



## ACCOUNTING AND TAXATION

### ОБЛІК І ОПОДАТКУВАННЯ

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#### IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGIES IN THE SYSTEM OF AUTOMATED ACCOUNTING IN UKRAINE: TRENDS AND DEVELOPMENT PROSPECTS

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**Summary.** *The article examines the current state of accounting automation in Ukraine and assesses the potential for integrating blockchain technologies into accounting information systems and ERP platforms. The functional capabilities of modern software solutions for automating accounting and management processes, including cloud-based and on-premise systems, are analyzed with regard to transparency, security, integration, cost efficiency, and regulatory compliance. It is identified that traditional centralized approaches do not always ensure a sufficient level of control, reliability, and protection of accounting data, especially when interacting with distributed, governmental, and banking services, which substantiates the need to seek new technological solutions to enhance the efficiency of accounting processes. The advantages of blockchain in accounting are explored, including the creation of a decentralized and immutable ledger of financial transactions, increased transparency and reliability of accounting data, and the automation of control and audit processes. The integration of blockchain with ERP systems enables the organization of a unified accounting information environment in which all transactions are recorded in a distributed ledger, while smart contracts automatically execute predefined accounting operations. This contributes to resource optimization, reduction of labor and financial costs, improvement of internal control efficiency, and minimization of the risk of human error. Technical and organizational constraints to blockchain implementation are identified, including the need for staff training, adaptation of existing ERP systems, modernization of IT infrastructure, and ensuring cybersecurity while maintaining network openness. Comprehensive blockchain integration creates prerequisites for digital auditing, real-time monitoring of financial flows, and enhanced effectiveness of managerial decision-making at all organizational levels. The research findings confirm that the implementation of blockchain technologies in accounting significantly increases the reliability, transparency, and control of accounting processes, promotes audit digitalization and automated data verification, and forms the foundation for the development of the «digital trust» concept. The technology is particularly relevant for medium and large enterprises, financial institutions, and public sector organizations, where ensuring effective management, resource optimization, and the reliability of financial information is critically important in the modern digital economy.*

**Key words:** *blockchain, accounting, ERP, AIS, integration, transparency, cybersecurity, automation, digital transformation.*

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## УПРОВАДЖЕННЯ BLOKCHAIN-ТЕХНОЛОГІЙ В СИСТЕМУ АВТОМАТИЗОВАНОГО БУХГАЛТЕРСЬКОГО ОБЛІКУ В УКРАЇНІ: ТЕНДЕНЦІЇ ТА ПЕРСПЕКТИВИ РОЗВИТКУ

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**Резюме.** Досліджено сучасний стан автоматизації бухгалтерського обліку в Україні та оцінено потенціал інтеграції blockchain-технологій в облікові інформаційні системи та ERP-платформи. Проаналізовано функціональні можливості сучасних програмних рішень для автоматизації бухгалтерських та управлінських процесів, зокрема хмарних і локальних систем, із урахуванням прозорості, безпеки, інтеграції, економічності та нормативної відповідності. Виявлено, що традиційні централізовані підходи не завжди забезпечують достатній рівень контролю, достовірності та захисту облікових даних, особливо при взаємодії з розподіленими, державними та банківськими сервісами, що обґрунтовує необхідність пошуку нових технологічних рішень для підвищення ефективності облікових процесів. Досліджено переваги blockchain у бухгалтерському обліку: формування децентралізованого та незмінного реєстру фінансових операцій, підвищення прозорості та достовірності облікових даних, автоматизація контролю й аудиту. Інтеграція blockchain з ERP-системами дозволяє організувати єдине інформаційне середовище обліку, де всі операції фіксуються у розподіленому реєстрі, а смарт-контракти автоматично виконують визначені облікові операції. Це сприяє оптимізації ресурсів, скороченню трудових та фінансових витрат, підвищує ефективність внутрішнього контролю та знижує ризики людських помилок. Визначено технічні й організаційні обмеження впровадження blockchain: потребу в підготовці персоналу, адаптації існуючих ERP-систем, модернізації IT-інфраструктури та забезпеченні кібербезпеки при збереженні відкритості мережі. Комплексна інтеграція blockchain створює передумови для цифрового аудиту, контролю фінансових потоків у режимі реального часу та підвищення ефективності управлінських рішень на всіх рівнях організації. Результати дослідження підтверджують, що впровадження blockchain-технологій в бухгалтерський облік значно підвищує надійність, прозорість та контроль облікових процесів, сприяє цифровізації аудиту, автоматизації перевірки даних і формує основу для розвитку концепції «цифрової довіри». Технологія особливо актуальна для середніх і великих підприємств, фінансових установ та державних організацій, де критично важливо забезпечити ефективність управління, оптимізацію ресурсів та достовірність фінансової інформації в умовах сучасної цифрової економіки.

**Ключові слова:** blockchain, бухгалтерський облік, ERP, AIS, інтеграція, прозорість, кібербезпека, автоматизація, цифрова трансформація.

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**Problem statement.** The modern economy of Ukraine is undergoing a phase of active digital transformation that encompasses all spheres of economic activity, including accounting. Under conditions of martial law and limited resources, the implementation of innovative technologies that ensure the security, reliability, and efficiency of accounting processes becomes especially relevant. One of the key technologies in this regard is blockchain, which makes it possible to create an immutable, transparent, and cryptographically protected accounting ledger.

Despite the growing interest of businesses in distributed ledger technology, the level of its practical application in Ukrainian companies remains low. This is due both to an insufficient regulatory framework and to the high cost of implementation, as well as the absence of unified standards for integration with existing ERP systems. At the same time, blockchain has the potential to increase trust in financial reporting, reduce audit costs, and minimize the risk of data falsification, which is particularly important in conditions of wartime instability and the growing number of cyber threats.

Moreover, the digitalization of financial reporting requires a new approach to the identification, verification, and storage of accounting information, where traditional centralized models no longer provide adequate protection against external interference. Blockchain technology enables the creation of a decentralized accounting infrastructure in which each transaction is verified by a network of participants, ensuring its authenticity and immutability.

Nevertheless, Ukrainian practice in accounting automation is still mainly focused on traditional ERP systems (such as BAS ERP, SAP, and Oracle NetSuite), which do not have built-in mechanisms for working with blockchain technologies. This creates a gap between the technical readiness of enterprises for digitalization and the real possibilities of integrating decentralized ledgers into current accounting processes. Therefore, there is a need for a scientific understanding of the conceptual and practical foundations of blockchain application in accounting, assessing its effectiveness, and identifying barriers to its integration into automated systems.

**Analysis of recent research and publications.** The issue of implementing modern information technologies in accounting has become the subject of active scientific research both in Ukraine and abroad. A significant number of scientific studies focus on the automation of accounting processes, the development of enterprise management information systems, and the use of software products in accounting practice. In particular, Ponomaryova T. V. and Matyushko M. M. [1] investigate the features of applying accounting automation software in Ukrainian enterprises; Yurchuk N. P. [2] analyzes the functional capabilities of management information systems; and Starenka O. M. [3] identifies the key trends in the digitalization of accounting processes in small businesses.

A separate area of research is related to studying the impact of digital technologies on the organization of accounting as a whole. In particular, studies devoted to the digital transformation of accounting systems emphasize the changing role of the accountant and the transition from paper-based and centralized accounting models to automated and integrated information environments. In this context, M. G. Berezivska examines the development of the organization of accounting under the influence of technological changes, emphasizing the integrated use of automated systems, cloud platforms, artificial intelligence, the Internet of Things, and blockchain as interconnected elements of the digital accounting ecosystem [4]. The author emphasizes that a common feature of modern innovative technologies is their focus on increasing the transparency, security, and reliability of accounting information, while also noting the insufficient development of methodological and organizational approaches to their integration into accounting practice.

The issues of applying blockchain technologies in accounting and auditing are addressed in the works of several scholars. In particular, Popivniak Yu. M. [5] emphasizes the potential of distributed ledger technology for automating the verification of business transactions, increasing the transparency of financial information, and reducing information asymmetry among users of financial statements. The author notes that blockchain can significantly change approaches to the formation and verification of accounting data; however, its practical implementation in Ukraine is constrained by the lack of methodological recommendations and standards for integration with existing ERP systems.

In more recent studies (Skrypnyk S. V., Slyvka Ya. V., Muzychenko T. O. [6]; Yurchenko O. A., Savchenko R. V. [7]), blockchain is considered a tool for increasing trust in financial reporting and improving audit efficiency. The authors emphasize that the immutability of records in a distributed ledger makes it possible to reduce the risks of manipulation with accounting data and simplify control procedures. At the same time, it is noted that domestic accounting practice is characterized by the absence of a standardized approach to the use of blockchain in automated accounting systems, especially at the level of small and medium-sized enterprises.

International research also confirms the growing role of blockchain technologies in transforming accounting and financial information systems. In foreign academic literature, blockchain is viewed as a foundation for creating decentralized accounting ledgers that ensure transparency and immutability of accounting records, increase the reliability of financial information, and help reduce the time required to verify transactions. In particular, the results of review studies indicate that the use of distributed ledger technology can reduce audit costs and create the preconditions for a transition to continuous or real-time auditing models. At the same time, foreign scholars emphasize the need to integrate blockchain solutions with corporate information systems and to adapt traditional accounting methodologies to the new technological conditions of accounting practice [8–11].

In Ukraine, within the framework of the digital transformation strategy initiated by the Ministry of Digital Transformation, certain blockchain solutions are already being implemented in public financial and administrative registries in order to increase the transparency of electronic services and ensure compliance with European standards. Among such initiatives is the Ministry's support for the analysis and implementation of pilot blockchain projects in the public sector, including technologies for maintaining real estate rights registries, the land cadastre, digital logistics, and decentralized electronic services [12]. However, these developments still have limited application in corporate accounting practice and have not yet been systematically integrated into automated accounting platforms of enterprises.

Thus, the analysis of scientific research demonstrates a high level of attention to the problems of automation and digitalization of accounting, as well as a growing interest in blockchain technologies as a tool for increasing the transparency, reliability, and credibility of financial information. At the same time, the majority of scientific works focus mainly on general theoretical aspects of digital transformation or on individual technological solutions, leaving aside the issue of systematic integration of blockchain into existing automated accounting systems. Moreover, the practical aspects of integrating blockchain technologies with ERP systems, assessing the economic efficiency of their implementation, and evaluating the impact of decentralized ledgers on the organization of accounting remain insufficiently studied. This determines the purpose and objectives of this study and outlines the direction for further practical and scientific developments.

**The purpose of the study** is to assess the current state of accounting automation in Ukraine and to substantiate the potential, advantages, and limitations of integrating blockchain technologies into existing automated accounting systems, taking into account the digital transformation of the economy.

**Problem statement (research objectives).** To achieve the purpose of the study, the following objectives are set: to assess the current state of accounting automation in Ukraine and its compliance with the principles of digitalization; to summarize the functional capabilities and limitations of widely used ERP and accounting systems with regard to blockchain integration; to determine the advantages, risks, and economic feasibility of implementing blockchain technologies in Accounting Information Systems (AIS); and to develop practical recommendations for integrating blockchain into existing accounting systems.

The study applies a systemic approach to analyze the interconnections between the elements of the digital infrastructure of accounting; methods of analysis, synthesis, and generalization to identify trends, advantages, and risks associated with blockchain implementation; as well as comparative and graphical methods to visually present the characteristics of software products and the processes of accounting automation.

**Presentation of the main research material.** The automation of accounting covers the entire cycle of processing primary documents, preparing financial and tax reporting, management analytics, monitoring budget execution, and forecasting financial indicators. Modern information systems provide not only the recording of business transactions but also

automated control, electronic document management, integration with banking, tax, and other electronic reporting services (including SOTA and MEDoc), as well as the creation of analytical dashboards for managerial purposes.

Among the key requirements for accounting software in the context of digitalization are compliance with national accounting standards, the ability to promptly update the system in accordance with legislative changes, flexibility of integration with other information systems, ensuring an appropriate level of data protection, and support for cloud or hybrid deployment models.

The 1C and BAS software suites occupy a dominant position in the accounting automation market in Ukraine despite ongoing import substitution efforts [13; 14]. Their popularity is explained by their extensive functionality and integration with government services. At the same time, this situation highlights the need to strengthen cybersecurity and implement innovative technologies to ensure the reliability and integrity of accounting data.

At the beginning of 2026, the State Service of Special Communications and Information Protection of Ukraine published an official list of software prohibited for use in the public sector. This list includes 1C and BAS products, such as BAS ERP, BAS Accounting, and BAS Document Management. Despite the registration of BAS ERP in Poland, Ukrainian regulators consider it part of an ecosystem associated with technologies of the aggressor state due to its architectural and functional similarity to the Russian 1C platform [15–17].

These regulatory restrictions highlight the need to search for alternative technological solutions in the field of accounting automation that can provide not only a functional replacement for the prohibited software but also a higher level of trust, security, and integrity of accounting data. In this context, blockchain technologies are gaining particular attention, as they can serve as an innovative technological layer over existing ERP and Accounting Information Systems (AIS), strengthening control, transparency, and the security of accounting processes.

Given the diversity of solutions available on the market, the problem of making a well-founded choice of software arises. Such a choice cannot rely solely on cost or popularity; instead, it requires a comprehensive evaluation of technical, functional, regulatory, and organizational parameters. In order to systematize approaches to the evaluation of accounting software and determine the priority of specific characteristics, a set of key criteria with corresponding weighting coefficients has been developed. These coefficients reflect their significance based on a generalization of scientific publications and the practical use of accounting information systems. The systematization of these criteria is presented in Table 1.

**Table 1.** Criteria of the accounting software evaluation

<i>№</i>	<i>Criterion</i>	<i>Description</i>	<i>Weight (%)</i>
1	Functionality	Accounting, payroll, VAT, reporting, analytics	25
2	Compliance with legislation	Automatic updates for changes in the Tax Code of Ukraine (TCU), and National Accounting Standards (NAS)	20
3	Integration	With banks, COTA, CRM, ERP	15
4	Cost	License, subscription fee, implementation	10
5	Interface usability	Intuitiveness, mobile access	8
6	Data security	Encryption, GDPR, reservation	8
7	Support service	24/7, in Ukrainian	5
8	Scalability	Expansion opportunity for business growth	4
9	Data migration	Import from «1C» without loss	3
10	User reviews	Rating on specialized forums	2

Source: compiled by the author based on a generalization of scientific publications and practical recommendations on the selection of accounting software.

The analysis of the criteria for evaluating accounting software presented in Table 1 indicates that functionality and compliance with legislation play a decisive role in the process of selecting an appropriate accounting system, together accounting for almost half of the total integral evaluation (45%). The dominance of these criteria is обусловлено the need for continuous and timely software updates in accordance with changes in tax and accounting legislation, as well as the wide range of tasks automated within the modern accounting process. These tasks include the recording of business transactions, preparation of financial and tax reporting, management analytics, and control functions.

A significant role in the structure of criteria is also played by the level of integration with external services (15%), which is driven by the growing need for enterprises to ensure interaction between accounting systems and banking platforms, electronic reporting services, electronic document management systems, and other information resources. A high level of integration makes it possible to significantly reduce the volume of manual data processing, decrease the likelihood of errors, and improve the overall efficiency of accounting processes.

A relatively smaller, yet still important role in the selection of accounting software is played by such criteria as cost, interface usability, and data security. These parameters are particularly important for small businesses that seek to minimize the costs of implementing and maintaining accounting systems without compromising the quality of information support and the level of protection of accounting data. At the same time, the criteria of scalability and data migration have a smaller weight in the overall assessment; however, they determine the enterprise's development potential in the medium and long term by ensuring the possibility of adapting the accounting system to growing business activity and structural changes.

Thus, the proposed multi-criteria model for evaluating accounting software demonstrates a balanced approach to the selection of accounting systems by combining technical, regulatory, and managerial aspects of their functioning. Taking these criteria into account enables enterprises not only to assess the level of functionality and compliance of software with current regulatory requirements but also to develop a well-grounded structure for implementing an accounting system while considering risk factors, scalability, and integration capabilities. In practical terms, this means that the selection of a software solution in the accounting automation market should be based on a comprehensive analysis of key parameters, which makes it possible to conduct a comparative evaluation of alternative software products.

The criteria for evaluating accounting software identified within the study and their corresponding weighting coefficients (Table 1) form the methodological basis for further comparative analysis of software solutions used in Ukraine for the automation of accounting and related accounting processes. Taking into account the results of the multi-criteria evaluation, a comparison of the most widely used software products has been carried out based on functional, technological, and organizational parameters. The information base for this comparison consists of generalized data from the official websites of software developers and suppliers, open-access materials, and practical reviews of the accounting information systems market. The main characteristics of the software solutions are summarized in **Table 2**. The analysis of the data presented in Table 2 indicates a significant diversity of accounting software solutions in the Ukrainian market in terms of deployment type, functional capabilities, and target audience. Cloud services (M.E.Doc, Dilovod, BookKeeper, SMARTFIN.UA, Oblik SaaS, Accounting Online) demonstrate a high rate of adoption due to relatively low IT infrastructure costs, rapid updates in response to legislative changes, and the mobility of access.

Local systems (MASTER, Debit Plus, BAS) remain in demand among medium and large enterprises, providing greater control over data, higher confidentiality, and improved performance. Comprehensive ERP platforms (BAS, Odoo, Microsoft Dynamics 365, SAP S/4HANA) enable the consolidation of accounting and management functions, creating opportunities for analytics, forecasting, and automated control of financial flows.

**Table 2.** Comparative characteristics of software solutions for automating accounting and related accounting processes in Ukraine

<i>Software</i>	<i>Type of solution</i>	<i>Main functional modules.</i>	<i>Level of cost*</i>	<i>Key advantages</i>	<i>Main restrictions</i>	<i>Target audience</i>	<i>Country / developer</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
M.E.DOC	Cloud-based electronic reporting and EDI service	Tax and financial reporting, electronic document management, integration with accounting systems	Low–medium	High compliance with legislation, integration with electronic services	Limited accounting functions	Sole proprietors (individual entrepreneurs), small and medium-sized businesses	Ukraine
Dilovod	Cloud accounting	Financial and management accounting, inventory management, reporting	Medium	Accounting for multiple entities within a single system, ease of use	Limited capabilities for in-depth analytics	Sole proprietors (individual entrepreneurs), small business	Ukraine
MASTER: Accounting	Cloud / desktop	Accounting, expenses, inventory, reporting, client-bank	Medium–high	Intuitive interface, analytical tools	Relatively high cost	Medium-sized businesses	Ukraine
BookKeeper	Cloud service	Operational and accounting, integration with banks	Low–medium	Ease of use, oriented toward non-profit organizations	Limited functionality for large companies	Sole proprietors (individual entrepreneurs), non-profit organizations	Ukraine
Debet plus	desktop / SaaS	Payroll, asset accounting, operational accounting	Medium	Multifunctionality, adaptable to various types of activities	Implementation complexity	Enterprises and institutions of various ownership forms	Ukraine
SMARTFIN.UA	Cloud service	Accounting for individual entrepreneurs, reporting, mobile access	Low	Microbusiness-oriented, ease of use	Limited capabilities for complex accounting systems	Sole proprietors (individual entrepreneurs), microbusinesses	Ukraine
Облік SaaS (summarized cloud solution)	Cloud SaaS-solution	Accounting, CRM integration, reporting	Low-medium	Flexibility, no need for local software	Dependence on internet connection	Small and medium-sized enterprises	Ukraine
Online accounting (typical cloud solution)	Cloud service	Income and expense accounting, bank integrations	Low	Designed for simplified taxation system	Limited analytical capabilities	Sole proprietors (individual entrepreneurs), microbusinesses	Ukraine
BAS Accounting	local / cloud system	Full cycle of accounting and tax accounting	Medium–high	Flexibility, familiar interface for «1C» users	Implementation and support costs	Small and medium-sized enterprises	Poland (on the platform 1C)

End of table 2

1	2	3	4	5	6	7	8
Microsoft Dynamics 365	Cloud ERP-system	Financial accounting, business analytics, CRM integration, AI	High	Global integration, scalability	Implementation complexity	Medium and large businesses	USA
SAP S/4HANA	Cloud ERP-system	Comprehensive enterprise management, finance, analytics, AI	Very high	High scalability, comprehensive functionality	High cost and complexity	Large corporations	Germany
Odoo	Local / cloud ERP	Modular ERP + CRM, financial accounting	Medium	Flexible modular architecture, open source	Requires professional configuration	Medium and large businesses	Belgium

\* The cost level is presented in a generalized form (low / medium / high) taking into account typical pricing offers and implementation practices.

Source: compiled and systematized by the author based on publicly available data from the official web resources of software developers and vendors, as well as analytical reviews of the accounting information systems market; the characteristics are актуальні as of 2025.

At the same time, the high cost, complexity of configuration, and the need for qualified specialists significantly limit the spread of comprehensive ERP systems among small businesses. In the modern digital environment, the choice of software should be based on the scale of business operations, the level of digital readiness, the structure of accounting processes, and the requirements for integration with government services.

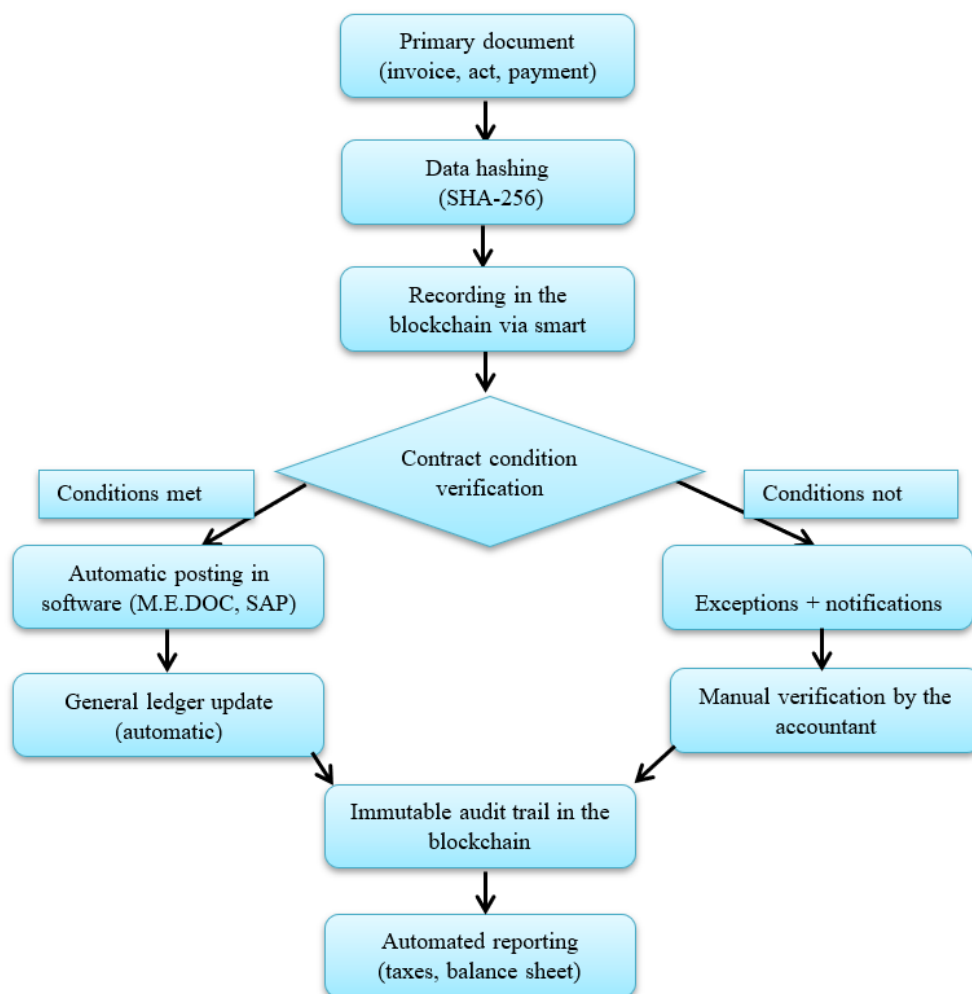
The fragmentation of software solutions, the use of different deployment models (local and cloud-based), and the integration of accounting systems with external services and government registries increase the requirements for the protection of accounting information and the management of cyber risks. Under such conditions, the security of accounting information systems becomes one of the key criteria in selecting software.

The relevance of this issue is confirmed by analytical data indicating an increase in the number of cyberattacks on enterprise information systems, which points to a higher risk of data loss and the need to implement comprehensive protection measures. Such measures include data encryption, multi-level authentication, regular backups, penetration testing, and disaster recovery procedures.

The conventional centralized approaches to storing and processing accounting information do not always ensure an adequate level of control, transparency, and data resilience in the digital environment. For this reason, interest in blockchain technologies is growing as a decentralized tool capable of complementing existing accounting systems by recording transactions in an immutable distributed ledger.

The integration of blockchain into accounting systems takes place within the broader context of the digital transformation of Ukraine's economy, where the automation of accounting processes goes beyond purely operational optimization. Within automated accounting systems, blockchain functions as an independent registrar of financial events. Practical implementations of this technology are already emerging: in 2024, the Ministry of Digital Transformation initiated pilot projects involving the use of blockchain in public financial registries, while leading ERP platforms (BAS ERP, IT-Enterprise, SAP Business One, Microsoft Dynamics 365) are developing blockchain-based monitoring and audit modules.

For clarity, the principle of blockchain operation in accounting is presented in the form of a diagram (Figure 1).



**Figure 1.** How blockchain operates in accounting

Source: compiled by the author on the basis of [18–20].

The accounting process using blockchain consists of several stages: the creation of a primary document, verification of data authenticity, encryption into a block, and entry into a shared distributed ledger. Each new block confirms the previous one, forming a sequential chain of immutable records. As a result, accounting acquires the properties of continuity, transparency, and decentralized control, while the role of the accountant is transformed into that of a digital environment administrator responsible for data integrity and the configuration of smart contracts. The expected practical effects of implementing blockchain in accounting are systematized in Table 3.

**Table 3.** Generalized advantages of implementing blockchain technologies in accounting

<i>Aspect</i>	<i>Advantages of blockchain</i>	<i>Expected effects in accounting</i>
Transparency	Immutability of accounting data	Enhancing the reliability and transparency of financial reporting
Safety	Decentralization, encryption	Reducing the risk of cyberattacks, increasing the resilience of the information system
Cost-effectiveness	Automation of control and auditing	Optimizing costs for audits and internal control
Integration	Smart contracts, integration with accounting software	Improving the efficiency of financial flow management
Regulatory compliance	Compliance with legislation and digital standards	Preparing for integration into the modern digital economy

Source: compiled by the author based on [18–20].

The analysis of Table 3 shows that the most significant effect of blockchain lies in ensuring the transparency and immutability of accounting data, which reduces the risks of errors and fraudulent activities. At the same time, the use of this technology requires resources for configuring ERP systems, training personnel, and ensuring cybersecurity, which at the present stage acts as a constraining factor for its widespread adoption. Thus, blockchain serves as an innovative tool for increasing the efficiency and reliability of accounting, creating the foundation for the development of the concept of «digital trust» and the transition to modern digital auditing.

The realization of blockchain's advantages in accounting is directly related to its integration into AIS and corporate ERP platforms. In modern AIS, blockchain functions as a tool for enhancing trust in accounting data due to the immutability of records, the transparency of transaction chains, and the time stamp of each transaction. This is particularly important for accounting, where the accuracy, completeness, and reproducibility of information ensure the reliability of internal control and the credibility of external financial reporting. The distributed nature of blockchain makes it impossible to alter transaction logs retrospectively, which significantly reduces the risks of manipulation and fraud [21; 22].

The integration of blockchain with AIS and ERP systems makes it possible to automate the control of business transactions, ensures rapid access to data for all participants in the accounting process, and supports the implementation of the principles of digital trust. One of the key tools is smart contracts, which automatically execute specified accounting operations when certain conditions are met, such as the receipt of funds or goods.

For clarity, the key directions of blockchain's impact on AIS and the related aspects of cybersecurity are summarized in Table 4.

The analysis of the data in Table 4 indicates that the integration of blockchain into AIS increases the reliability, transparency, and control of financial data. The distributed structure of the ledger ensures the immutability of records and full traceability of transactions, which reduces the likelihood of errors and fraudulent activities. The use of smart contracts enables the automation of standard accounting processes and improves the efficiency of internal control. At the same time, the technology requires additional resources, adaptation of ERP systems, and personnel training. Particular attention should be paid to cybersecurity: multi-level authentication, access rights management, and data backup are essential measures. Blockchain in AIS should be considered as a technological layer of existing systems that enhances the reliability and control of data, promotes the digitalization of accounting, and creates conditions for automated auditing.

**Table 4.** The role of blockchain in accounting information systems and its impact on cybersecurity

<i>Direction of blockchain impact</i>	<i>Impact on Accounting Information Systems (AIS) and accounting</i>	<i>Cybersecurity: capabilities and risks</i>
Distributed ledger structure and immutability of records	Creation of a sequential and immutable chain of accounting transactions, where each record is linked to the previous one, enhancing data integrity and simplifying audits	Improved protection against unauthorized modification of accounting information; reduced risk of falsification, but requires safeguarding access keys and network nodes
Transparency and traceability of transactions	Ensures full traceability of assets and liabilities from primary documents to final reporting, enhancing accounting control functions	Increased transparency for stakeholders and regulatory authorities; potential risks of sensitive information exposure without proper access segmentation
Integration with AIS, ERP, and management accounting	Automated reconciliation of data between departments and counterparties; integration of blockchain records with ERP modules	Reduction of manual operations and errors; requires standardization of protocols and secure exchange interfaces
Automated control and smart contracts	Configuration of smart contracts for automatic execution of standard business transactions	Enhances internal control and timely recording of operations; risks include errors in smart contract code or malicious exploitation
Technical and organizational implementation barriers	Adaptation of existing accounting processes, staff training, modernization of IT infrastructure	High cost, integration complexity, regulatory uncertainty, risks to confidentiality, shortage of qualified specialists

Source: based on [21; 22].

The implementation of blockchain in an automated accounting system increases the reliability, control, and efficiency of accounting processes by ensuring the automated recording of transactions in a distributed ledger and strengthening the cybersecurity of AIS and ERP systems. The integration of this technology enables the creation of a unified digital accounting environment that facilitates the automation of auditing.

For the practical application of blockchain, a comprehensive approach is required, involving technical integration, adaptation of organizational procedures, staff training, and the provision of cybersecurity. Such an approach forms the methodological and technological basis for the development of digital auditing and managerial transparency, creating the prerequisites for the further integration of innovative technologies into accounting.

**Conclusions.** The conducted study demonstrates that the digitalization of accounting in Ukraine is gradually transitioning to a new qualitative level focused on the integration of innovative technologies and automated accounting systems. In particular, it has been established that:

1. ERP systems and cloud services (BAS, M.E.Doc, Dilovod, etc.) remain the foundation of accounting and management process automation, ensuring integrated data management, reporting, and analytics.

2. The use of blockchain increases the transparency and reliability of accounting data, ensures the recording of transactions in a distributed ledger, facilitates automated verification of business transactions, and reduces the impact of the human factor in accounting processes.

3. The integration of blockchain with ERP systems forms a unified digital environment that provides continuous control, automated auditing, and cybersecurity of information systems within digital accounting platforms.

4. At the same time, the implementation of the technology is complicated by technical, financial, and organizational factors, including the need for staff training, adaptation of existing ERP systems, and regulatory compliance.

Thus, the practical application of integrated systems supported by blockchain contributes to improving the effectiveness of financial control, increasing the transparency of business operations, and building trust in financial information. Further research should focus on developing methodologies for implementing blockchain in accounting information systems, standardizing digital processes, ensuring cybersecurity, and evaluating economic efficiency for various types of enterprises in Ukraine.

## References

1. Ponomarova T. V., Matiushko M. M. (2021) Analiz prohramnykh produktiv, yaki vykorystovuiutsia dlia avtomatyzatsii bukhhalterskoho obliku subiektamy pidpriumnytskoi diialnosti [Analysis of software products used to automate accounting by business entities]. *Sotsialna ekonomika*, vol. 62, pp. 148–155.
2. Yurchuk N. P. (2015) Informatsiini systemy v upravlinni diialnistiu pidpriumstva [Information systems in enterprise management]. *Ahrosvit*, no. 19, pp. 53–58.
3. Starenka O. M. (2022) Stan vykorystannia suchasnykh informatsiinykh tekhnolohii dlia bukhhalterskoho obliku na pidpriumstvakh [The state of use of modern information technologies for accounting at enterprises]. *Visnyk sotsialno-ekonomichnykh doslidzhen*, no. 1–2, pp. 61–75.
4. Berezivska M. H. (2025) Rozvytok orhanizatsii bukhhalterskoho obliku pid vplyvom tekhnolohichnykh zmin [Development of accounting organization under the influence of technological changes]. *Ekonomika, upravlinnia ta administruvannia*, no. 2 (112), pp. 54–63.
5. Popivniak Yu. M. (2019) Tekhnolohiia blokchein u bukhhalterskomu obliku y audyti: suchasnyi stan, mozhlyvosti ta perspektyvy zastosuvannia [Blockchain technology in accounting and auditing: current status, opportunities and prospects for application]. *Ekonomika, upravlinnia ta administruvannia*, no. 3 (89), pp. 137–144.
6. Skrypnyk S. V., Slyvka Ya. V., Muzychenko T. O. (2024) Blokchein-tekhnolohii v bukhhalterii: novi pidkhody do zabezpechennia prozorosti ta nadiinosti finansovoi zvitnosti [Blockchain technologies in accounting: new approaches to ensuring transparency and reliability of financial reporting]. *Ekonomika ta suspilstvo*, vol. 66.

7. Yurchenko O. A., Savchenko R. V. (2025) Rol i mistse blokchein-tekhnologii dlia vedennia obliku ta skladannia finansovoi zvitnosti [The role and place of blockchain technologies for accounting and financial reporting]. *Ekonomichnyi prostir*, no. 198, pp. 269–274.
8. Dai J., Vasarhelyi M. (2017) Toward Blockchain-Based Accounting and Assurance. *Journal of Information Systems*, vol. 31, no. 3, pp. 5–21. Doi: <https://doi.org/10.2308/isys-51804>.
9. Schmitz J., Leoni G. (2019) Accounting and Auditing at the Time of Blockchain Technology. *Accounting, Auditing & Accountability Journal*, vol. 29, no. 2, pp. 331–342. Doi: <https://doi.org/10.1111/auar.12286>.
10. Han H. et al. (2023) Accounting and auditing with blockchain technology: A literature review. *International Journal of Accounting Information Systems*, vol. 48. Doi: <https://doi.org/10.1016/j.accinf.2022.100598>.
11. Putritama A., Warsono S., Ali S., Handayani W. (2024) The impact of blockchain technology on accounting: A literature review. *Complex Systems Informatics and Modeling Quarterly*, no. 41, pp. 40–54. Doi: <https://doi.org/10.7250/csimq.2024-41.03>.
12. Ukraine explores Web3 technologies in the public sector. *ForkLog*. 18 Jul. 2024. Available at: <https://forklog.com/en/ukraine-explores-web3-technologies-in-the-public-secto> (accessed: 16 January 2026).
13. IT Ukraine Association. 75% of Ukrainian users use the Russian program «1C» – IT Ukraine Association. Dev.ua. Available at: <https://dev.ua/en/news/vykorystannia-ros-softu-1755585921> (accessed: 16 January 2026).
14. Tadviser. Ukrainian IT market. Available at: [https://tadviser.com/index.php/Article%3AIT\\_market\\_of\\_Ukraine](https://tadviser.com/index.php/Article%3AIT_market_of_Ukraine) (accessed: 16 January 2026).
15. Perelik zaboroneno do vykorystannia prohramnoho zabezpechennia ta komunikatsiinoho (merezhevoho) obladnannia: Derzhavna sluzhba spetsialnoho zviazku ta zakhystu informatsii Ukrainy [List of software and communication (network) equipment prohibited for use: State Service for Special Communications and Information Protection of Ukraine]. Available at: <https://cip.gov.ua/ua/statics/perelik-zaboroneno-go-do-vikorystannia-programno-go-zabezpechennia-ta-komunikatsiinoho-merezhevogo-obladnannia> (accessed: 16 January 2026).
16. Intelserv. Ryzky vykorystannia 1S, BAS ta UA-Biudzhet dlia biznesu v Ukraini [Intelserv. Risks of using 1C, BAS and UA-Budget for business in Ukraine]. Available at: <https://intelserv.net.ua/news/material/id/1638> (accessed: 16 January 2026).
17. OneService Consulting. Ринок ERP в Україні: тенденції та міграція від 1C/BAS (2026). Available at: <https://www.oneservice-consulting.com/blog/other-solutions-1/rynok-erp-v-ukrayini-na-porozi-2026-roku-78> (accessed: 16 January 2026).
18. Nashkerska H. V. (2023) Tekhnolohiia blokchein u bukhhalterskomu obliku: perevahy ta obmezhenia [Blockchain technology in accounting: benefits and limitations]. *Finansy Ukrainy*, no. 3, pp. 88–102. Available at: [http://nbuv.gov.ua/UJRN/Fu\\_2023\\_3\\_8](http://nbuv.gov.ua/UJRN/Fu_2023_3_8) (accessed: 16 January 2026).
19. Pravdiuk N. L., Obniavko M. V. (2022) Vprovadzhenia blokcheinu v oblikovu systemu: kroky nazustrich [Implementing blockchain into the accounting system: steps towards it]. *Efektivna ekonomika*, no. 1, pp. 1–8. Available at L: <https://socrates.vsau.org/repository/getfile.php/30625.pdf> (accessed: 16 January 2026).
20. Lukanovska I. R. (2024) Osoblyvosti blokchein-tekhnologii ta mozhlyvosti yii zastosuvannia v audytorskii diialnosti [Features of blockchain technology and possibilities of its application in auditing activities]. *Biznesinform*, no. 1, pp. 273–278.
21. Yoshikuni A. C., Dwivedi R., Dultra-de-Lima R. G., Parisi C., Oyadomari J. C. T. (2023) Role of Emerging Technologies in Accounting Information Systems for Achieving Strategic Flexibility through Decision- Making Performance: An Exploratory Study Based on North American and South American Firms. *Global Journal of Flexible Systems Management*, vol. 24 (2), pp. 199–218. Available at: <https://link.springer.com/content/pdf/10.1007/s40171-022-00334-9.pdf> (accessed: 16 January 2026).
22. Barreto A., Gomes P., Quesado P., O’Sullivan S. (2025) Advancements in Management Accounting and Digital Technologies: A Systematic Literature Review. *Accounting, Finance & Governance Review*, vol. 34. Available at: <https://afgr.scholasticahq.com/article/137301-advancements-in-management-accounting-and-digital-technologies-a-systematic-literature-review> (accessed: 16 January 2026).

### Список використаних джерел

1. Пономарьова Т. В., Матюшко М. М. Аналіз програмних продуктів, які використовуються для автоматизації бухгалтерського обліку суб’єктами підприємницької діяльності. *Соціальна економіка*. 2021. Випуск 62. С. 148–155.
2. Юрчук Н. П. Інформаційні системи в управлінні діяльністю підприємства. *Агросвіт*. 2015. № 19. С. 53–58.
3. Старенька О. М. Стан використання сучасних інформаційних технологій для бухгалтерського обліку на підприємствах. *Вісник соціально-економічних досліджень*. 2022. № 1–2. С. 61–75.
4. Березівська М. Г. Розвиток організації бухгалтерського обліку під впливом технологічних змін. *Економіка, управління та адміністрування*. 2025. № 2 (112). С. 54–63.

5. Попівняк Ю. М. Технологія блокчейн у бухгалтерському обліку й аудиті: сучасний стан, можливості та перспективи застосування. *Економіка, управління та адміністрування*. 2019. № 3 (89). С. 137–144.
6. Скрипник С. В., Сливка Я. В., Музиченко Т. О. Блокчейн-технології в бухгалтерії: нові підходи до забезпечення прозорості та надійності фінансової звітності. *Економіка та суспільство*. 2024. Випуск 66.
7. Юрченко О. А., Савченко Р. В. Роль і місце блокчейн-технологій для ведення обліку та складання фінансової звітності. *Економічний простір*. 2025. № 198. С. 269–274.
8. Dai J., Vasarhelyi M. Toward Blockchain-Based Accounting and Assurance. *Journal of Information Systems*. 2017. Volume 31. Issue 3. P. 5–21. Doi: <https://doi.org/10.2308/isy-51804>.
9. Schmitz J., Leoni G. Accounting and Auditing at the Time of Blockchain Technology. *Accounting, Auditing & Accountability Journal*. 2019. Volume 29. Issue 2. P. 331–342. Doi: <https://doi.org/10.1111/auar.12286>.
10. Han H. et al. Accounting and auditing with blockchain technology: A literature review. *International Journal of Accounting Information Systems*. 2023. Volume 48. Doi: <https://doi.org/10.1016/j.accinf.2022.100598>.
11. Putritama A., Warsono S., Ali S., Handayani W. The impact of blockchain technology on accounting: A literature review. *Complex Systems Informatics and Modeling Quarterly*. 2024. No. 41. P. 40–54. Doi: <https://doi.org/10.7250/csimq.2024-41.03>.
12. Ukraine explores Web3 technologies in the public sector. *ForkLog*. 18 Jul. 2024. URL: <https://forklog.com/en/ukraine-explores-web3-technologies-in-the-public-secto> (дата звернення: 16.01.2026).
13. IT Ukraine Association. 75% українських користувачів використовують російську програму «1С». Dev.ua. URL: <https://dev.ua/en/news/vykorystannia-ros-softu-1755585921> (дата звернення: 16.01.2026).
14. Tadviser. IT-ринок України. URL: [https://tadviser.com/index.php/Article%3AIT\\_market\\_of\\_Ukraine](https://tadviser.com/index.php/Article%3AIT_market_of_Ukraine) (дата звернення: 16.01.2026).
15. Перелік забороненого до використання програмного забезпечення та комунікаційного (мережевого) обладнання: Державна служба спеціального зв'язку та захисту інформації України. URL: <https://cir.gov.ua/ua/statics/perelik-zaboroneno-go-do-vikoristannya-programnogo-zabezpechennya-ta-komunikaciinogo-merezhevogo-obladnannya> (дата звернення: 16.01.2026).
16. Intelserv. Ризики використання 1С, BAS та UA-Бюджет для бізнесу в Україні. URL: <https://intelserv.net.ua/news/material/id/1638> (дата звернення: 16.01.2026).
17. OneService Consulting. Ринок ERP в Україні: тенденції та міграція від 1С/BAS (2026). URL: <https://www.oneservice-consulting.com/blog/other-solutions-1/rynok-erp-v-ukrayini-na-porozi-2026-roku-78> (дата звернення: 16.01.2026).
18. Нашкерська Г. В. Технологія блокчейн у бухгалтерському обліку: переваги та обмеження. *Фінанси України*. 2023. № 3. С. 88–102. URL: [http://nbuv.gov.ua/UJRN/Fu\\_2023\\_3\\_8](http://nbuv.gov.ua/UJRN/Fu_2023_3_8) (дата звернення: 16.01.2026).
19. Правдюк Н. Л., Обнявко М. В. Впровадження блокчейну в облікову систему: кроки назустріч. *Ефективна економіка*. 2022. № 1. С. 1–8. URL: <https://socrates.vsau.org/repository/getfile.php/30625.pdf> (дата звернення: 16.01.2026).
20. Лукановська І. Р. Особливості блокчейн-технології та можливості її застосування в аудиторській діяльності. *Бізнесінформ*. 2024. № 1. С. 273–278.
21. Yoshikuni A. C., Dwivedi R., Dultra-de-Lima R. G., Parisi C., Oyadomari J.C.T. Role of Emerging Technologies in Accounting Information Systems for Achieving Strategic Flexibility through Decision-Making Performance: An Exploratory Study Based on North American and South American Firms. *Global Journal of Flexible Systems Management*. 2023. Vol. 24 (2). P. 199–218. URL: <https://link.springer.com/content/pdf/10.1007/s40171-022-00334-9.pdf> (дата звернення: 16.01.2026).
22. Barreto A., Gomes P., Quesado P., O'Sullivan S. Advancements in Management Accounting and Digital Technologies: A Systematic Literature Review. *Accounting, Finance & Governance Review*. 2025. Vol. 34. URL: <https://afgr.scholasticahq.com/article/137301-advancements-in-management-accounting-and-digital-technologies-a-systematic-literature-review> (дата звернення: 16.01.2026).