IRSTI 06.81.85
UDC 657.1
JEL M41, M42, P45, O33

https://doi.org/10.46914/1562-2959-2025-1-1-372-387

KIDIRMAGANBETOVA A.I,*[1]
PhD student.
*e-mail: cg.anar.ik@gmail.com
ORCID ID: 0009-0001-7955-211X
BAGIEŃSKA A.,[2]
PhD, professor.
e-mail: a.bagienska@pb.edu.pl
ORCID ID: 0000-0002-3053-8085
[1]Al-Farabi Kazakh National university,
Almaty, Kazakhstan
[2]Bialystok University of Technology,
Bialystok, Poland

ECONOMIC IMPLICATIONS OF TECHNOLOGICAL INNOVATIONS IN FORENSIC AUDIT: ENHANCING FINANCIAL INTEGRITY AND CORPORATE GOVERNANCE

Abstract

The article discusses innovative approaches in forensic audit and their impact on the detection and prevention of financial fraud. Modern technologies such as big data analytics, machine learning and blockchain are transforming traditional auditing methods, providing higher accuracy and efficiency in identifying anomalies in financial statements. However, with the introduction of these technologies, certain challenges arise, including the need for qualified personnel, high technology costs and problems integrating new methods into existing processes. The purpose of the is to analyse the advantages and disadvantages of using digital technologies in forensic auditing, assess their impact on the process of detecting financial misstatements, as well as disclose the economic effect of using such technologies. Based on the analysis of real-world cases and the application of a methodology based on a comparative analysis of traditional and innovative approaches, the article provides recommendations for practitioners in the field of audit and risk management. The results of the study emphasize the importance of adapting to new technologies and suggest ways to solve emerging problems, which can help increase confidence in financial reports and improve corporate governance. The article is of practical importance for audit firms, companies and researchers interested in current trends in forensic auditing and the fight against financial fraud.

Key words: financial reporting, digital technologies, forensic audit, fraud detection, artificial intelligence, blockchain, investment.

Introduction

Reliable financial reporting is the foundation for the successful functioning of capital markets and the economy. It allows companies to attract investments, ensure the trust of stakeholders and comply with regulatory requirements. Without accurate and reliable information, it is impossible to make the right management decisions, which can lead to financial losses and a decrease in confidence in the company. In addition, in the context of globalization, when companies do business in different countries, compliance with international financial reporting standards (IFRS, GAAP) becomes even more important to ensure comparability and transparency of data.

Recently, digital technologies have become an integral part of many professional fields, including forensic auditing. Auditors have gained new opportunities to detect fraud and misstatements in financial statements thanks to modern data analysis tools and methods such as machine learning, big data and artificial intelligence algorithms. Thanks to the use of these technologies, specialists can significantly improve the efficiency and accuracy of forensic audit, quickly processing large amounts of data and identifying anomalies that could go unnoticed using traditional methods.

Nevertheless, the introduction of digital technologies into forensic audit is a difficult task. Audit companies are facing new challenges related to data protection, risks associated with dependence on technology and the need to train staff in new skills. Thus, it is becoming increasingly clear that the study of the advantages and disadvantages of digital technologies in forensic auditing is crucial.

In this article, we will look at digital technologies used in forensic auditing and consider their advantages, such as increased efficiency and accuracy, as well as problems with their implementation. We hope that this research will form the basis for future research in this area and help auditors use digital tools more effectively.

The relevance of the topic is due to several key aspects that make this area of research significant and in demand:

1. The rise of financial crimes and fraud: in the context of globalization, digitalization and a complex financial ecosystem, cases of financial fraud are becoming more sophisticated and widespread [1]. Companies and organizations around the world face threats related to financial fraud, asset theft, accounting manipulation and other types of abuse. This requires the use of innovative methods of forensic audit to detect and prevent such violations in a timely manner.

2. The need for high-precision methods for detecting misstatements of financial statements: traditional audit methods are often not effective enough to identify complex fraud schemes, especially using digital technologies. Innovative approaches such as big data analysis, the use of artificial intelligence, machine learning, blockchain, and digital forensic analysis can significantly improve the process of detecting violations, increasing the accuracy and speed of auditing.

3. Development of technologies and digital tools: modern technologies provide new opportunities for audit analysis. Tools such as data analysis software (for example, IDEA or ACL), as well as process automation using robotic systems and machine learning algorithms, help to improve the control of financial transactions and identify abnormal transactions that may be an indicator of fraud [2].

4. Implementation challenges and practical challenges: Despite the many advantages, the introduction of innovative methods also faces a number of challenges. This concerns the high cost of technology, the need for qualified specialists and the difficulties of integrating new solutions into existing business processes. These aspects make the topic relevant for discussion, offering a balance between the benefits and challenges of using digital technologies in forensic auditing.

Thus, the study of innovative approaches in forensic audit, including their advantages and difficulties in application, allows us to offer solutions for effective detection of financial fraud, which is extremely important for modern companies and regulatory authorities.

The purpose of the article is to study modern innovative forensic methods, their advantages and problems in the detection of financial fraud, as well as to evaluate their practical effectiveness and economic effect on real examples and statistics by conducting an economic analysis.

The objectives of the article include such as:

- Study of modern innovative methods of forensic audit and their role in detecting financial fraud.
- Identifying the advantages of digital technologies such as AI, big data, and robotics in improving forensic audit processes.
- Identification of challenges and obstacles faced by companies in the implementation of these technologies.
- Analysis of real cases of successful application of innovations in forensic audit.
- Comparison of traditional audit and forced audit.

The object of the article's research is innovative methods and digital technologies used in forensic audits to identify and prevent financial fraud and misrepresentation of financial statements.

The subject of the article is organizations and companies that use innovative digital technologies in the process of forensic audit to identify and prevent financial fraud and misrepresentation of financial statements.

Big data, artificial intelligence (AI), machine learning (ML) and blockchain are examples of advanced technologies that are changing forensic auditing by changing traditional methods and making them more cost-effective.

By utilising such technologies, forensic auditing is becoming more transparent, faster and more efficient. This not only helps businesses perform better, but also contributes to the economic development of countries because:

- Overall economic losses from financial fraud are reduced.
- Stakeholder and investor confidence increases.
- Integration of advanced technology increases a company's competitiveness.

International research and real-life case studies from leading audit firms such as KPMG, EY and PwC, as well as the implementation of innovative solutions in the financial sector, confirm these changes.

The use of innovative digital technologies in forensic auditing significantly increases the effectiveness of detecting and preventing financial fraud, but also faces certain challenges associated with the integration of new methods and the need for qualified personnel.

The scientific novelty lies in the integration of coercive methods with traditional audit procedures, which makes it possible to increase their effectiveness and applicability in the modern information environment.

The practical significance of the article lies in the fact that the article can contribute to raising awareness of both audit firms and companies about the possibilities and advantages of using innovative technologies in forensic audits to more effectively identify and prevent financial fraud.

The introduction of effective methods of forensic audit can help to increase the confidence of investors, customers and other stakeholders in the financial statements of companies.

Thus, the article will be of practical importance for professionals in the fields of auditing, finance, risk management, as well as for researchers studying financial fraud and technology in this area.

In the conclusion of the article, the benefits of integrating forensic auditing with innovative techniques were reviewed, alongside a discussion of the strengths and challenges inherent in the use of these advanced methods within forensic auditing. The conclusion also presents ideas for modernizing processes through the introduction of digital technologies for enhanced audit.

Materials and methods

The practical value also lies in the development and description of a methodology that can be used by other researchers or practitioners to analyze data in the field of forensic audit.

The literature analysis includes a review of scientific publications, studies and reports on innovative approaches in forensic auditing and combating financial fraud.

The comparative analysis helped to compare traditional and forensic audits in identifying distortions in the financial statements of companies.

The study also applied case studies of companies using digital technologies (AI, Big Data, blockchain) in forensic audit.

Statistical analysis allowed us to estimate how many companies are willing to invest in their own methods of proactive audit in the fight against fraud.

Based on average data from audit and financial firms, an economic analysis of the return on investment through the introduction of digital products in forensic auditing was conducted. The result was confirmation of the possibility of reducing the firm's costs and shortening the payback period of the project.

A SWOT analysis was also carried out in terms of identifying strengths and weaknesses in the implementation of digital technologies in forensic audit.

The results of the article can serve as a basis for further research in the field of forensic audit, encouraging researchers to study new technologies and their impact on financial reporting.

Results and discussion

A proactive audit is a special type of audit designed to identify, investigate and prevent financial crimes and fraud. Unlike a regular audit, a forensic audit is not only engaged in verifying the compliance of financial statements with standards, but also in searching for anomalies and possible violations that may indicate fraud. Litigation often involves a proactive audit to provide evidence of fraud and other criminal acts.

Corruption, misappropriation of property, non-financial and financial fraud are the most common types of fraud in the preparation of accounting (financial) statements [3].

That is, the main purpose of this type of audit is to identify fraud, financial crimes, deviations and errors in financial statements. It is focused on detecting intentional violations and abuses, such as financial fraud, embezzlement, forgery of documents and violations of the law.

To provide a more in-depth understanding of forensic audit, we will analyze and highlight the key differences between forensic audit and traditional audit, as shown in comparative table 1.

Table 1 – The main differences between traditional audit and forensic audit

Criterion	Traditional audit	Forensic audit
Main purpose	Assessment of compliance with financial reporting standards, elimination of errors and distortions.	Detection of fraud, financial crimes and intentional violations.
Focus	Verification of the reliability of financial statements, assessment of the effectiveness of internal control.	Analysis of specific cases of fraud, criminal schemes and financial abuse.
Methods of analysis	Standardized audit procedures, such as checking compliance with accounting standards and confirming assets.	The use of specialized data analysis tools such as digital analysis, transaction analysis, and the Benford method.
Scope of application	Annual or quarterly accounting audits as part of a corporate audit.	Corporate investigations, court cases, checks of suspected fraud.
Results	Verification of financial statements for reliability and suggestions for improving internal control.	Establishing the facts of fraud or crimes, assistance in preparing for court proceedings, and developing measures to prevent repeat cases.
Technologies used	Standard audit programs such as Excel, 1C, SAP and other ERP systems.	Specialized software for Forensic audit: IDEA, ACL, Valid8, data analysis using big data.
Qualification of auditors	Knowledge of accounting and auditing, as well as auditor certification such as CPA or ACCA.	Knowledge of laws, legal proceedings, digital data skills and CFA certification.
Duration	Within a few weeks or months.	This can take months or even years, especially in the case of large and complex fraud schemes.
Note: Compiled by authors based on source [4–5].		

Forensic audit has shown that it is more narrowly focused and specialized, focused on detecting fraud and financial crimes. As the table showed, it is more time-consuming, has a large variation in data analysis methods with financial report values, as well as audit programs.

Referring to the innovative approach, we have highlighted the following examples of innovative methods and digital technologies that are used in forensic audit to identify financial fraud:

- Big Data analysis is the process of processing and analyzing huge amounts of data to identify trends, anomalies and suspicious transactions that may indicate fraud [6]. Advanced data analysis tools enhance forensic audits by identifying hidden patterns and anomalies in extensive datasets, improving accuracy and efficiency while minimizing errors [7].
- Artificial intelligence (AI) and machine learning (ML) are algorithms that can analyze financial data automatically to find suspicious activities or deviations from the norm, learning from historical data [6]. These technologies model typical transaction behavior to detect fraud. They create transaction profiles and streamline the audit process, making it more efficient and accurate [9].
- Blockchain is a distributed ledger technology that provides transparency and data security, which reduces the likelihood of manipulation of financial statements and helps to track every transaction [10]. Blockchain enhances data reliability and transparency, preventing manipulation and proving particularly useful for international audits [11].

◆ Robotic Process Automation (RPA) is the process of automating routine operations of auditors using software robots. It helps to process large amounts of data faster and identify potential risks [10].

◆ Audit analysis software – special programs such as IDEA or ACL that automatically check patterns, help to conduct a thorough analysis of financial transactions and compare data with expected indicators [12].

◆ Benford's law is a mathematical method of analyzing the distribution of the first and second digits in a dataset to identify anomalies and potential fraud [13].

◆ Text analysis and natural speech processing (NLP) technologies are used to find hidden meanings, manipulations or inconsistencies in the presentation in the texts of financial reports and other documents [14].

These methods help auditors to be more accurate and faster in detecting fraud, especially when the volume of data grows, and financial fraud schemes become more complex. Of the methods presented, we will focus in more detail on the automated part of the audit.

According to research, digital technologies play an important role in forensic auditing because they help improve the process of detecting financial misstatements and fraud. Research in this area examines the use of big data analytics, artificial intelligence (AI) and blockchain in judicial investigations to demonstrate how effective these technologies are in combating financial crimes.

In this research, we have emphasized innovative approaches in detecting financial statement fraud in forensic auditing. Based on the study of previous researchers of this topic, we have highlighted the importance of innovation in auditing and formulated the following important points of the research topic.

The introduction of technology significantly reduces the time required for data analysis and fraud detection. Technologies such as artificial intelligence and big data analytics improve the accuracy of reporting verification, which reduces the likelihood of fraud. The statistical data collected in our study reveals the interest of companies in speeding up the forensic audit processes by integrating with modern technologies.

For example, the market for forensic accounting, including forensic audit software, is growing. The market is expected to reach $2.78 billion in 2022 and reach $5.02 billion by 2029. This corresponds to an average annual growth rate (CAGR) of 10.26%, which will be in effect from 2023 to 2029 [15].

Among the reasons for the growth of the market are the following:

◆ Increase in fraud cases: an increase in the number of cases of financial crimes requires more effective solutions for their investigation.

◆ Technological innovations: increasing the use of cloud technologies and automation in accounting and auditing

◆ The growth of remote and automated solutions: The COVID-19 pandemic has led to an accelerated transition to the use of remote and cloud-based accounting solutions [16].

Smart companies such as Caseware, Ernst & Young and KPMG are actively developing their offerings in the field of forensic audit software, which contributes to the growing popularity of these tools.

Many innovative digital techniques are currently being used in forensic audit across industries globally, especially in the context of fraud detection. One important technique is the application of artificial intelligence (AI) and machine learning, allowing forensic accountants to automate operations related to fraud detection, data transformation, and extraction, greatly accelerating investigations. By cross-referencing information like phone numbers and bank account numbers, these technologies may quickly evaluate huge sets of structured and unstructured financial data, detecting irregularities like vendor conflicts of interest, fraudulent invoices, or questionable transactions. Much of the manual, repetitive labor that has historically been involved in fraud detection is eliminated as a result [15].

The introduction of cloud-based forensic accounting solutions, which offer remote access, scalability, and improved cooperation, is another significant development. To track transaction records with a high degree of security and transparency, these platforms can also integrate blockchain technology [17]. By offering quicker and more precise analysis, these advances contribute to the overall efficiency of fraud detection while lowering the expenses related to manual procedures.

Research by the PwC audit company on the global stage has shown that audit firms are already resorting to automating the audit processes of financial statements and activities in general in their internal audit. According to the results of the report for 2023, audit companies have invested and

are ready to invest in various innovative methods of internal audit in the future. Figure 1 shows the statistics of companies' investments in modern tools to speed up the forensic audit process.

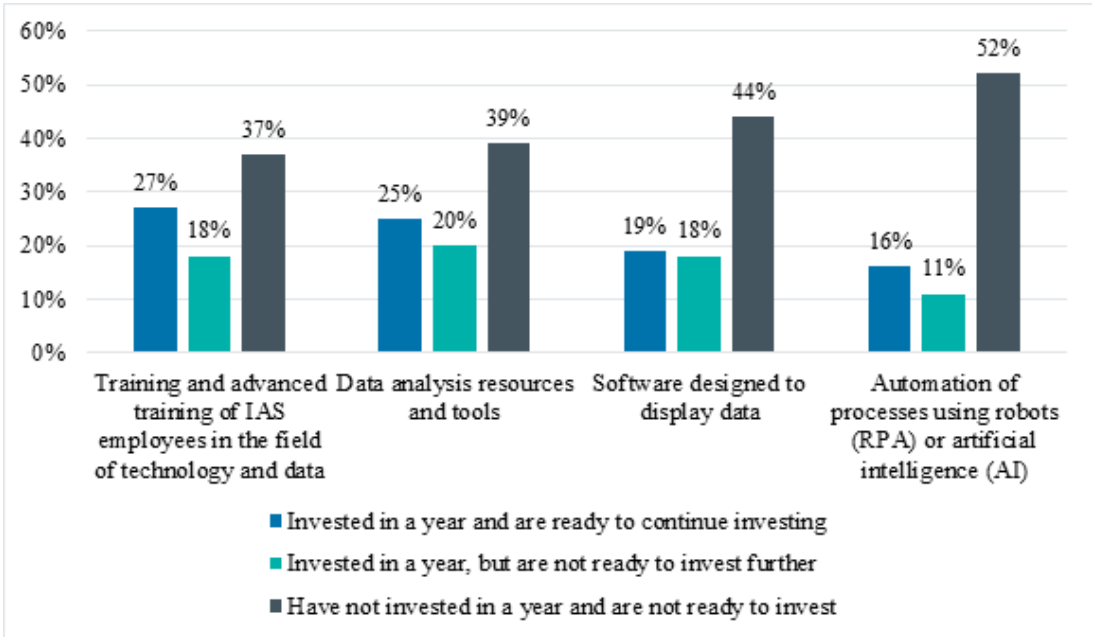

Figure 1 – Willingness to invest in innovative audit tools

Note: Compiled by authors based on source [18].

According to the graph, it can be seen that most global companies were willing to invest in training employees in internal audit using technology and invested less in automating processes through robots and artificial intelligence. However, the other company, which has invested in all the presented areas, refuses to invest in automation the most. The number of opinions on this point was 11% of companies, which indicates that the audit is not ready to integrate new processes, perhaps because of the fear of risking introducing unfamiliar tools into the financial reporting verification processes. This is also indicated by the statistics of the fact that most of the companies among the respondents are not ready to invest their funds in the robotization of processes at all. In total, about 45% of companies in 2023 invested in employee training and other data analysis resources and tools. About 44% of the respondents are also not ready to invest in software, which is 1.2 times more positive results from using this tool as a result of the investment. It can be summarized that audit firms do not have a unanimous decision on the best solution in speeding up audit verification processes because of integration with automated techniques. That is, new tools may frighten auditors to learn something new.

Below we present examples of the use of each tool for the benefit of forensic audit. With the development of information technology, forensic audit has become an integral part of risk management and transparency in financial transactions. The use of digital technologies in this field covers a wide range of tools and methods, including:

1. Big Data Analysis: Big data analysis allows auditors to quickly process and analyze large amounts of data. For example, big data analysis can help auditors detect anomalies such as unexpected changes in sales or uncharacteristic expenses if a company processes thousands of transactions per day. With a 96% probability, auditors can find hidden patterns that may indicate fraud using data analysis technologies such as SQL and R.

Example: In 2021, a large international bank UOB in Singapore used big data analysis to detect a money laundering scheme that had existed in its system for several years. Thanks to the analysis of transactions, the bank was able to prevent significant financial losses [19–20].

2. Machine learning and artificial intelligence: AI and ML technologies are becoming increasingly popular in forensic auditing. They allow systems to learn independently based on historical data and identify fraudulent schemes with high accuracy. Machine learning algorithms, for example, can study previous fraud cases to identify similar schemes in the future.

Example: In the field of forensic auditing, Deloitte used a machine learning algorithm to analyze customer transactions. The algorithm found that certain groups of transactions often coincide with fraud schemes, which allowed auditors to focus on these cases for a more in-depth analysis [20].

3. Forensic Audit Software: Specialized programs such as IDEA, ACL and CaseWare help auditors find financial problems and compile reports. These programs offer a user-friendly interface for analyzing and integrating data into various accounting systems.

Example: PwC auditors could quickly process data from the accounting system and detect errors in reports using Interactive Data Extraction and Analysis (IDEA). Consequently, it was discovered that some transactions did not meet expectations, which led to an additional investigation [12].

From the methods studied, we deduce the benefits and challenges in table 2.

Table 2 – Benefits and challenges of modern methods in forensic audit

Program/ Method	Description	Companies/ Users	Benefits	Challenges
SQL Server Audit Subsystem	Auditing feature within Microsoft SQL Server that allows for tracking and monitoring of database events. It captures a wide range of activities and stores them in logs, which can then be used for compliance, forensic audits, and general database security.	Microsoft, Bank of America, American Express, Dell Technologies	- Compliance: The SQL Server Audit Subsystem supports regulatory compliance requirements such as GDPR, SOX, and HIPAA by enabling organizations to prove that access to sensitive information is controlled and monitored. Security: By auditing access and activities within the SQL Server environment, companies can detect and respond to unauthorized access attempts or anomalies in system usage. Efficiency: Automated logging of events and customizable audit actions make the auditing process efficient and reduce manual overhead.	- Performance cost: Because audit logs must be kept up to date and stored effectively, auditing large events in high-transaction scenarios may result in additional performance cost. - Complex Setup: To guarantee that the right events are recorded without overloading the system, the SQL Server Audit Subsystem must be set up precisely. Log - Management: It can be difficult to keep track of audit logs, particularly for big systems. To keep the logs manageable and valuable, appropriate log rotation, archiving, and analysis techniques are needed.
Robotic Process Automation (RPA)	It can reduce the amount of time auditors spend on manual activities by automating the collection and processing of financial data from various systems. By keeping track of every action, the bot takes and produces thorough logs for audit reviews, RPA may help improve the audit trail. Bots can, for instance, check communications or invoices to confirm legitimacy and identify irregularities.	Deloitte, KPMG, PwC, EY, McKinsey & Company	- Increased Efficiency: RPA automates repetitive tasks such as data entry, report generation, and transaction monitoring. This automation drastically reduces the time required for audits, enabling auditors to allocate more resources to complex analytical tasks. - Improved Accuracy: By minimizing human intervention, RPA reduces the likelihood of errors in data processing. This increased accuracy is vital for identifying anomalies in financial records, thereby enhancing the reliability of audit results. - Enhanced Data Analysis: RPA tools can handle vast amounts of data swiftly, allowing auditors to perform comprehensive analyses.	- Implementation Costs: While RPA can lead to long-term cost savings, the initial setup and integration can be expensive. Organizations may face high costs for software acquisition, system integration, and employee training. - Change Management: Adopting RPA requires significant changes to existing workflows and processes. This can lead to resistance from employees who may be apprehensive about job security or the complexities of new technologies. - Limited Scope of Automation: RPA is most effective for repetitive, rule-based tasks. It may struggle with tasks that require complex decision-making, nuanced understanding, or human judgment.

Continuation of table 2

Artificial Intelligence (AI)	Large amounts of organized and unstructured data, including emails, contracts, and financial statements, can be analyzed by AI to find discrepancies that would be challenging for a human auditor to find by hand.	CaseWare, Deloitte, KPMG, PwC, EY	- Enhanced Data Analysis: AI algorithms can process vast amounts of financial data quickly and accurately, identifying patterns and anomalies that may indicate fraud or financial misstatements. - Improved Ay: AI tools can perform audits with a high level of accuracy and consistency, reducing human error and bias. This leads to more reliable financial reporting and increased trust in the auditing process. - Automated Reporting: AI can automate reports, allowing auditors to focus on higher-level analysis and decision-making. This not only saves time but also improves the overall efficiency of the auditing process.	- Implementation of AI technology can involve significant upfront costs for software, infrastructure, and training. - Complexity and Integration: Integrating AI solutions into existing atems can be complex. Organizations may face challenges related to data compatibility, system interoperability, and user acceptance. - Data Privacy Concerns: The use of AI often involves processing sensitive financial data, data privacy and compliance with regulations such as GDPR. Organizations must implement robust data governance practices to mitigate these risks. - Skill Gaps: Successful implementation of AI in forensic audit requires skilled personnel auditing and AI technologies.
Note: Compiled by authors based on sources [21–27].				

By using SQL Server Audit, administrators can maintain detailed logs that help with troubleshooting, ensuring data integrity, and identifying potential security breaches or compliance violations. The audit logs can also be filtered, and actions can be customized for different databases within the same server instance. Even though RPA and AI can significantly improve forensic auditing efficiency, accuracy, and cost-effectiveness, organizations still face a few obstacles, including implementation costs and audit complexity. Success will depend on striking a delicate balance between utilizing technology and preserving the human component of audits.

Over 60% of Fortune 500 companies now use some form of RPA or AI tools in their financial processes, including forensic auditing. High-profile companies like HSBC, GE, and the Big Four auditing firms (PwC, Deloitte, KPMG, EY) are key adopters. A study found that 45% of forensic auditors use software tools powered by AI to manage fraud risk detection and 70% plan to increase investments in such technologies. Companies using AI-driven forensic audit tools reported a 30–50% reduction in manual auditing time, and an increase in fraud detection accuracy of 25–40% [28]. These statistics highlight the importance of these tools in speeding up data analysis and reducing human errors.

These patterns show a strong trend toward the use of digital forensic auditing techniques, which will increase the speed, effectiveness, and reliability of fraud detection globally.

Additionally, table 3 presents real cases of big companies, including the big four auditors on the application of modern technologies mentioned in the article in the field of forensic audit and corporate governance. By analysing the usefulness of the innovative product, we also identified the potential for the development of the company and the country’s economy.

Table 3 – Examples of the application of modern technology in forensic audit and the impact on economic development

№	Company	Application of modern technology	Economic impact
1	Ernst & Young	A method for analysing large amounts of data. The organisation uses EY Helix, a tool that automatically analyses transactions and detects differences. This allows auditors to evaluate millions of transactions and detect patterns that are not compliant.	Improving the efficiency of business operations contributes to economic growth through job creation and increased tax revenues.
2	KPMG	Machine learning helps KPMG find anomalous data related to financial irregularity risks by analysing accounting records and transactions. The tool automatically detects possible fraudulent transactions by analysing and training past audit data. Case: KPMG has helped reduce budget waste by 12% in Austria by using machine learning to analyse the finances of public institutions.	Reduced fraud risks attract foreign investors. More productive processes reduce regulatory and audit costs. Thus, reducing fraud losses enables investment in infrastructure, healthcare and education. KPMG's 'The Future of Audit' report found a 20-30 per cent cost reduction in companies implementing AI tools.
3	Deutsche Bank, HSBC	Deutsche Bank tracks and verifies transactions using blockchain. By using a blockchain that captures every transaction in a decentralised and immutable system, one of the projects, called Smart Audit, enables real-time auditing. Case: HSBC bank was able to reduce the processing time of international settlements from five days to a few hours using blockchain.	This will help drive the digital economy and increase IT employment.
4	PwC	An artificial intelligence system called PwC's Auditor of the Future uses cognitive technology to analyse data and documents to identify errors and potential risks in reporting. The tool uses context-aware algorithms to analyse documents and contracts. This allows conclusions to be drawn based on text. Case: PwC actively uses this technology in large companies to help them improve their internal processes.	The use of advanced technology makes auditing in the country more modern and reliable, which attracts international investors. The growth of an innovative-oriented economy and the growth of skills.
Note: Compiled by authors based on sources [6], [26–27], [29].			

The use of these technologies shows how large corporations, and financial institutions have changed their processes to meet modern requirements and combat fraud. These measures not only improve auditors' performance, but also contribute to economic progress by improving financial stability and regulation, creating a favourable environment for sustainable growth. Big Four companies such as EY, KPMG and PwC, as well as major banks such as Deutsche Bank, are demonstrating how innovation is strengthening the global financial infrastructure.

Such examples emphasise the importance of further research and development to bring technology into forensic auditing, which can provide an even higher level of confidence and reliability in financial reporting internationally.

In order to economically analyse the prospect of investing in forensic audit technology, the return on investment (ROI) method can be used, which compares the cost of implementing technology with the economic benefits of using it.

We took the average data from the sample reports that were given in the last table according to McKinsey [30], KPMG and Deloitte. The economic analysis conducted will prove the results of the

audit firm reports that the introduction of new technologies in forensic auditing can reduce costs by 20–30%.

For costing, we will limit ourselves to two types as initial investment and staff training costs: a) cost to develop and implement blockchain or artificial intelligence tools – $2,000,000; b) additional staff training costs – $200,000. Increased audit speed has increased contracts and profits by fifteen per cent per year. A twenty-five per cent reduction in fraud and error losses. Payback period of 5 years.

Key criteria: 10 million dollars in annual audit revenue. 6 million dollars spent on operations. Fraud losses: annual $500,000.

Result:

1. Operating cost savings of $1.8 million per year (allocated $6 million at 30%).
2. Revenue growth per year is $1.5 million (add up $10 million by 15%).
3: Reduction in fraud losses:

Annual savings = $500,000 x 25% = $125,000.

4. Economic impact for the year is $3.425 million ($1.8 million + 1.5 million + 0.125 million).
5. Implementation costs are $2.2 million (2 million + 0.2 million).
6. Payback Period:

$$Payback\ Period\ = \frac{Annual\ Effect}{Cost} \quad (1)$$

PP = 3.425mln / 2.2mln = 0.64 years (about 8 months).

7. The return on investment (ROI) over five years can be calculated using the formula:

$$ROI\ = \frac{Net\ Benefits}{Investment\ Cost} \times 100\% \quad (2)$$

$$Net\ Benefits\ over\ 5\ years = (Net\ Annual\ Savings\ \times 5) - Initial\ Investment \quad (3)$$

ROI = (((($3.425 million × 5) – $2.2 million) / 2.2 million) × 100 = (14.925 million / 2.2 million) × 100 ≈ 678%.

As a result, the investment pays for itself in 5 years with a return on investment of over 670%. Investments in forensic audit technology show a high return on investment, as technologies such as machine learning, artificial intelligence and blockchain are helping to increase revenues, reduce costs and risks, and increase confidence in audit processes, which has a positive impact on economic stability.

Thus, the incorporation of technologies such as big data, machine learning and blockchain into traditional audit practices is significantly improving financial integrity and governance. As a result, auditors can work faster and more accurately, identify risks early, and increase confidence in an organisation's financial reporting.

Practical applicability, such as improved audit quality and speed, reduced risk and increased confidence in corporate reports are all benefits of using these technologies. Using such technologies, auditors can work more efficiently and minimise human error and data manipulation.

Conclusion

Implementing modern technologies to detect misstatements in financial statements requires a comprehensive approach that includes technical solutions and organisational changes. To use modern technology in the process of detecting financial reporting anomalies, it is necessary not only to add new tools, but also to organise staff training, conduct testing on real data and provide support at all stages of implementation. Gradual implementation with constant monitoring and improvement of systems will allow companies to improve the accuracy, speed and transparency of audit processes.

Forensic audit is a useful tool for private and public organizations, especially considering the growing level of financial crimes and the globalization of economic processes. And forensic audit

automation can include strengths and weaknesses, as well as include barriers and have opportunities for implementation.

Strengths:

a) High accuracy in detecting fraud.

b) The use of data for legal purposes.

c) Improvement of the control system in the company.

Weaknesses:

a) The high cost and duration of the investigation.

b) The need for highly qualified auditors and the use of sophisticated software.

c) The risk of getting false conclusions with insufficient information.

Opportunities:

a) Growing demand for forensic audits.

b) Integration with blockchain technology.

c) Predictive fraud models.

Threats:

a) Cybersecurity risks.

b) Data breaches.

c) Regulatory challenges.

Despite the obvious advantages, the study also points to existing problems in integrating innovative technologies into forensic audit processes. It includes high implementation costs, the need to train employees and adapt existing systems to new conditions.

Forensic audit automation not only improves audit processes but also brings significant economic benefits to organisations. These benefits include increasing financial efficiency by freeing up cash, reducing audit time, reducing financial losses, increasing profitability and stimulating the national economy by making the economy more competitive and investable.

With this study, we emphasize recommendations for overcoming the challenges associated with the introduction of new technologies. This may include the development of strategies for training and attracting qualified specialists, as well as the introduction of flexible systems that easily integrate with existing processes.

It means that the lack of specialists with the necessary skills, as well as the difficulty of integrating new tools into traditional processes. The creation of special training programs and changes in internal auditing standards are necessary for the successful implementation of technologies

Although the introduction of digital technologies into forensic auditing opens new horizons for the detection of financial fraud, success depends on the right integration strategy and support at all levels of the organization.

Several innovative approaches can be proposed that will combine cutting-edge science with the practical needs of auditors to implement new scientific advances in forensic auditing using modern technology.

Here are some of our examples:

1) Creating intelligent systems that can not only analyse historical records but can also monitor the situation in real time to detect any anomalies. AI algorithms, for example, can monitor changes in financial transactions in real time and report potential irregularities to the auditor.

Practical application: in dynamic financial markets, this will increase audit efficiency by improving response to potential risks and preventing losses.

2) Using automated blockchain-based systems to verify and store contractual documents, as well as other company legal documents such as contracts and deeds. Smart contracts can help these systems automatically monitor compliance with contract terms.

Practical use: Blockchain will not only provide highly secure and transparent documents but will also allow for automatic tracking of changes in terms and conditions. This significantly reduces the risk of falsification and improves the efficiency of company management.

3) Creating digital copies or twins of organisations, which can include the company's financial structure, business processes, employee behaviour and other factors. This will enable real-time risk assessment and modelling of various scenarios.

Practical application: Auditors can improve company management and prevent financial losses by predicting the impact of certain actions on a company's financial health.

It means, the results highlight the importance of combining traditional auditing methods with modern technologies. Traditional methods, such as the use of statistical approaches and analysis based on Benford's law, remain relevant and effective when working with new tools, which makes it possible to increase the level of fraud detection. However, we assume the method calculation can be accelerated by automated products like Excel with macros, IDEA or Python. The advantage is that it will simplify and speed up the auditor's work. The challenge may be the need for training in the new software and the need to hire a specialist to customise these products to the company's needs.

In other words, the combination of technologies to introduce scientific novelty in forensic auditing can improve the efficiency of audit processes, and the results will be significantly more accurate and reliable. It will increase risk prediction and confidence in corporate reporting and provide new opportunities for audit automation.

In addition, the introduction of innovative approaches to forensic audit helps to increase the confidence of stakeholders (investors, customers and regulators) in financial reports, which in turn can improve the corporate reputation of companies.

Despite the promising benefits, the adoption of AI and RPA is accompanied by notable challenges. The initial investment required for implementation, coupled with the need for specialized talent, presents barriers, particularly for smaller firms. Additionally, the rise in automation raises concerns regarding cybersecurity and data privacy, necessitating robust frameworks to mitigate risks associated with handling sensitive information. Ethical considerations also emerge, highlighting the need for transparency and accountability in AI-driven decision-making processes.

In summary, while the implementation of AI and RPA in forensic audit offers transformative potential, it is imperative to balance these advancements with ethical, legal, and practical considerations to fully realize their benefits in fraud detection and financial reporting integrity.

REFERENCES

1 Растегаева Ф.С., Халитова А.З. Построение методики непрерывного форензик внутреннего аудита коммерческой организации в целях предотвращения мошенничества // Креативная экономика. – 2024. – Том 18. – № 7. – С. 1643–1666. URL: https://doi.org/10.18334/ce.18.7.121393.

2 Ken F., Matthew C., Jonathan Ch. Detecting Fraud Using Emerging Technology: Don't Be Afraid to Innovate. 2023. URL: https://www.jsheld.com/insights/articles/detecting-fraud-using-emerging-technology-dont-be-afraid-to-innovate.

3 Лащинская Н.В., Нестеров П.Д. Аудит и форензик как инструменты предотвращения существенных искажений бухгалтерской (финансовой) отчетности вследствие мошеннических операций // Управленческий учет. – 2023. – № 2.

4 Albrecht W.S., Albrecht C.C., Albrecht C.O., Zimbelman M.F. Fraud Examination. 2019.

5 Rathore R.R. Comparative Study of Forensic Accounting and Audit: Understanding Their Similarities and Differences in Practice // International Journal of Creative Research Thoughts (IJCRT). 2023. Vol. 11. No. 2. P. 453–470.

6 KPMG. AI in financial reporting and audit: Navigating the new era. 2024. URL: https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2024/04/ai-in-financial-reporting-and-audit-web.pdf.

7 Dada S.O., Haron H., Yahaya S. Big Data in Auditing: Challenges and Opportunities // Journal of Business and Management. 2020. Vol. 7. No. 2. P. 42–56.

8 PwC. How blockchain will impact accounting and audit // PwC. – 2023. URL: https://www.pwc.com/gx/en/services/audit-assurance/blockchain-impact-accounting-audit.html.

9 Boland P.J., Brody R.G. Machine learning in financial auditing: Opportunities and challenges // International Journal of Auditing. 2019. Vol. 23. No. 3. P. 1–17.

10 Todd M., Jeremy O. EY. Transform compliance with smarter RPA. Robotic process automation in audit. Legal, Compliance and Technology Executive Series. EY Report. – 2020. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/assurance/forensic-data-analytics/transform-compliance-with-smarter-rpa.pdf.

11 Schreyer M., Haefner N., Biehl M. Blockchain technology in forensic auditing: Enhancing transparency and data integrity // International Journal of Digital Accounting Research. 2019. Vol. 19. No. 3. P. 112–129.

12 Poli S. 5 Best Audit Software for Accounting Firms. 2023. URL: https://www.vintti.com/blog/top-5-audit-software-a-detailed-review-for-accounting-firms.

13 Pavel Y.L., Viktor P.S., Anna N.N., Viktor M.S. Integrated application of Benford's Law tests to detect corporate fraud // Procedia Computer Science. 2022. Vol. 213. P. 332–337. URL: https://doi.org/10.1016/j.procs.2022.11.075.

14 Dai J., Vasarhelyi M.A. Toward blockchain-based accounting and assurance // Journal of Information Systems. 2020. Vol. 34. No. 2. P. 23–45.

15 Mordor Intelligence. Forensic Accounting Market - Growth, Trends, and Forecast (2024–2029). 2023. URL: https://www.mordorintelligence.com/industry-reports/forensic-accounting-market/market-share.

16 Deloitte. Conducting Effective Remote Investigations: Practical Guidance During COVID-19. URL: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/finance/us-covid-19-conducting-effective-remote-investigations.pdf.

17 Singh M., Joshi M., Sharma S., Rana T. How Blockchain Is Transforming Accounting, Auditing and Finance: A Systematic Review // Handbook of Big Data and Analytics in Accounting and Auditing. Springer, Singapore, 2023. URL: https://doi.org/10.1007/978-981-19-4460-4_23.

18 PwC. Глобальное исследование внутреннего аудита 2023 г. Видеть сквозь стены, чтобы найти новые горизонты. – 2023. URL: https://www.pwc.com/kz/en/assets/global-internal-audit-study-rus.pdf.

19 World Economic Forum. How AI is transforming the fight against money laundering. 2019. URL: https://www.weforum.org/agenda/2019/01/how-ai-can-knock-the-starch-out-of-money-laundering/.

20 UOB's new AI anti-money laundering solution helps the Bank cut through large volumes of transactions to pinpoint suspicious activities. 2020. URL: https://www.uobgroup.com/uobgroup/newsroom/2020/new-money-laundering-solution.page?path=data/uobgroup/2020/133&cr=segment.

21 SQL Server Audit (Database Engine). 2024. URL: https://learn.microsoft.com/en-us/sql/relational-databases/security/auditing/sql-server-audit-database-engine?view=sql-server-ver16.

22 IFRS and US GAAP: similarities and differences. 2023. URL: https://viewpoint.pwc.com/dt/us/en/pwc/accounting_guides/ifrs_and_us_gaap_sim/assets/pwcifrsusgaap0323.pdf.

23 Ken F., Matthew C., Jonathan Ch. Detecting Fraud Using Emerging Technology: Don't Be Afraid to Innovate // J.S. Held LLC. 2023. URL: https://www.jsheld.com/uploads/Detecting-Fraud-Using-Emerging-Technology-Don%E2%80%99t-Be-Afraid-to-Innovate_2023-07-26-121322_fgvo.pdf.

24 Brown N.C., Huffman A.A., Cohen S. Accounting Reporting Complexity and Non-GAAP Earnings Disclosure // The Accounting Review. 2023. Vol. 98. No. 6. P. 37–71. URL: https://doi.org/10.2308/TAR-2018-0760.

25 Hongdan H., Radha K.Sh., Robin J., Chima M., David B. Accounting and auditing with blockchain technology and artificial Intelligence: A literature review // International Journal of Accounting Information Systems. 2023. Vol. 48. No. 100598. URL: https://doi.org/10.1016/j.accinf.2022.100598.

26 PwC. Impact of Artificial Intelligence on Fraud and Scams. Report. 2023. URL: https://www.pwc.co.uk/forensic-services/assets/impact-of-ai-on-fraud-and-scams.pdf.

27 EY. AI in Financial Auditing: The Next Step in Digital Transformation. 2021. URL: https://www.ey.com/en_fi/insights/assurance/how-digitization-transformed-the-audit.

28 Shewale R. How many companies use AI? 2024. URL: https://www.demandsage.com/companies-using-ai/.

29 Blockchain and corporates: unleashing potential. Technology, flow. – 2020. URL: https://flow.db.com/more/technology/blockchain-and-corporates-unleashing-potential.

30 Jacques B., Eric H. McKinsey Global Institute. Skill shift automation and the future of the workforce // Discussion paper. 2018.

REFERENCES

1 Rastegaeva F.S., Halitova A.Z. (2024) Postroenie metodiki nepreryvnogo forenzik vnutrennego audita kommercheskoj organizacii v celjah predotvrashhenija moshennichestva // Kreativnaja jekonomika. Tom 18. No. 7. P. 1643–1666. URL: https://doi.org/10.18334/ce.18.7.121393. (In Russian).

2 Ken F., Matthew C., Jonathan Ch. (2023) Detecting Fraud Using Emerging Technology: Don't Be Afraid to Innovate. URL: https://www.jsheld.com/insights/articles/detecting-fraud-using-emerging-technology-dont-be-afraid-to-innovate. (In English).

3 Lashhinskaja N.V., Nesterov P.D. (2023) Audit i forenzik kak instrumenty predotvrashhenija sushhestvennyh iskazhenij buhgalterskoj (finansovoj) otchetnosti vsledstvie moshennicheskih operacij // Upravlencheskij uchet. No. 2. (In Russian).

4 Albrecht W.S., Albrecht C.C., Albrecht C.O., Zimbelman M.F. (2019) Fraud Examination. (In English).

5 Rathore R.R. (2023) Comparative Study of Forensic Accounting and Audit: Understanding Their Similarities and Differences in Practice // International Journal of Creative Research Thoughts (IJCRT). Vol. 11. No. 2. P. 453–470. (In English).

6 KPMG. AI in financial reporting and audit: Navigating the new era. 2024. URL: https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2024/04/ai-in-financial-reporting-and-audit-web.pdf. (In English).

7 Dada S.O., Haron H., Yahaya S. (2020) Big Data in Auditing: Challenges and Opportunities // Journal of Business and Management. Vol. 7. No. 2. P. 42–56. (In English).

8 PwC. (2023) How blockchain will impact accounting and audit // PwC. URL: https://www.pwc.com/gx/en/services/audit-assurance/blockchain-impact-accounting-audit.html. (In English).

9 Boland P.J., Brody R.G. (2019) Machine learning in financial auditing: Opportunities and challenges // International Journal of Auditing. Vol. 23. No. 3. P. 1–17. (In English).

10 Todd M., Jeremy O. EY. (2020) Transform compliance with smarter RPA. Robotic process automation in audit. Legal, Compliance and Technology Executive Series. EY Report. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/assurance/forensic-data-analytics/transform-compliance-with-smarter-rpa.pdf. (In English).

11 Schreyer M., Haefner N., Biehl M. (2019) Blockchain technology in forensic auditing: Enhancing transparency and data integrity // International Journal of Digital Accounting Research. Vol. 19. No. 3. P. 112–129. (In English).

12 Poli S. 5 Best Audit Software for Accounting Firms. 2023. URL: https://www.vintti.com/blog/top-5-audit-software-a-detailed-review-for-accounting-firms. (In English).

13 Pavel Y.L., Viktor P.S., Anna N.N., Viktor M.S. (2022) Integrated application of Benford's Law tests to detect corporate fraud // Procedia Computer Science. Vol. 213. P. 332–337. URL: https://doi.org/10.1016/j.procs.2022.11.075. (In English).

14 Dai J., Vasarhelyi M.A. (2020) Toward blockchain-based accounting and assurance // Journal of Information Systems. Vol. 34. No. 2. P. 23–45. (In English).

15 Mordor Intelligence. Forensic Accounting Market - Growth, Trends, and Forecast (2024–2029). 2023. URL: https://www.mordorintelligence.com/industry-reports/forensic-accounting-market/market-share. (In English).

16 Deloitte. Conducting Effective Remote Investigations: Practical Guidance During COVID-19. URL: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/finance/us-covid-19-conducting-effective-remote-investigations.pdf. (In English).

17 Singh M., Joshi M., Sharma S., Rana T. (2023) How Blockchain Is Transforming Accounting, Auditing and Finance: A Systematic Review // Handbook of Big Data and Analytics in Accounting and Auditing. Springer, Singapore. URL: https://doi.org/10.1007/978-981-19-4460-4_23. (In English).

18 PwC. Global'noe issledovanie vnutrennego audita 2023 g. Videt' skvoz' steny, chtoby najti novye gorizonty. 2023. URL: https://www.pwc.com/kz/en/assets/global-internal-audit-study-rus.pdf. (In Russian).

19 World Economic Forum. How AI is transforming the fight against money laundering. 2019. URL: https://www.weforum.org/agenda/2019/01/how-ai-can-knock-the-starch-out-of-money-laundering/. (In English).

20 UOB's new AI anti-money laundering solution helps the Bank cut through large volumes of transactions to pinpoint suspicious activities. 2020. URL: https://www.uobgroup.com/uobgroup/newsroom/2020/new-money-laundering-solution.page?path=data/uobgroup/2020/133&cr=segment. (In English).

21 SQL Server Audit (Database Engine). 2024. URL: https://learn.microsoft.com/en-us/sql/relational-databases/security/auditing/sql-server-audit-database-engine?view=sql-server-ver16. (In English).

22 IFRS and US GAAP: similarities and differences. 2023. URL: https://viewpoint.pwc.com/dt/us/en/pwc/accounting_guides/ifrs_and_us_gaap_sim/assets/pwcifrsusgaap0323.pdf. (In English).

23 Ken F., Matthew C., Jonathan Ch. Detecting Fraud Using Emerging Technology: Don't Be Afraid to Innovate // J.S. Held LLC. 2023. URL: https://www.jsheld.com/uploads/Detecting-Fraud-Using-Emerging-Technology-Don%E2%80%99t-Be-Afraid-to-Innovate_2023-07-26-121322_fgvo.pdf. (In English).

24 Brown N.C., Huffman A.A., Cohen S. Accounting Reporting Complexity and Non-GAAP Earnings Disclosure // The Accounting Review. 2023. Vol. 98. No. 6. P. 37–71. URL: https://doi.org/10.2308/TAR-2018-0760. (In English).

25 Hongdan H., Radha K.Sh., Robin J., Chima M., David B. Accounting and auditing with blockchain technology and artificial Intelligence: A literature review // International Journal of Accounting Information Systems. 2023. Vol. 48. No. 100598. URL: https://doi.org/10.1016/j.accinf.2022.100598. (In English).

26 PwC. Impact of Artificial Intelligence on Fraud and Scams. Report. 2023. URL: https://www.pwc.co.uk/forensic-services/assets/impact-of-ai-on-fraud-and-scams.pdf. (In English).

27 EY. AI in Financial Auditing: The Next Step in Digital Transformation. 2021. URL: https://www.ey.com/en_fi/insights/assurance/how-digitization-transformed-the-audit. (In English).

28 Shewale R. (2024) How many companies use AI? URL: https://www.demandsage.com/companies-using-ai/. (In English).

29 Blockchain and corporates: unleashing potential. Technology, flow. 2020. URL: https://flow.db.com/more/technology/blockchain-and-corporates-unleashing-potential. (In English).

30 Jacques B., Eric H. (2018) McKinsey Global Institute. Skill shift automation and the future of the workforce // Discussion paper. (In English).

КИДИРМАГАНБЕТОВА А.И.,*[1]
докторант.
*e-mail: cg.anar.ik@gmail.com
ORCID ID: 0009-0001-7955-211X
БАГИЕНСКА А.,[2]
PhD., профессор.
e-mail: a.bagienska@pb.edu.pl
ORCID ID: 0000-0002-3053-8085
[1]Әл-Фараби атындағы Қазақ ұлттық университеті,
Алматы қ., Қазақстан
[2]Белосток техникалық университеті,
Белосток қ., Польша

ФОРЕНСИК АУДИТІНДЕГІ ТЕХНОЛОГИЯЛЫҚ ИННОВАЦИЯЛАРДЫҢ ЭКОНОМИКАЛЫҚ САЛДАРЫ: ҚАРЖЫЛЫҚ АДАЛДЫҚ ПЕН КОРПОРАТИВТІК БАСҚАРУДЫ АРТТЫРУ

Аңдатпа

Мақалада форенсик аудитіндегі инновациялық тәсілдер және олардың қаржылық алаяқтықты анықтауға және алдын алуға әсері қарастырылады. Үлкен деректерді талдау, Машиналық оқыту және блокчейн сияқты заманауи технологиялар қаржылық есептіліктегі ауытқуларды анықтауда жоғары дәлдік пен тиімділікті қамтамасыз ететін дәстүрлі аудит әдістерін өзгертеді. Алайда, осы технологияларды енгізу кезінде белгілі бір проблемалар туындайды, соның ішінде білікті персоналға деген қажеттілік, технологияның жоғары шығындары және жаңа әдістерді қолданыстағы процестерге біріктіру проблемалары. Зерттеудің мақсаты – форенсик аудитінде цифрлық технологияларды қолданудың артықшылықтары мен кемшіліктерін талдау, олардың қаржылық бұрмалануларды анықтау процесіне әсерін бағалау, сондай-ақ осындай технологияларды қолданудың экономикалық әсерін ашу. Нақты жағдайларды талдауға және дәстүрлі және инновациялық тәсілдерді салыстырмалы талдауға негізделген әдістемені қолдануға сүйене отырып, мақалада аудит және тәуекелдерді басқару саласындағы тәжірибешілерге арналған ұсыныстар берілген. Зерттеу нәтижелері жаңа технологияларға бейімделудің маңыздылығын көрсетеді және қаржылық есептілікке сенімділікті арттыруға және корпоративтік басқаруды жақсартуға көмектесетін туындаған мәселелерді шешу жолдарын ұсынады. Мақала форенсик (сот) аудиті мен қаржылық алаяқтыққа қарсы күрестің қазіргі тенденцияларына қызығушылық танытатын аудиторлық фирмалар, компаниялар мен зерттеушілер үшін практикалық маңызы бар.

Тірек сөздер: қаржылық есептілік, цифрлық технологиялар, форенсик аудиті, алаяқтықты анықтау, жасанды интеллект, блокчейн, инвестициялар.

КИДИРМАГАНБЕТОВА А.И.,*[1]
докторант.
*e-mail: cg.anar.ik@gmail.com
ORCID ID: 0009-0001-7955-211X
БАГИЕНСКА А.,[2]
PhD., профессор.
e-mail: a.bagienska@pb.edu.pl
ORCID ID: 0000-0002-3053-8085
[1]Казахский национальный
университет им. аль-Фараби,
г. Алматы, Казахстан
[2]Белостокский технический университет,
г. Белосток, Польша

ЭКОНОМИЧЕСКИЕ ПОСЛЕДСТВИЯ ТЕХНОЛОГИЧЕСКИХ ИННОВАЦИЙ В ФОРЕНСИК АУДИТЕ: ПОВЫШЕНИЕ ФИНАНСОВОЙ ЧЕСТНОСТИ И КОРПОРАТИВНОГО УПРАВЛЕНИЯ

Аннотация

В статье рассматриваются инновационные подходы в форенсик (судебном) аудите и их влияние на выявление и предотвращение финансового мошенничества. Современные технологии, такие как анализ больших данных, машинное обучение и блокчейн, трансформируют традиционные методы аудита, обеспечивая более высокую точность и эффективность при выявлении аномалий в финансовой отчетности. Однако с внедрением этих технологий возникают определенные проблемы, включая потребность в квалифицированном персонале, высокие затраты на технологии и проблемы с интеграцией новых методов в существующие процессы. Целью исследования является анализ преимуществ и недостатков использования цифровых технологий в форенсик аудите, оценка их влияния на процесс выявления финансовых искажений, а также раскрытие экономического эффекта от применения таких технологий. Основываясь на анализе реальных кейсов и применении методологии, основанной на сравнительном анализе традиционных и инновационных подходов, авторы статьи дают рекомендации для практикующих специалистов в области аудита и управления рисками. Результаты исследования подчеркивают важность адаптации к новым технологиям и предлагают пути решения возникающих проблем, которые могут помочь повысить доверие к финансовой отчетности и улучшить корпоративное управление. Статья имеет практическое значение для аудиторских фирм, компаний и исследователей, интересующихся современными тенденциями в области форенсик (судебном) аудита и борьбы с финансовым мошенничеством.

Ключевые слова: финансовая отчетность, цифровые технологии, форенсик (судебный) аудит, выявление мошенничества, искусственный интеллект, блокчейн, инвестиции.

Article submission date: 15.10.2024