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Analysis the Impact of Artificial Intelligence on the Optimization of Modern Audit Efficiency

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The integration of artificial intelligence in the audit and accounting optimizes verification processes, improves the quality of data analysis and control of financial flows. At the same time, new technologies present challenges regarding data protection and confidentiality. The purpose of this study is to analyze the impact of AI technologies on audit processes and fraud detection. The object of research is modern audit practices using artificial intelligence. Research methods include the analysis of scientific publications and practical cases on the implementation of technology.

Research results. The implementation of artificial intelligence in audit procedures allows the automation of routine tasks, such as processing a large number of transactions, checking compliance with standards, collating data and compiling reports. Technology significantly reduces the likelihood of human error due to fatigue or carelessness. AI is capable of processing large amounts of information much faster than humans, which is especially important when auditing big corporations or institutions (Yakovenko et al, 2024). It helps companies better meet regulatory requirements by automating reporting and compliance processes. AI is able to identify areas where regulatory requirements may not be met and suggest necessary adjustments. Figure 1 demonstrates the benefits of implementing artificial intelligence in audit, such as increased efficiency, reduced risk, and improved decisionmaking.

Fraud is one of the biggest challenges in today's financial systems. Traditional audit methods are often unable to quickly identify complex fraud schemes due to limited human resources and time. However, machine learning algorithms provide constant monitoring of financial operations and systems in real time, which makes it possible to quickly detect threats and anomalous events. One of the examples of the successful implementation of AI in auditing is the Botkeeper system, which automates most accounting processes and detect possible violations based on automatic transaction analysis. According to Deloitte, the implementation of automated systems based on AI reduced fraud detection time by 50%,

and reduced the number of false alarms by 40% in companies that actively use these technologies. Natural language processing (NLP) tools also help detect fraudulent schemes by analyzing textual data such as emails or fi nancial reports. Companies that use NLP detect 25% more fraudulent schemes compared to traditional audit methods (KPMG, 2024). On average, organizations that implement AI technologies detect fraud 40% faster than those that use traditional methods (Statista, 2024).

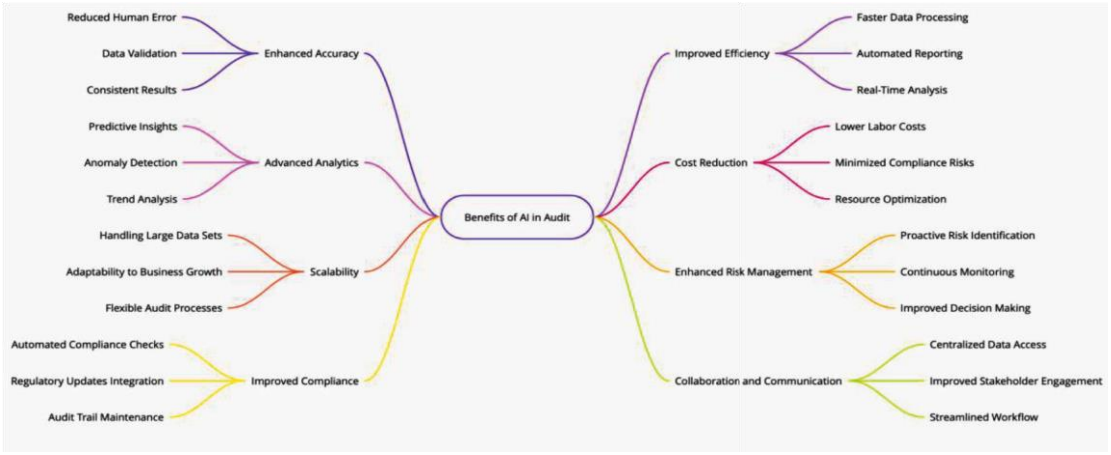

Figure 1. **Benefi ts of using artifi cial intelligence in audit**
Source: compiled by authors

Data protection is an important issue for companies implementing AI systems. Data encryption is one of the main security measures that protects confi dential information during its transmission and storage (Hevlych, 2023). According to a study by the Ponemon Institute, companies that use encryption reduce the cost of responding to security incidents by 60%. Multi-factor authentication is also an important element of data protection, that can block up to 99.9% of automated attacks (Ibrahim, 2024). Companies that use AI in auditing should also conduct regular checks of the system's security status, which will allow prompt detection and elimination of potential threats.

Conclusions. Th e implementation of artifi cial intelligence in audit signifi cantly increases its effi ciency and quality. Automation of routine tasks, big data analysis and natural language processing allow fraud to be detected at an early stage, reducing risks and increasing the accuracy of results. However, eff ective use of AI requires a high level of data security through encryption, multi-factor authentication, and regular security audits.

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