

IMPROVING AUDIT QUALITY ON THE BASIS OF ARTIFICIAL INTELLIGENCE

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Abstract. This study provides a comprehensive examination of the impact of artificial intelligence (AI) technologies on auditing activity. The relevance of the work is determined by the need to modernize audit processes under the conditions of the digital economy. The study systematically analyzes the effect of AI tools on the effectiveness, accuracy and reliability of the audit. In particular, it sets out the opportunities for processing large volumes of data, detecting unusual transactions and forecasting audit risks. At the same time, the paper discusses the problems that arise in the practical implementation of artificial intelligence, including the insufficient development of technological infrastructure, the shortage of qualified personnel and cybersecurity issues. On the basis of the findings, research-based, practice-oriented recommendations are developed for the effective integration of artificial intelligence into the audit system.

Keywords: artificial intelligence, audit quality, audit risk, digital audit, Big Data, machine learning, analytics, fraud detection, financial control, audit methodology, automation, risk management, real-time monitoring.

INTRODUCTION

Today, the economy of Uzbekistan is undergoing a rapid digital transformation. The concept of the digital economy has become one of the strategic directions aimed not only at improving the quality of public administration and services but also at expanding the national digital infrastructure and developing science and innovation. Through the decrees and resolutions of President Shavkat Mirziyoyev, the "Digital Uzbekistan – 2030" strategy has been adopted, which identifies digital technologies and artificial intelligence as a priority direction of national development.

The introduction of artificial intelligence (AI) technologies is opening up a wide range of opportunities in the social and economic spheres of the country. For example, the Presidential Decree "On additional measures for the further development of artificial intelligence technologies," signed in 2025, envisages the implementation of nearly 100 AI projects by 2026. In addition, it is planned to attract more than USD 1 billion in foreign investment for the development of AI infrastructure by 2030. Special measures have also been determined for the establishment of AI laboratories in higher education institutions and for the training of experts and a new generation of specialists.

Another important initiative is the launch of the national portal "ai.gov.uz". This platform brings together information on all areas related to AI, including projects, start-ups, free online courses and government programs. It serves as the coordinating center of the digital ecosystem and creates the groundwork for the digitalization of internal audit and control systems as well.

In the current economic environment, the audit system is an important mechanism for ensuring financial stability and increasing the transparency of the activities of business entities. At

the same time, as the processes of digital transformation accelerate, traditional audit approaches are partly losing their effectiveness.

Traditional audit practice is based largely on sampling methods, which means that not all data are fully covered. In addition, there is a high level of dependence on the human factor and there are limitations in processing large volumes of data. For this reason, the introduction of innovative technologies is of great importance in improving auditing activity.

Artificial intelligence technologies enable auditors to analyze data in real time, to detect anomalies and to assess risks. This increases the accuracy and reliability of audit results.

The aim of this study is to examine in depth the impact of artificial intelligence on audit quality and to determine its role in auditing practice.

LITERATURE REVIEW

As today's business environment becomes increasingly complex, the importance of the internal audit system is growing further. Internal audit plays an important role as an independent analytical activity in ensuring management effectiveness in organizations, managing risks and assessing the reliability of internal control mechanisms. Traditional audit methods are conducted mainly on the basis of sample testing, manually performed control work, interviews, observation and the auditor's professional experience. However, the rapid development of digital technologies and the sharp increase in the flow of data require auditors to analyze a larger number of transactions in a shorter period, to broaden the scope of control and to provide rapid and accurate conclusions. In this respect, artificial intelligence technologies are seen as an innovative tool that is opening a new stage in the internal audit system.

Resolution No. PQ-282, adopted on the gradual introduction of International Financial Reporting Standards (IFRS), is one of the important legal foundations for the improvement of internal audit activities. The document places particular emphasis on ensuring the transparency of management, on aligning reporting with international standards and on strengthening the control system. As a result, there is a growing need to introduce technologies that enable automated control, digital monitoring and the early identification of risks in internal audit processes.

In recent years, the use of digital technologies and artificial intelligence in audit practice has been widely studied in academic research. International experience shows that AI technologies are significantly more effective than traditional audit approaches, enabling the automation of audit activity, the in-depth analysis of large volumes of data and real-time control. While the research of Brynjolfsson and McAfee identifies artificial intelligence as one of the key factors in improving business performance, Davenport notes that AI-based analytical platforms enhance the accuracy and reliability of audit results. Big Data and machine-learning technologies enable auditors to assess risks in advance, to detect unusual transactions and to identify weaknesses in the internal control system.

Applied research conducted by PwC, Deloitte and EY shows that AI-based audit platforms make it possible to analyze all transactions with full coverage. In particular, Deloitte reports note that the number of errors identified through anomaly-detection technologies has decreased significantly. It is also noted that Robotic Process Automation (RPA) technologies are helping to reduce the time required for audit processes and to mitigate shortcomings associated with the human factor.

The application of process-mining technology in internal audit is also of particular importance. According to van der Aalst's research, process mining is used to analyze business processes in enterprises on the basis of electronic data, providing the ability to determine the actual state of these processes. This, in turn, helps to increase the transparency and effectiveness of the audit. The "continuous auditing" concept developed by Moffitt and Vasarhelyi substantiates the proposition

that the audit system of the future will rely on real-time monitoring and artificial intelligence technologies.

In Uzbekistan as well, considerable attention is being paid to the development of the digital economy and electronic audit systems. The "Digital Uzbekistan – 2030" strategy establishes the digitalization of state financial control, corporate governance and internal audit systems as one of the priority tasks. In addition, the presidential decrees and resolutions aimed at the development of artificial intelligence identify the broad application of AI technologies across various sectors of the economy, the formation of modern infrastructure and the training of qualified personnel as the main directions. These developments reinforce the need to update the internal audit system on the basis of modern technologies.

In recent years, the accounting of fixed assets and the issues associated with their revaluation have become one of the important areas of internal audit. Research notes that determining the depreciation of fixed assets, conducting impairment tests and organizing these processes in accordance with the requirements of IFRS are pressing issues for audit. It is emphasized that, in some enterprises, methodological shortcomings in determining the fair value of assets may have a negative impact on the reliability of financial statements.

In addition, the processes of economic modernization are expanding the functions of internal audit, shaping it not only as a control function but also as an analytical and advisory institution. In modern audit practice, such issues as assessing the effectiveness of investment projects, determining the profitability of assets and analyzing the impact of depreciation policy on the financial position of the enterprise occupy an important place. The risk-based audit model, in turn, enables the early identification of errors related to fixed assets and of inefficient capital investments.

The implementation of ERP systems is also significantly changing audit processes. With the help of such systems, the accounting of fixed assets and the processes of inventory and depreciation are automated, which increases the accuracy and speed of audit engagements. The digital trail of operations known as the "audit trail" makes it possible to track transactions within a short time and to identify errors. At the same time, ERP integration gives auditors the opportunity to assess risks on the basis of real-time data.

Among local scholars, the works of Y. Abduraxmonova, B. Qosimov and A. Umurzoqov provide an extensive analysis of digital transformation and of electronic audit and monitoring systems. In their view, AI-based audit systems serve to enhance the effectiveness of control, to reduce the number of errors and to improve the quality of management decision-making. At the same time, problems related to the application of AI technologies — including cybersecurity, data confidentiality, algorithmic errors and the increasing demands placed on the digital skills of auditors — are also noted.

Overall, the analysis of international and domestic literature shows that artificial intelligence and digital technologies are of strategic importance for the development of the internal audit system. Modern technologies serve as an important instrument in enhancing audit quality, strengthening the effectiveness of control and ensuring the reliability of financial statements. At the same time, a strong technological base, qualified specialists and an advanced legal and regulatory framework are required for the effective implementation of AI technologies.

MAIN PART

Artificial intelligence technologies are becoming established in audit activity not merely as an auxiliary tool but as a system supporting strategic decision-making. In modern audit practice, AI algorithms make it possible to collect, process and analyze large volumes of both financial and non-financial data automatically.

In addition, AI-based systems enable auditors to perform deeper analyses by identifying hidden relationships within the data. For example, machine-learning models can predict potentially risky future transactions on the basis of historical data.

Furthermore, AI technologies bring the audit process closer to real time and establish continuous monitoring. This creates a system of uninterrupted control, in contrast to traditional periodic auditing.

Under digital audit conditions, audit engagements are carried out on the basis of electronic documents, automated accounting software and large databases. This enables auditors to achieve full coverage of financial transactions, to introduce continuous-audit elements and to detect errors promptly. Practice shows that, in digital audit, the following factors are of particular importance when determining materiality:

- the level of the information system of the audited entity;
- the components of audit risk (inherent risk, control risk, detection risk);
- the real-time generation of financial data;
- the level of use of automated analytical tools.

The table below presents a comparison of approaches to determining materiality under traditional and digital audit conditions.

Table 1

Comparison of approaches to determining materiality in audit engagements

Indicator	Traditional audit	Digital audit
Data volume	Limited	Large volumes (Big Data)
Method of determining materiality	Static percentages	Dynamic and risk-based
Auditor's professional judgment	Plays the principal role	Supported by analytical tools
Audit coverage	Sample testing	Near-complete coverage
Accuracy of results	Medium	High

Artificial intelligence has a comprehensive impact on audit quality, and this impact manifests itself in several important ways.

First, the ability to process large volumes of data expands the scope of the audit. Whereas traditional audit uses the sampling method, AI makes it possible to analyze all transactions in full.

Second, the effectiveness of fraud detection increases. Artificial intelligence uses anomaly-detection algorithms to identify unusual transactions, which is of particular importance in uncovering concealed fraud schemes.

Third, the process of assessing audit risks becomes more accurate. The predictive capabilities of AI models enable auditors to identify high-risk areas in advance.

Fourth, errors associated with the human factor are reduced. Automated systems lower the influence of subjective judgment and increase the objectivity of audit results.

As a result, audit quality improves not only in terms of accuracy but also in terms of speed and reliability.

The chart below presents the trend whereby materiality decreases as the level of audit risk rises. The chart is intended for use as a visual analytical tool in this scientific article.

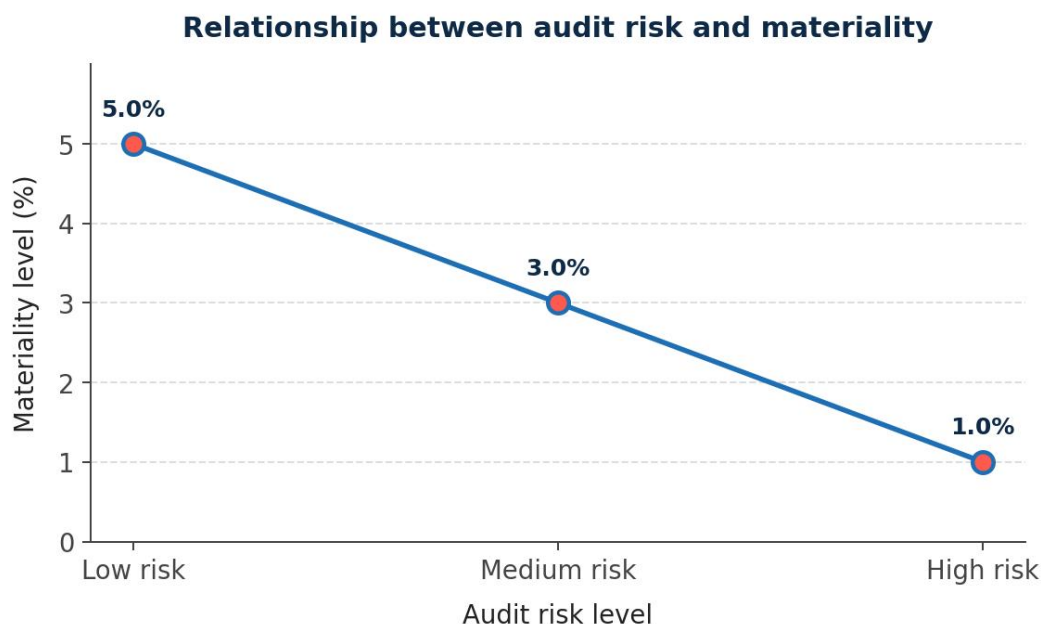


Figure 1. Relationship between audit risk and materiality

Figure 1 reflects the interrelationship between the level of audit risk and the level of materiality. As the chart shows, when audit risk is low, materiality is set at a relatively high percentage. In this case, the auditor concludes that certain errors in the financial statements may not significantly affect users' decisions. When audit risk rises to a moderate level, materiality decreases accordingly. This necessitates more careful planning of the audit engagement and the collection and analysis of a larger volume of audit evidence. Where audit risk is high, materiality is set at a minimum level, and the depth and accuracy of the audit engagement are substantially increased. This chart clearly demonstrates the importance of a risk-oriented approach under digital audit conditions and confirms that taking audit risks into account when determining materiality serves to enhance audit quality and to ensure the reliability of audit conclusions.

Challenges in integrating AI into the audit system

The process of integrating artificial intelligence technologies into the audit system is complex and faces a number of obstacles.

First and foremost, the insufficient development of technical infrastructure is a key problem. AI systems require high computing power and modern IT infrastructure.

A second problem is the shortage of qualified specialists. To make effective use of artificial intelligence, auditors must possess knowledge not only in finance but also in IT and data analytics.

A third problem is related to information security. The risk of data leakage or cyberattacks rises in the course of working with large volumes of data.

In addition, the implementation of AI technologies requires significant financial expenditure, which is particularly challenging for small and medium-sized enterprises.

Resolving these problems is an important condition for the broad implementation of AI technologies.

Prospects for development

In the future, artificial intelligence is expected to become a key component of the audit system. As a result of digital transformation, audit activity will increasingly take an automated and digitalized form.

AI-based systems will expand the possibilities for conducting audits in real time, maintaining continuous monitoring and generating automated reports. This will bring the effectiveness of auditing activity to a new level.

In addition, the development of AI technologies requires the elaboration of new methodologies consistent with international auditing standards. In the future, the integration of the audit and IT fields will deepen further and will give rise to new professional competencies.

Furthermore, artificial intelligence systems integrated with blockchain technologies will further enhance the transparency and reliability of the audit process.

CONCLUSION

The results of the study show that artificial intelligence is an important innovative factor in the modernization of the audit system. It increases the effectiveness of the audit process, reduces errors and expands the capabilities for detecting fraud.

At the same time, in order to apply AI technologies effectively, the development of the technical base, of human-resource potential and of information security is essential.

In the future, artificial intelligence is expected to become an integral part of the audit system and to fundamentally improve its quality.

First, it has been substantiated that the financial condition of enterprises, as an economic category, is manifested through the state of their financial resources, their solvency, liquidity, profitability and financial stability. Financial condition is an important indicator reflecting the overall economic efficiency of the enterprise, and its proper assessment determines the quality of management decisions.

Second, the analysis of the legal and regulatory foundations of auditing the financial condition has shown that, in Uzbekistan, auditing activity is carried out on the basis of an adequately developed regulatory framework. In particular, the Law "On Auditing Activity," the national auditing standards and the rules of accounting form the legal basis of the audit process. At the same time, it has been established that the introduction of the International Standards on Auditing is of great importance in bringing the national audit system to the international level.

Third, it has been substantiated that, although the process of harmonizing the financial-audit system of Uzbekistan with international standards is developing consistently, there is still a need for further refinement of this process. In particular, the modernization of audit methodology, the upgrading of auditors' qualifications and the strengthening of mechanisms for audit-quality control have been identified as important directions.

Fourth, the necessity of transforming the audit system from a traditional control mechanism into a modern analytical and predictive system in the context of the digital economy has been scientifically substantiated. It has been clarified that the introduction of Big Data, artificial intelligence and blockchain technologies into the audit process serves to enhance audit effectiveness, to reduce audit risks and to ensure the reliability of financial information.

Fifth, it has been shown that the development of the audit system is inseparably linked not only with technological innovations but also with the improvement of the institutional environment. A strong institutional base is an important factor in enhancing audit quality, strengthening financial discipline and ensuring investor confidence.

Overall, improving the system for auditing the financial condition of enterprises is an important condition for economic development; it serves to ensure the reliability of financial information, to develop the corporate-governance system and to strengthen the integration of the national economy into the global financial system. For this reason, developing the audit system in line with modern requirements and bringing it into conformity with international standards must be regarded as a pressing scientific and practical task.

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