

**Bunda O. M., Gerlinska Y. I.**

*Kyiv National University of Technologies and Design*

### **DIGITALIZATION OF ACCOUNTING, FINANCE AND CONTROL**

**Abstract.** *The digitalization of accounting, finance and control is considered. The use of cloud computing, which allows companies to store and process huge amounts of financial data in real time, is investigated. The RPA method for automating repetitive, rule-based financial processes, such as invoice processing and reconciliation, with the help of software robots is considered. The use of information technology in various companies and its impact on business processes is characterized.*

**Keywords:** *digitalization, accounting, finance, control, digitalization technologies.*

**Бунда О. М., доц., Герлінська Ю. І., бакалавр**

*Київський національний університет технологій та дизайну*

### **ЦИФРОВІЗАЦІЯ БУХГАЛТЕРСЬКОГО ОБЛІКУ, ФІНАНСІВ ТА КОНТРОЛЮ**

**Анотація.** *Розглянуто цифровізацію бухгалтерського обліку, фінансів та контролю. Досліджено використання хмарних обчислень, що дозволяють компаніям зберігати та обробляти величезні обсяги фінансових даних у режимі реального часу. Розглянуто RPA метод для автоматизації повторюваних, заснованих на правилах фінансових процесів, таких як обробка рахунків-фактур і звірка, за допомогою програмних роботів. Охарактеризовано використання інформаційних технологій у різних компаніях та їх вплив на бізнес-процеси.*

**Ключові слова:** *цифровізація, бухгалтерський облік, фінанси, контроль, цифрові технології.*

**Introduction.** The integration of digital technologies into accounting and finance practices requires a strategic approach that takes into account the complexities of data management, cybersecurity risks, and staff development to ensure sustainable business growth. Digitalization has led to significant changes in various industries, and accounting and finance is no exception. The advent of technology has led to the automation of many financial processes, making them more efficient and accurate. However, there are still areas in accounting and finance that have not been fully covered by digitalization. The rapid development of digital technologies has had an important impact on the accounting, finance and control system, providing opportunities for increasing efficiency and improving decision-making. Thus, digital technologies can not only increase efficiency but also change the fundamental nature of accounting and financial activities [1].

S. Bardash notes that the technological process of data processing when using modern accounting software can be divided into three stages, which will reveal the possibilities of introducing modern digital technologies:

1. Collection and registration of primary data for processing in the program. This is the input of primary documents in the software.

2. Formation of business transactions, structuring of synthetic and analytical accounts, filling in reference books with permanent information. At this stage, control is exercised over the data maintained and its reflection in the program. Despite the fact that the use of information technology provides the accounting system with control functions, their use does not guarantee the adequacy of financial reporting data to the real state of affairs [1].

One area of research that has received considerable attention is the introduction of cloud computing in financial research and reporting. B. Ayinla, N. Ndubuisi, A. Atadoga, O. Asuzu and others in the article "Enhancing accounting operations through cloud computing: A review and implementation guide" [2] note that cloud computing provides users with the ability to

access financial data and reports anytime and from anywhere, which allows them to optimize workflows and increase the efficiency of financial reporting. This greatly facilitates real-time collaboration between financial professionals, eliminating the need for physical data storage. One study demonstrated how the introduction of cloud-based financial reporting allowed one of the leading accounting firms to cut the time spent on report preparation in half. Not only does this save time, but it also facilitates faster and more accurate decision-making.

In addition, cloud computing helps companies better manage their resources and meet regulatory requirements. Integration of advanced technologies such as RegTech and artificial intelligence allows to optimize financial processes, increasing the accuracy of reporting and ensuring compliance with new regulatory standards. It is also important to focus on data security issues, as storing financial information in the cloud is associated with privacy and cybersecurity risks [2].

A. Atadoga, U. Umoga, O. Augustine Lottu and E. Sodiya analyze how the introduction of cloud technologies improves the work of accounting firms, in particular in the context of increasing operational efficiency and ensuring data reliability [3].

When analyzing the impact of cloud computing on accounting firms, it is necessary to focus on key aspects such as efficiency, scalability and data security. Cloud platforms allow firms to dynamically adjust resources to meet changing workloads, which improves both cost efficiency and operational flexibility. It is also important to critically consider the need for strong encryption protocols and authentication mechanisms to protect sensitive financial data. Despite the significant advantages of cloud technologies, ensuring data security remains a key challenge for accounting firms when implementing them [3].

An analysis of the main advantages of accounting and reporting automation allows us to combine them into four main groups:

1. Improving the quality of information. Achievements in the field of information technology largely reduce the influence of the "human factor", reduce the number of errors in accounting and reporting, and, by creating a single information base, improve the quality of calculations.

2. Saving time and labor costs. The use of information technology reduces the time and effort required to process accounting transactions, thereby increasing the productivity of accounting staff. The simplicity and flexibility of computer systems allows to increase the speed of collecting, transmitting, processing information, preparing reports and maintaining documentation.

3. Efficiency, timeliness and relevance of accounting data. The use of information technologies in accounting significantly increases its efficiency, makes it possible to assess the current financial position of the company and its prospects. Information systems significantly expand the analytical capabilities of accounting, provide an opportunity for parallel accounting in several standards.

4. Strengthening of control. Computer systems allow to differentiate access to information and to separate functions. There is an opportunity for operational assessment and control of activities by the organization's management [4].

The use of robotic process automation (RPA) to optimize various business processes is very promising, particularly in accounting. However, companies that use RPA report significant efficiency gains and cost reductions due to the automation of routine tasks, allowing professionals to focus on more important and strategic aspects of their business [5].

RPA, or robotic process automation, is another digital tool that has transformed the financial sector. RPA is a method of automating repetitive, rule-based financial processes, such as invoice processing and reconciliation, with the help of software robots. According to research, RPA can significantly reduce the time and effort required to perform these tasks,

increase productivity, and reduce costs. One of the leading audit and consulting firms, an international organization, published a case study that demonstrated how RPA was used in the finance department to reduce processing time by 70% and reduce errors by 50%. Thanks to this increase in efficiency, the finance team was able to focus on more strategic and productive tasks [5].

In addition to RPA and cloud computing, data analytics technologies are becoming increasingly important for financial decision-making. Using these tools, companies can explore huge amounts of financial data and identify important trends and patterns. Using data analytics, organizations can make informed decisions about risk management, investment strategies, and resource allocation. For example, a study conducted by a reputable financial institution showed how data analytics tools helped them identify possible fraudulent behavior. The institution saved millions of dollars by detecting and stopping fraudulent transactions by analyzing transaction data trends.

RPA software developers are actively presenting their software products, and their customers are discussing the opportunities offered by bots to save money with minimal project costs and resulting in significant resource savings [6].

Numerous international consulting companies have studied how digitalization affects accounting, finance, and control, including Deloitte, PwC, EY, and Accenture. Deloitte, for example, found that automation can reduce operating costs by 30%, and artificial intelligence improves financial forecasts by 20%. According to Accenture, big data analytics and machine learning can automate up to 60% of accounting activities [7].

**Objective.** Based on the foregoing, the purpose of the study is to analyze the development of the use of digital technologies and to identify the key factors influencing the digitalization of accounting, finance and control at the enterprise.

**Research results.** Automation of accounting operations is an important part of the accounting, finance and control system at an enterprise. Software such as QuickBooks or Xero can help automate various routine tasks, such as invoice processing, expense tracking, and tax calculation. This allows accountants to focus on more strategic areas of business management.

Businesses are also actively using cloud computing technology: Cloud solutions such as Microsoft Azure and Amazon Web Services allow companies to store and process huge amounts of financial data in real time. This improves access to data and allows for greater collaboration between teams.

An efficiently functioning accounting, finance, and control system involves data analytics and forecasting: By using various analytical methods, accountants and financial analysts can extract useful information from huge amounts of data faster and make informed management decisions.

Blockchain technology is redefining how we store records while ensuring transparency and security of transactions. For example, a company can use blockchain to verify financial statements and reduce the risk of fraud.

Artificial intelligence systems can examine financial data and find inconsistencies, identifying potential problems before they arise. For example, machine learning algorithms can use historical data to predict financial risks [6].

Mobile financial apps such as Mint and Revolut help users manage their expenses. They allow you to control your budget and make payments directly from your smartphone. This greatly simplifies personal financial planning.

However, this integration creates obstacles that need to be addressed in order to fully realize the potential of these technologies. In recent years, there has been an increase in the number of scientific articles on the use of digital technologies in accounting, finance, and control. These works show numerous advantages of using digital tools in financial procedures.

These studies focus on automation, artificial intelligence, and data analytics as important areas for optimizing financial procedures and improving accuracy.

The use of modern technologies in large consulting companies, such as Deloitte, PwC, EY, and Accenture, significantly changes their business processes and increases their efficiency [7].

Deloitte uses artificial intelligence to automate routine audit and accounting tasks. This allows the company to reduce costs by 25%, as automation facilitates faster task completion and reduces the need for human resources. However, the introduction of such technologies poses challenges related to data security, as automated systems can be vulnerable to cyberattacks.

PwC actively uses cloud computing to improve data processing. Thanks to cloud services, the company reduces data processing time by 40%. This allows companies to analyze data faster and more flexibly, which is a big plus in the face of rapidly changing market conditions. However, integrating cloud solutions with existing systems can be difficult due to the variety of data formats and platforms.

EY is implementing robotic process automation (RPA), which reduces the number of manual errors by 35%. Using RPA automates routine tasks such as data entry, which reduces the likelihood of errors that can occur during manual processing. However, the implementation of such technologies requires significant investment, which can be a challenge for many companies, especially small and medium-sized enterprises.

Accenture uses big data analytics to improve business process forecasting. Analytics allows the company to improve the accuracy of forecasts by 30%, which contributes to making more informed decisions. However, analyzing large volumes of complex data requires the involvement of qualified specialists, which creates additional challenges for the company in finding and training personnel.

While the use of these innovative technologies can improve the efficiency and accuracy of business processes, reducing costs and mitigating risks, the implementation of new solutions is accompanied by certain challenges related to data security, high implementation costs and the need for expertise.

Even with these developments, there are still some challenges with digital integration in finance and accounting that require further research. Data management is one such element. Organizations must effectively manage financial data due to its growing volume and complexity.

As digital technologies are vulnerable to cybersecurity threats, data security and privacy are also important issues. To maintain the trust of stakeholders, it is important to keep financial information confidential. In addition, the introduction of digital technologies requires staff with the necessary skills to use them effectively. The secret to successful integration is to upskill employees and provide them with the training they need to adapt to the digital revolution.

In order to fully integrate digital technologies into accounting and financial and control procedures, it will be crucial to address these outstanding issues in the future.

To guarantee the availability, quality and integrity of data, organizations must create thorough data management plans. The importance of data governance is further emphasized by several examples of data management procedures. Classifying and categorizing data is essential to ensure its suitability. Organizations can prioritize their efforts to protect and manage the most important information by classifying data according to its value and sensitivity.

Maintaining data accuracy and consistency also requires regular monitoring. Organizations can ensure the reliability and integrity of data by regularly checking and validating its accuracy to find and correct any errors or inconsistencies.

Data encryption and access control is another important practice in data management. By encrypting sensitive data and implementing access controls, organizations can protect their information from unauthorized access and potential breaches.

Finally, data lifecycle management helps organizations track the use and storage of data throughout its lifecycle. By understanding how data is created, used, stored, and ultimately deleted, organizations can ensure effective data management and reduce storage costs. In addition, organizations should prioritize employee training and development programs to equip them with the skills and knowledge necessary to use digital technologies. In this way, organizations will be able to reap the benefits of digital integration, such as increased efficiency, reduced costs, and improved decision-making.

One of the areas of research that attracts considerable attention is the introduction of cloud computing in financial processes and reporting [2]. The use of cloud technologies provides users with access to financial data and reports from anywhere in the world and at any time. This significantly increases the efficiency of accounting processes and optimizes cooperation between financial professionals. The introduction of cloud financial technologies allows an accounting firm to cut the time for preparing reports in half. This has a positive impact on decision-making, as the company can make decisions faster and more accurately. In addition to saving time, cloud-based technologies allow for better management of company resources and ensure compliance with regulatory requirements.

The integration of advanced technologies such as RegTech and artificial intelligence plays an important role in improving financial reporting processes. These technologies not only improve the accuracy of reports, but also help companies meet ever-increasing regulatory requirements.

However, along with the benefits, it is necessary to pay attention to important data security issues in cloud environments. Storing financial information in the cloud increases the risks associated with data privacy and cybersecurity. Therefore, companies should implement additional measures to protect information and ensure its safe storage.

Cloud platforms allow firms to optimize their resources and increase productivity by quickly adapting to changing workloads. This helps companies reduce operating costs and manage infrastructure more efficiently, especially when the load on systems increases or decreases. In particular, companies can dynamically configure computing resources, thereby ensuring cost-effectiveness and operational flexibility.

Cloud computing allows accounting firms to easily scale their computing capacity in line with changes in the volume of operations. This means that firms can quickly increase or decrease resources depending on their needs, which is important for ensuring flexibility and adaptability to market conditions.

However, along with the benefits, there are issues related to data security. The main threats are unauthorized access to confidential financial information and violation of its integrity [4]. To address these challenges, hybrid metaheuristic algorithms are used to improve the reliability of cloud systems. Implementation of such algorithms allows to protect financial information from unauthorized access and increase the security of data processing. Thus, cloud computing not only increases efficiency, but also creates new challenges related to security and privacy compliance

Despite the many benefits of cloud computing, security challenges remain a major concern for accounting firms. Ensuring reliable data protection is key to the successful implementation of these technologies in the financial sector.

It is also necessary to pay attention to the communication between technological systems - for the correct functioning of mobile applications, online services, etc. When the mutual integration of information management systems is important, the Application

Programming Interface (API) is used. API ensures the integration of technological systems of software solutions of the accounting system and other applications - for example, integration of an online store with a warehouse inventory program, mobile applications with an order systematization system, etc. [8].

**Conclusions.** Thus, the integration of digital technologies into the accounting, finance and control system requires a strategic approach that takes into account the complexities of data management, cybersecurity risks and staff development. While digital technologies offer numerous opportunities to increase efficiency and improve decision-making, there are still outstanding issues to be addressed, such as data management, cybersecurity, and staff development.

By developing comprehensive strategies, organizations can fully exploit the potential of digital technologies and ensure sustainable business growth. Future research should focus on exploring innovative approaches to data management, cybersecurity, and staff development, which will facilitate further integration of digital technologies into accounting, finance, and control.

### Список використаної літератури

1. Бардаш С. В., Грабчук І. Л. Цифрові технології в сфері бухгалтерського обліку: основні можливості та ризики. *Ефективна економіка*. 2021. № 9. URL: <http://www.economy.nayka.com.ua/?op=1&z=9301>.
2. Benjamin Samson Ayinla, Ndubuisi Leonard Ndubuisi, Akoh Atadoga, Onyeka Franca Asuzu, Chinedu Ugochukwu Ike and Rhoda Adura Adeleye. Enhancing accounting operations through cloud computing: A review and implementation guide. URL: <https://wjarr.com/sites/default/files/WJARR-2024-0441.pdf>.
3. Akoh Atadoga, Uchenna Joseph Umoga, Oluwaseun Augustine Lottu and Enoch Oluwademilade Sodiya. Evaluating the impact of cloud computing on accounting firms: A review of efficiency, scalability, and data security. URL: <https://gjeta.com/content/evaluating-impact-cloud-computing-accounting-firms-review-efficiency-scalability-and-data>.
4. Ратинський В. В. Інформаційні технології в бухгалтерському обліку. перспективи та проблеми. *Економіка. Фінанси. Право*. 2021. № 4 (1). С. 17–20. URL: <http://efp.in.ua/uk/journal-item/297>.
5. Van der Aalst, W.M.P., Bichler, M., Heinzl, A. (2018). Robotic Process Automation. *Bus Inf Syst Eng.*, 60: 269–272. DOI: <https://doi.org/10.1007/s12599-018-0542-4>.
6. DeBrusk, Chris. Five Robotic Process Automation Risks to Avoid. URL: <https://sloanreview.mit.edu/article/five-robotic-process-automation-risks-to-avoid/>
7. Amy Foshee Holmes and Ashley Douglass. Artificial Intelligence: Reshaping the Accounting Profession and the Disruption to Accounting Education. URL: <https://publications.aaahq.org/jeta/article-abstract/19/1/53/157/Artificial-Intelligence-Reshaping-the-Accounting?redirectedFrom=fulltext>.
8. Бунда О. М., Матюха М. М. Цифровізація системи бухгалтерського обліку підприємства. *Журнал стратегічних економічних досліджень*. 2023. № 6 (17). С. 133–142. URL: <https://er.knutd.edu.ua/handle/123456789/26285>.