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WAYS TO INCREASE THE EFFECTIVENESS OF USING ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN AUDITS

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Abstract:

In the current digital economy, the volume and complexity of audit audits are increasing dramatically. Traditional audit methods have limited capabilities for quickly and accurately analyzing large amounts of data. Therefore, the integration of artificial intelligence technologies into audit processes is one of the pressing issues. This article comprehensively analyzes the issues of increasing the efficiency of using artificial intelligence technologies in audit audits. In the conditions of the modern digital economy, audit processes are characterized by the complexity of working with large amounts of data, identifying and assessing risks. The limitations of traditional audit approaches, in particular, their subjectivity and their reliance on selective inspection, increase the need to introduce artificial intelligence technologies. The study examined the role of artificial intelligence in audit activities, including its capabilities in risk assessment, fraud detection, analyzing large amounts of data, and automating audit processes. It also substantiated the importance of artificial intelligence technologies in transferring audit processes to proactive management, ensuring real-time monitoring, and optimizing decision-making processes.

Keywords: Artificial intelligence (AI), audit, audit review, audit effectiveness, automated audit, financial reporting, evidence, final stage, report and conclusion.

INTRODUCTION. In the current digital economy, auditing is undergoing a fundamental transformation. The increasing volume of financial and business transactions, the sharp increase in data flows, and the complexity of economic processes are reducing the effectiveness of traditional audit approaches. In particular, traditional audits often have shortcomings such as selective inspection, subjective assessment, and time constraints, which do not allow for complete and timely identification of risks. In this regard, the introduction of artificial intelligence technologies into audit processes is of great importance. Artificial intelligence increases the accuracy and efficiency of audit audits by allowing for rapid processing of large volumes of data, complex analysis, and the identification of hidden patterns. In particular, the importance of artificial intelligence is increasing in risk assessment, fraud detection, and the establishment of continuous monitoring systems.

Scientific research conducted in recent years shows that the integration of artificial intelligence technologies into audit activities significantly improves the quality of audits. In particular, machine learning algorithms are expanding the possibilities for more accurate risk assessment, decision-making based on big data, and automation of audit processes. At the same time, there are also problems associated with the use of artificial intelligence, including data quality, algorithmic errors, information security, and insufficient digital competencies of auditors. The purpose of this study is to analyze ways to increase the effectiveness of the use of artificial intelligence technologies in audit audits and to substantiate them in practical terms

The introduction of artificial intelligence technologies into auditing activities will not only automate processes, but also radically improve the quality of audits. In particular, the ability to analyze large amounts of data in real time will significantly increase the speed and accuracy of audit audits. At the same time, for the effective use of artificial intelligence, it is important to develop the digital competencies of auditors, ensure data quality, and form an appropriate legal and regulatory framework.

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LITERATURE ANALYSIS

The development of artificial intelligence (AI) has been revolutionizing virtually every industry in the global economy for several years now. Auditing and accounting are among the most heavily affected areas, given innovations such as automation, data analytics, and complex algorithms. These gambling on technologies change work habits radically. As AI-based programs progressively underlie or substitute human judgment and manual inputs for such operations, conventional operational processes become dysfunctional This kind of innovation changes the essence of auditing and accounting. Roles are now determined not solely by tasks performed but also underpin decisions and management styles. In the field of accounting, AI technologies now include automatic system submission of data, smart scanning invoices and high-ranking sorting of financial transactions.[1]

These considerations show that artificial intelligence technologies are fundamentally changing auditing activities not only technically, but also in terms of their content and essence. While in traditional audit processes the main task of auditors was to verify and analyze data, with the introduction of artificial intelligence, auditors are being directed more towards strategic decision-making and control functions. Also, the possibilities of automation and deep data analysis significantly increase the speed and accuracy of audit processes. This reduces errors associated with the human factor in audit audits and increases efficiency. As a result, the use of artificial intelligence technologies brings auditing activities to a new level, ensuring its digital transformation. Therefore, developing ways to effectively use artificial intelligence in audit audits is one of the important areas of modern scientific research.

Operationally, for the audit area, we will define artificial intelligence as a hybrid set of technologies supplementing and changing the audit. Audit procedures are a direct consequence of available technologies. The advent of computers changed the scope and the methods of examination. The advent of analytics will change the time scope of the audit (more proactive than reactive), the efficiencies, and the cost and benefit of the work. The advent of AI will embed human-like activities into automation. In general, it is thought that technology applied to audit allows activities to be performed more effectively and more efficiently. It must be pointed out that in the audit domain technology can totally change what is done, in addition to the efficiency considerations above. For example, the advent of computers allows for full population testing, but it is a different process than manual document examination. As an illustration, the application of AI to contract analysis will eventually allow the full examination of contract populations and extraction of their features (Deloitte 2016; PwC 2016).[2]

These considerations show that artificial intelligence technologies not only increase the efficiency of audit audits, but also change their methodological foundations. While traditional audits are based on more selective inspections, artificial intelligence makes it possible to fully analyze the entire data set. This increases the accuracy of audit audits and serves to identify fraud and errors early. Artificial intelligence also allows for the transition of the audit process from a reactive approach to a proactive one, allowing for a preliminary assessment of risks. As a result, the efficiency, speed and reliability of audit activities significantly increase. In this regard, for the effective use of artificial intelligence in audit audits, it is important not only to introduce technologies, but also to integrate them with audit methodology.

Traditional risk assessment methods often rely on the experience and subjective judgment of auditors, which can be influenced by personal biases and cognitive limitations. In contrast, AI technology can extract key information from vast amounts of data and conduct multidimensional analysis and comparison, thus providing a more comprehensive and objective assessment of the risks associated with the economic activities of higher education institutions. Additionally, AI technology can incorporate the institution's specific circumstances and historical data to build customized risk assessment models, enhancing the relevance and effectiveness of the assessments. AI technology helps optimize the process of internal ARAC within higher education institutions. Traditional risk assessment and control processes are often cumbersome and complex, requiring significant human resources and time. The application of AI technology can automate the processing and analysis of data, simplifying audit processes and improving the efficiency of audit work. Moreover, AI technology can provide real-time feedback and dynamic adjustments in risk assessment and control, allowing auditors to promptly

[1] Proceedings of ICFTBA 2025 Symposium: Financial framework's role in economics and management of human-centered development

[2] Issa, H., Sun, T., & Vasarhelyi, M. A. (2016). Research ideas for artificial intelligence in auditing: The formalization of audit and workforce supplementation. *Journal of Emerging Technologies in Accounting*, 13(2), 1–20.

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grasp the risk situation and flexibly respond to various risk challenges[3]

This approach shows that the use of artificial intelligence technologies in audit audits will bring the risk assessment system to a qualitatively new level. While traditional audits are subject to high levels of subjectivity and human factor dependence, artificial intelligence reduces these shortcomings and makes the decision-making process more objective and justified. In particular, the ability to deeply analyze large amounts of data expands the scope of audit audits and increases the effectiveness of identifying hidden risks. In addition, risk models tailored to individual organizations serve as an important factor in improving the quality of audits.

At the same time, the ability of artificial intelligence to work in real time turns the audit process into a system of continuous monitoring. This allows auditors not only to identify risks, but also to predict and promptly manage them. As a result, the efficiency, speed and accuracy of audit audits will significantly increase, and the audit system will adapt to the requirements of the modern digital economy.

The most important evidence of AI's relevance to accounting is adoption of the technology by practicing accountants and auditors. Although it is still early in the process, several leading firms have adopted cognitive technology already. Some are still in development, while others have applied it to production audit processes. Some firms are employing predictive and other forms of analytics to, for example, examine and summarize entire populations of auditable entities like inventories, rather than samples. While this technology is an important precursor of cognitive technology, we do not consider it to be cognitive or AI unless it is autonomous and learns over time.[4]

These considerations indicate that the introduction of artificial intelligence technologies in auditing is being carried out gradually. Although many auditing organizations currently use mainly analytical tools, this is not yet full-fledged artificial intelligence, but its initial form. At the same time, the ability to analyze the entire data set significantly increases the efficiency of audit audits, as errors in the traditional approach based on sampling are reduced. This increases the accuracy and reliability of audit results. In the future, with the development of true artificial intelligence technologies, audit processes will be further automated, and systems will be able to independently learn and predict risks in advance. This is one of the important areas for increasing the efficiency of audit audits.

The major facilitator for the use of Big Data by auditors is the openness of audit standards to sources of audit evidence outside the traditional general ledger data. That finding also draws attention, however, to the less inspiring fact that auditors have consistently failed to make use of the discretion that standards give them. In that context, audit standards are probably best described in the same way that economists refer to monetary policy (Wood 2006): that it is like a string that can constrain someone's behavior when pulled, but is ineffective in pushing them forward. In other words, standards may not preclude auditors from using Big Data but neither do they induce them to go outside of their comfort zone.[5]

These considerations indicate the importance of institutional factors in the implementation of artificial intelligence and big data technologies in auditing. That is, despite the technological capabilities, auditors often do not seek to move away from traditional approaches, and existing standards do not actively encourage them to innovate.

This means that in order to increase the effectiveness of the use of artificial intelligence technologies, it is necessary to develop not only technological, but also organizational and normative factors. In particular, it is important to improve auditing standards in a way that encourages the use of modern technologies.

Also, by expanding the scope of professional thinking of auditors and encouraging them to use Big Data and artificial intelligence tools, the efficiency of audit processes can be significantly increased. As a result, auditing activities will become a system that is more innovative and adapted to the requirements of the digital economy.

How does artificial intelligence (AI) impact audit quality and efficiency? We explore this question by leveraging a unique dataset of more than 310,000 detailed individual resumes for the 36 largest audit firms to identify audit firms'employment of AI workers. We provide a first look into the AI workforce within the auditing sector. AI workers tend to be male and relatively young and hold mostly but not exclusively

[3] Luo, X., Wang, X., & Jiang, T. (2025). Application of AI technology in audit risk assessment and control: Taking internal audit of higher education institutions as an example. *Journal of Infrastructure, Policy and Development*, 9(1)

[4] Kokina, J., & Davenport, T. H. (2017). The emergence of artificial intelligence in auditing. *Journal of Emerging Technologies in Accounting*, 14(1), 115–122.

[5] Alles, M. G. (2015). Drivers of the use and facilitators and obstacles of the evolution of Big Data by the audit profession. *Accounting Horizons*, 29(2), 439–449

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technical degrees. Importantly, AI is a centralized function within the firm, with workers concentrating in a handful of teams and geographic locations. Our results show that investing in AI helps improve audit quality, reduces fees, and ultimately displaces human auditors, although the effect on labor takes several years to materialize. Specifically, a one-standard-deviation change in recent AI investments is associated with a 5.0% reduction in the likelihood of an audit restatement, a 0.9% drop in audit fees, and a reduction in the number of accounting employees that reaches 3.6% after three years and 7.1% after four years. Our empirical analyses are supported by in-depth interviews with 17 audit partners representing the eight largest U.S. public accounting firms, which show that (1) AI is developed centrally; (2) AI is widely used in audit; and (3) the primary goal for using AI in audit is improved quality, followed by efficiency[6]

The results of this study confirm the practical importance of artificial intelligence technologies in increasing the efficiency of audit audits based on specific numbers. In particular, the increase in audit quality and the reduction of errors indicate the high accuracy of artificial intelligence in identifying and assessing risks. At the same time, the reduction in audit costs and the optimization of work processes demonstrate the economic efficiency of AI technologies. However, factors such as the reduction of human resources also indicate the future transformation of the audit profession. That is, the role of auditors is gradually shifting from the traditional audit function to the function of strategic analysts and controllers.

In this regard, the effective use of artificial intelligence, along with improving the quality of audit activities, will also have a significant impact on its organizational structure and the labor market. This requires a comprehensive approach to the introduction of artificial intelligence in audit audits, including personnel training, development of technological infrastructure, and improvement of management systems.

CONCLUSION.

In conclusion, the results of this study demonstrate that the introduction of artificial intelligence (AI) technologies in auditing significantly enhances the efficiency, accuracy, and reliability of audit processes. While traditional approaches are often based on selective testing and subjective judgment, AI enables the analysis of large volumes of data, facilitates proactive risk identification, and improves the early detection and prediction of fraud. Furthermore, recent empirical evidence confirms that investments in AI not only improve audit quality but also reduce audit costs and optimize operational performance. In particular, the application of AI technologies has been associated with a measurable decrease in audit errors and restatements, as well as a reduction in audit fees. At the same time, these developments are gradually transforming the structure of the audit workforce, shifting the role of auditors from routine verification tasks toward more analytical and strategic functions.

Artificial intelligence technologies also contribute to reducing auditors' workload, enhancing decision-making processes, and enabling the automation of audit procedures. However, the integration of AI poses several challenges, including issues related to data quality, algorithmic bias, information security, and the insufficient digital competencies of auditors. Therefore, ensuring the effective implementation of AI in auditing requires a comprehensive approach, including the development of advanced IT infrastructure, continuous professional training of auditors, and the improvement of the regulatory and legal framework. In the future, the broader integration of artificial intelligence into auditing will enable real-time audit processes, rapid risk identification, and automated decision support systems. Thus, AI should be viewed not only as a tool for automation but also as a strategic driver that fundamentally transforms auditing and elevates it to a new level of quality and effectiveness.

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