margins	32684095	21458164
Income Tax Provision	56896722	26048820
Miscellaneous Provisions	9959276	6565149
Borrowed Funds	3363	19502
Lease Obligations	1231068	1897509
Other Liabilities	37401182	37398280
Total Liabilities	2818445215	2274779484
Shareholders' Equity		
Capital	400000000	300000000
Legal Reserve	40869040	25547375

Source: *From the Internet - Securities Commission – Baghdad*

Key Concepts Related to the Bank of Baghdad Audit Program

Before proceeding, it is necessary to briefly define certain key accounts related to the Bank of Baghdad's operations:

Interest Expense (Payable Interest):

Interest paid by the bank to depositors or lenders—such as interest on savings accounts, fixed deposits, and loans received from other banks. These are classified as expenses that the bank must pay.

Interest Income (Receivable Interest):

Interest earned by the bank from customers in exchange for loans and credit facilities—such as interest on personal loans, commercial loans, and credit cards. These are classified as revenue.

Net Interest Income = Interest Income – Interest Expense.

Net Commission Income:

Revenue generated from banking services – Commission expenses.

Net Interest and Commission Income = Net Interest Income + Net Commission Income.

Net Foreign Exchange Gains:

Profits resulting from the buying and selling of foreign currencies, exchange rate fluctuations, and outward transfers.

Other Investment Income:

Revenue generated from the bank's investments that are unrelated to direct banking operations—such as dividends, bond income, profits from investee companies, and returns on investment properties.

Audit Program for Debit Interest, Credit Interest, and Net Interest Income at Baghdad Private Bank

Comprising two formats:

1. Paper-based audit program

2. Electronic or digital audit program

First: Paper-based Audit Program for Debit and Credit Interest

Audit Objectives: The program aims to verify the accuracy of interest calculations, the completeness of revenue and expense recording, compliance with contracts and regulations, the correctness of posting to financial statements, and the absence of errors or manipulation.

Sequence	Audit Objective	Audit Procedures	Required Documents	Audit Result
1	Verifying the accuracy of debit interest	Reviewing loan interest calculations	Loan Agreements – Account Statements	✓ / ✗
2	Verifying the accuracy of interest income	Review of Deposit Interest Rates	Deposit Contracts	✓ / ✗
3	Verification of Interest Rates	Price Matching with Bank Instructions	Contracts and Instructions	✓ / ✗
4	Verifying the validity of the time period	Reviewing the number of days or months	Account Statements	✓ / ✗
5	Verifying the correctness of the posting	Reconciling the journal with the general ledger	Journal and General Ledger	✓ / ✗
6	Accreditation Verification	Management Approval Review	Financial Statements	✓ / ✗
7	Ensuring the absence of illusory benefits	Matching interest with the principal of the loan or deposit.	Contracts	✓ / ✗
8	Verifying the accuracy of the disclosure	Review of the presentation of accounts in the financial statements.	Financial Statements	✓ / ✗

Benefits Audit Worksheet

Account Number	Account Type	Principal amount	interest rate	Duration	Accrued interest	Recorded interest	the difference
101	Loan	**10000000**	**%8**	year	**800000**	**800000**	There is no difference.
102	Fixed deposit interest	**30000000**	**%9**	year	**2700000**	**2650000**	There is a difference
103	Savings account interest	**50000000**	**%4**	Six months	**2000000**	**2000000**	There is no difference.
104	Commercial loans	**90000000**	**%5**	year	**4500000**	**4500000**	There is no difference.
105	Personal loans	**60000000**	**%6**	year	**3600000**	**3500000**	There is a difference
106	Dollar purchase	**40000000**	**%1.5**	Six months	**600000**	**600000**	There is no difference.
107	Dollar sale	**50000000**	**%3.5**	Six months	**1750000**	**1750000**	There is no difference.
108	Savings account interest	**110000000**	**%4**	Six months	**4400000**	**4400000**	There is no difference.
109	Outward remittances	**200000000**	**%5**	monthly	**10000000**	**10000000**	There is no difference.
110	Investment income	**500000000**	**%3.5**	year	**17500000**	**17500000**	There is no difference.

Second: Electronic or Digital Auditing Program

It can be implemented using: Microsoft Excel, ACL Analytics, IDEA, or electronic banking systems.

Steps of Electronic Auditing

First: Receiving the database, which includes:

Account Number	Account Type	Principal amount	interest rate	Duration	Accrued interest
101	Loan	**10000000**	**%8**	year	**800000**
102	Fixed deposit interest	**30000000**	**%9**	year	**2700000**
103	Savings account interest	**50000000**	**%4**	Six months	**2000000**
104	Commercial loans	**90000000**	**%5**	year	**4500000**
105	Personal loans	**60000000**	**%6**	year	**3600000**
106	Dollar purchase	**40000000**	**%1.5**	Six months	**600000**
107	Dollar sale	**50000000**	**%3.5**	Six months	**1750000**
108	Savings account interest	**110000000**	**%4**	Six months	**4400000**
109	Outward remittances	**200000000**	**%5**	monthly	**10000000**
110	Investment income	**500000000**	**%3.5**	year	**17500000**

Second: Electronic recalculation of interest

Basic formula: Interest = Principal × Rate × Time

Example: If the loan principal = 10,000,000, the interest rate = 8%, and the term = one year, then the interest = 800,000.

Third: Comparison of calculated interest with recorded interest

Account Number	Accrued interest	Recorded interest	the difference
101	**800000**	**800000**	There is no difference.
102	**2700000**	**2650000**	There is a difference
103	**2000000**	**2000000**	There is no difference.
104	**4500000**	**4500000**	There is no difference.
105	**3600000**	**3500000**	There is a difference
106	**600000**	**600000**	There is no difference.
107	**1750000**	**1750000**	There is no difference.
108	**4400000**	**4400000**	There is no difference.
109	**10000000**	**10000000**	There is no difference.
110	**17500000**	**17500000**	There is no difference.

Fourth: Electronic Audit Tests

a) Abnormal Interest Rate Test

Objective: To detect interest rates that violate regulations.

Example: A standard interest rate range of 7%–10%, while an account exists with an 18% rate.

b) Duplicate Account Test

Method: Using the "Duplicate Values" function in Excel.

c) Negative or Zero Interest Test

Objective: To detect errors or fictitious accounts.

d) Time Period Test

Verification of: Number of days and contract start and end dates.

Electronic Audit Follow-up Form

Testing	Implementation Method	The Result	Notes
Interest recalculation	Equations Excel	Non-compliant	
Interest rate verification	Filter	Compliant	
Duplicate detection	Duplicate Values	None	
Posting reconciliation	Pivot Table	None	
Month-to-month comparison	Charts	Non-compliant	

Required audit evidence:

•Loan agreements, deposit agreements, account statements, interest rate directives, journal entries, trial balance, financial statements.

Potential errors to watch for:

•Interest rates differing from directives

•Unusually high interest amounts

•Absence of an agreement

•Discrepancies between calculated and recorded interest

•Recording interest for incorrect periods

•Duplicate entries

Section Five – Conclusions and Recommendations

The Conclusions

1.Artificial intelligence plays a role in designing digital audit programs, thereby increasing the efficiency of planning, execution, and control procedures within audit operations.

2.The use of artificial intelligence techniques has enhanced the auditor's ability to analyze vast amounts of banking data with greater accuracy and speed compared to traditional paper-based audit methods.

3.Artificial intelligence applications have contributed to strengthening the risk assessment process by enabling the early detection of unusual transactions and potential indicators of fraud, errors, manipulation, or forgery.

4.The use of artificial intelligence improves the quality of audit programs by providing real-time information that supports the external auditor's professional decision-making.

5.The implementation of artificial intelligence has increased the effectiveness of digital internal controls within the bank through the continuous monitoring of financial and banking operations.

6.Study results demonstrated a statistically significant positive relationship between the level of artificial intelligence technology usage and the efficiency of audit program design.

7.Artificial intelligence tools have helped reduce the time and effort required to prepare audit programs and execute their procedures.

8.Challenges remain regarding the implementation of artificial intelligence in private Iraqi banks, including limited technical infrastructure, a shortage of specialized expertise, and high implementation costs.

9.Effective use of artificial intelligence requires updating auditors' skills and providing training on modern digital technologies. 10. The use of artificial intelligence in audit programs contributes to improving the reliability of financial reports and enhancing stakeholder confidence in accounting information.

THE RECOMMENDATIONS

1. Expand the adoption of artificial intelligence applications within the internal and external audit departments of Iraqi private banks, given their role in improving the efficiency and effectiveness of audit processes.
2. Transition from paper-based audit programs to digital audit programs that utilize big data analytics and machine learning to detect errors, fraud, and potential risks.
3. Strive to provide the necessary infrastructure—including hardware, software, and advanced databases—to support artificial intelligence applications in the banking sector.
4. Develop auditors' skills by organizing specialized training programs in artificial intelligence, data analytics, and digital auditing to enhance their professional and technical competence.
5. Utilize artificial intelligence tools throughout the digital audit process, ranging from planning and risk assessment to procedure execution and report preparation.
6. Strengthen internal control and cybersecurity systems to ensure the protection of banking data used in artificial intelligence applications and to prevent unauthorized access.
7. Update audit methods and procedures to align with the digital work environment and the rapid advancements in artificial intelligence technologies.
8. Encourage collaboration among banks, universities, and professional institutions to develop innovative AI-based audit solutions and to share expertise and knowledge. 9. Conduct continuous assessments to measure the effectiveness of AI systems used in auditing, ensuring the accuracy of their outputs and their alignment with supervisory objectives.
10.Adhere to professional standards governing the use of AI in banking audits, in accordance with international auditing and governance standards.

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