



<sup>1</sup>*National University of Water and Environmental Engineering, Rivne*

## **AUTOMATION OF THE ACCOUNTING PROCESS: PROBLEM ASPECTS IN THE CONTEXT OF MODERNIZING THE ACCOUNTING SYSTEM IN THE PUBLIC SECTOR**

**This article delves into the challenges surrounding the automation of accounting processes within the context of modernizing the accounting system in the public sector. It aims to thoroughly analyze key problematic aspects arising from the integration of automated solutions, such as electronic systems and artificial intelligence, into governmental accounting. The article also addresses the social and legal implications, including their impact on employment and compliance with legislation. By providing a comprehensive overview, it seeks to highlight both the significance and complexities associated with enhancing accounting systems in the public sector through automation.**

**Keywords:** Automation; Accounting Systems; Modernization; Public Sector; Artificial Intelligence.

**Formulation of scientific problem and its significance.** In the modern era of the digital economy, there is no doubt about the need to automate many manual processes. Among them, a special place is given to the processes of public administration, since the final result – the effectiveness of public management as a whole, and the country's place in world rankings – largely depends on their speed, efficiency, accessibility, transparency.

**Analysis of recent publications.** Domestic and foreign scientists pay great attention to problematic aspects in the context of modernization of the accounting system in the public sector. Researchers point to general trends in the implementation of electronic accounting systems, the use of artificial intelligence and analytics to optimize processes, increasing attention to cyber security and data protection, as well as the need for integration with other systems to ensure effective information exchange. Such domestic scientists as Yu. Hrybovska, O. Hrytsai, Yu. Kashpur, T. Kobets, N. Khomyak, Zha. Kononenko,

I. Kryvetskyi, M. Matyushko, T. Nechiporenko, S. Oneshko, U. Peleh, T. Ponomaryova, S. Romashko, N. Shyshkova, A. Syrotynska, Z. Tenyukh, N. Tomilova-Yaremchuk, N. Yurchuk etc. Changes in the regulatory field and the need for adaptation of public sector entities, the development of the technological base of information technologies significantly actualize the need for further scientific research in this direction.

**The purpose of the article** is an in-depth analysis and disclosure of key problematic aspects related to the automation of the accounting process in the context of the modernization of the accounting system in the public sector. This article aims to provide a comprehensive view of the importance and potential challenges of improving accounting systems in the public sector through automation in the context of the variety of software products available for use.

**Presentation of the main material.** In recent years, Ukraine has done a lot to ensure the transparency of public finances. According to the Concept of creating an integrated information and analytical system «Transparent Budget» [4], the powerful information modules of the e-Data platform are currently Open Budget – regarding budget planning and implementation; Spending – regarding the use of public funds; Boost analysis is an analytical tool for researching indicators of budget execution at all levels; Proifi is a register of projects implemented with the involvement of funds from international financial organizations.

In the context of the digitization of many government processes, accounting, which is still carried out manually in many budget institutions, creates significant dissonances for further progressive changes, which in recent years have led Ukraine to become a leader in world rankings regarding the openness of public data.

The rationale for the importance of accounting automation in the public sector is multi-vector.

First, automation makes it possible to significantly reduce the time that public sector employees spend on routine accounting operations. This makes it possible to free up resources for performing more complex tasks and analyzing financial information.

Second, automation minimizes the risk of errors that can occur as a result of the human factor. This is especially important in the public sector, where the accuracy and reliability of financial information is of great importance for decision-making and compliance with applicable legal regulations.

Thirdly, the automation of accounting contributes to the improvement of the transparency of the financial activities of state



institutions. This allows the public and regulatory bodies to more easily monitor the costs and expenditures of the state budget.

Fourth, automation helps to optimize the use of financial resources, which is especially important in conditions of financial constraints and budget restrictions.

Fifth, automated accounting provides management of public sector entities convenient access to financial information necessary for strategic planning and decision-making.

Currently, there are many automated information systems on the software market that meet the requirements of the most demanding information users. The use of information systems in the management of enterprises helps to solve the following problems: reducing the complexity of decision-making (choosing a management decision from a set of possible solutions); increasing the efficiency of data processing and the reliability of information, which contributes to the adoption of more objective financial and management decisions [1].

It is worth noting that despite the rapid digitization of many processes in Ukraine, the level of coverage by automated accounting systems of public sector entities is still far from complete.

As noted by O. I. Hrytsai and Y. Ya. Kashpur, there are several reasons for non-automated accounting in the budget sector: outdated material and technical bases (updating a workplace takes 7–8 years); differences in the activities of budget institutions, because they cover educational, medical, social and other spheres; the lack of qualified personnel who have experience with updated software, as well as the insufficient level of wages, does not encourage young professionals to work in the budget sector [2].

Analyzing the practical experience of using software products by entities of the public sector of the Rivne region on the basis of a questionnaire of accountants of budgetary institutions of different functional areas, it should be noted that the most used software products are Excel and M.E.Doc. Paying tribute to the functionality of these programs, we note that they do not provide an opportunity to ensure a full-fledged automated accounting process. Of the specialized software products (in cases of automated accounting), the most frequently used ones are Is Pro, KBS, Debit Plus, MASTER: Budget institutions.

The main problem in such conditions is the differentiation of the processes that the accountant must perform: partly manually, partly in a software product (there may be several of them: Excel + M.e.Doc; specialized software product + M.e.Doc and other options), as well as entering the institution's data into e-Data, Prozorro, etc. Therefore, taking

into account the powerful development of digitization processes, the use of artificial intelligence capabilities, there is an urgent need to introduce an integrated information system that would generate generalized data on the functioning of state finances at various levels from micro-level business processes. Such a system would make it possible to unify the information environment both within the public sector entity, which would eliminate the need to use separate software products with similar functions and duplication of information; as well as at the state level – the formation of a complete information system of state finance management based on the principles of ERP systems.

The creation and implementation of an information-analytical system of accounting and financial reporting by public sector entities is one of the measures to modernize the accounting system in the public sector in accordance with the Strategy [5]. This set of measures includes the introduction of a software product for accounting and financial reporting integrated into the automation system in the public sector. Currently, such a product has not been introduced into the practice of public sector entities.

At the same time, it should be noted that the objectives of the Strategy [5] were formed back when the use of artificial intelligence systems in various social processes was not so widespread. Currently, their integration into the activities of budget institutions can not only simplify accounting, but also significantly improve financial planning, monitoring and internal control.

In addition to automating routine tasks (keeping logs, processing accounts, and forming financial statements), AI can analyze large volumes of financial data and make forecasts. This contributes to making more informed strategic decisions, as well as timely identification of trends and risks in the activities of public sector entities. AI can analyze costs, be used to forecast liquidity and plan financial resources to ensure the smooth operation of public sector entities by offering optimal solutions for the use of financial resources. In addition, AI systems can assist in maintaining and managing accounts, ensuring security and efficient access to financial information, automatically detect anomalies, unusual patterns or potential cases of fraud or errors in financial reporting, which improves the reliability of accounting.

At the same time, one should take into account the challenges facing public sector entities in the era of artificial intelligence development (Figure).

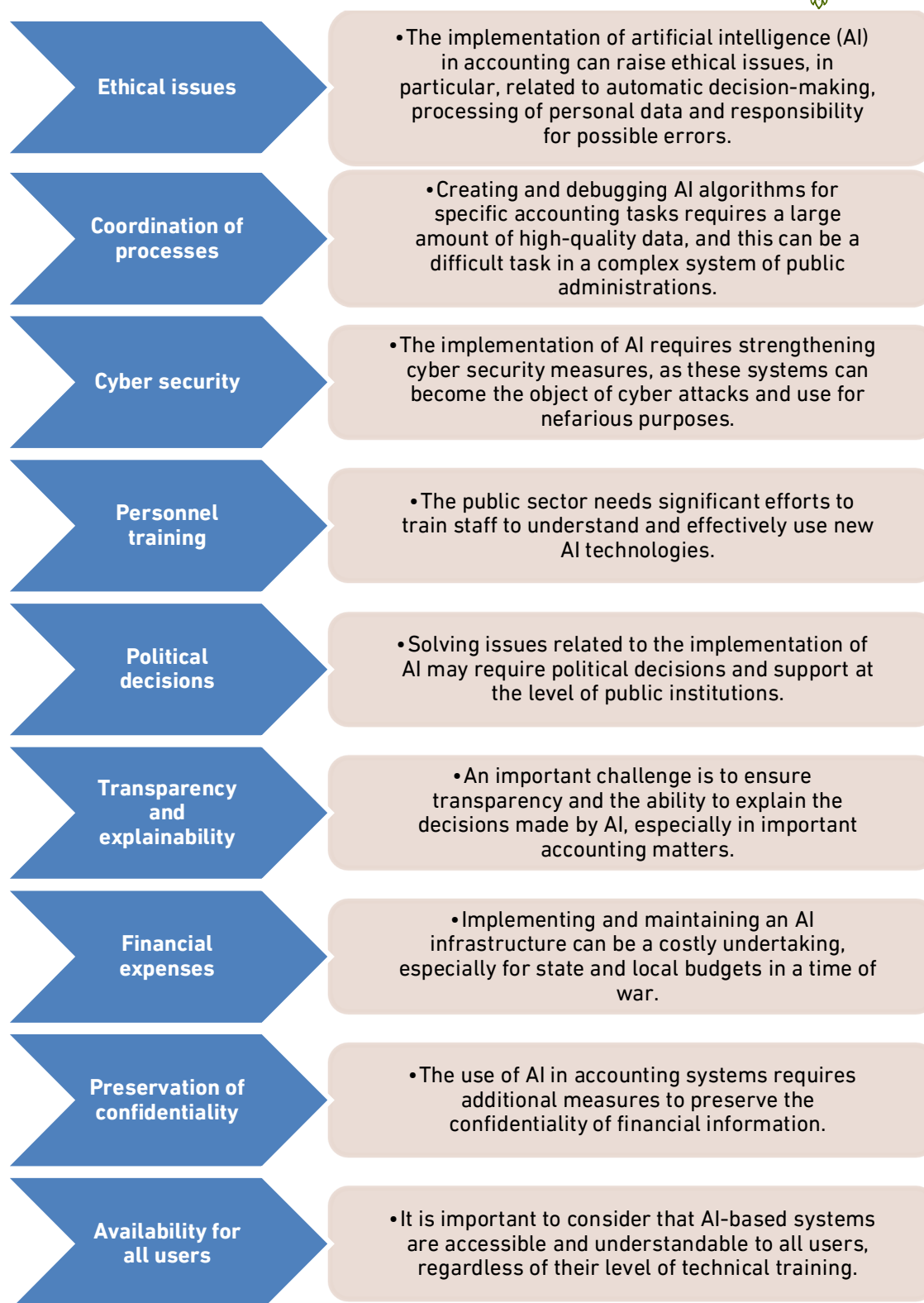


Figure. Challenges to public sector entities regarding the use of artificial intelligence

Within the framework of the implementation of the task of the Strategy on the creation and implementation of an information-analytical

system of accounting and financial reporting by public sector entities, the procedure for treasury service for the execution of budgets was modernized through the introduction of the «E-Treasury» information-analytical system, the operation of the «E-Data» portal was introduced», which make it possible to monitor the state of state and local budget accounts in real time, to estimate the amount of budget obligations, to carry out preventive control of expenses and their purpose, as well as to accept in an operational manner the financial reporting of managers of budget funds. The Treasury has created a System for submission of electronic reporting by managers and recipients of budget funds and state trust funds (AS «E-Reporting»), using which, starting with the report for the 1st half of 2018, financial and consolidated financial reporting on the implementation of state and local budgets is compiled according to the forms approved by the orders of the Ministry of Finance of Ukraine [3].

If we turn to the European experience, one of the popular programs for accounting in the public sector is «SAP for Public Sector». The platform allows you to create a single database for the country, which contains information on each object for which the institution is responsible [6]. Among the popular software solutions in global practice, it is also worth noting:

1. Oracle Financials for Public Sector: Oracle offers solutions for financial management and accounting that are used in the public sector by many countries [7].

2. Microsoft Dynamics 365 for Government: Microsoft has specialized solutions for government organizations that help manage finances, grants, and budgets [8].

3. Unit4 Financials (formerly Coda Financials): This system is used in the public sector to automate financial management and accounting [9].

The use of one of the above platforms as a basis for an integrated information and analytical system, or the development of one's own national system, is an extremely time-consuming process at the level of the public sector as a whole, as it requires the unification of data and processes, appropriate regulatory and legal regulation, systematic review of the technical data of the platforms and more. However, taking into account the powerful achievements of Ukraine in the field of digitization in recent years, recognized by the world community, these tasks are quite real and will soon be able to significantly increase the efficiency of information flows in the public sector.



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**Дорошенко О. О.** [1; ORCID ID: 0000-0002-6428-0326],

к.е.н., доцент,

**Дерманська М. О.** [1; ORCID ID: 0000-0003-2950-6112],

здобувач вищої освіти другого (магістерського) рівня

<sup>1</sup>Національний університет водного господарства та природокористування, м. Рівне

## **АВТОМАТИЗАЦІЯ БУХГАЛТЕРСЬКОГО ПРОЦЕСУ: АСПЕКТИ ПРОБЛЕМИ В КОНТЕКСТІ МОДЕРНІЗАЦІЇ СИСТЕМИ ОБЛІКУ В ДЕРЖАВНОМУ СЕКТОРІ**

Актуальність досліджуваної проблеми пов'язана з тим, що в сучасну епоху цифрової економіки немає жодних сумнівів щодо необхідності автоматизації багатьох ручних процесів. Серед них особливе місце займають процеси державного управління, оскільки від їх швидкості, ефективності, доступності, прозорості значною мірою залежить кінцевий результат – ефективність державного управління в цілому та місце країни у світових рейтингах. Зміни в нормативно-правовому полі та необхідність адаптації суб'єктів державного сектору, розвиток технологічної бази інформаційних технологій суттєво актуалізують необхідність подальших наукових досліджень у цьому напрямі.

Метою статті є поглиблений аналіз та розкриття ключових проблемних аспектів, пов'язаних з автоматизацією облікового процесу в контексті модернізації системи бухгалтерського обліку в державному секторі. Стаття має на меті надати комплексне уявлення про важливість і потенційні проблеми вдосконалення систем бухгалтерського обліку в державному секторі шляхом автоматизації в контексті різноманітності програмних продуктів, доступних для використання.

У статті розглядається важливість аспектів автоматизації бухгалтерського обліку в державному секторі. Проаналізовано стан використання в практичній діяльності бухгалтерських служб програмних продуктів автоматизованого обліку. Визначено можливості та ризики застосування штучного інтелекту у функціонуванні суб'єктів державного сектору.

Автори дійшли висновку, що використання однієї із проаналізованих платформ, що використовуються в міжнародному середовищі, як основи для інтегрованої інформаційно-аналітичної системи або розробка власної національної системи є надзвичайно трудомістким процесом на рівні державного сектору в цілому, оскільки вимагає уніфікація даних і процесів, відповідне нормативно-правове регулювання, систематичний





перегляд технічних даних платформ тощо. Проте, враховуючи потужні досягнення України у сфері цифровізації за останні роки, визнані світовою спільнотою, ці завдання є цілком реальними і вже незабаром зможуть значно підвищити ефективність інформаційних потоків у державному секторі.

**Ключові слова:** автоматизація; бухгалтерські системи; модернізація; державний сектор; штучний інтелект.

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