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## USE OF MODERN DIGITAL TECHNOLOGIES IN AUDIT: PROBLEMS AND PROSPECTS

*The article notes that the use of digital technologies is a traditional audit practice. It is emphasized that today audit procedures are mostly carried out using MS Excel. It is substantiated that the inhibition of the introduction and use of modern digital technologies by auditors is caused by several factors. The main factors are the traditional inertia of accounting and analytical specialists, the existence of a gap between accounting education and practice, and the focus on navigation rather than interpretation of source data when teaching modern digital technologies. It is proved that one of the ways to intensify the introduction of modern digital technologies in the audit is to bridge the gap between education and practice. It is emphasized that this involves revising the educational programs of auditors and applying an interdisciplinary approach to form integrated thinking in the training of auditors.*

**Keywords:** analysis, audit services, digital competences, education, practice

## ВИКОРИСТАННЯ СУЧАСНИХ ЦИФРОВИХ ТЕХНОЛОГІЙ В АУДИТІ: ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ

*Стаття присвячена дослідженню проблем використання сучасних цифрових технологій в аудиті та визначенні напрямів їх подолання. Зазначено, що використання цифрових технологій є традиційною практикою проведення аудиту. Акцентовано увагу, що менеджерами великих фірм вже сьогодні вкладені значні кошти у впровадження сучасних цифрових технологій. Проте, аудиторські перевірки здійснюють аудиторів, більшість з яких при проведенні аудиторських процедур достатньо часто неохоче покладаються на результати, які отримані на підставі використання сучасних цифрових технологій. Але саме сучасні цифрові технології створюють можливості для підвищення релевантності аудиту, розширення спектру аудиторських послуг, підвищення якості аудиту тощо. Зазначено, що сьогодні проведення аудиторських процедур здебільшого здійснюється з використанням табличного процесору MS Excel. Акцентовано увагу, що процес впровадження і використання сучасних цифрових технологій в аудиторську діяльність це тільки питання часу. Зазначено, що аудиторські фірми які першими почнуть використовувати переваги сучасних цифрових технологій зможуть отримати суттєві переваги на ринку аудиторських послуг.*

*Обґрунтовано, що гальмування впровадження та використання сучасних цифрових технологій аудиторів спричинено низкою факторів. Основними з них є традиційна інертність обліково-аналітичних фахівців (специфіка професії), наявність розриву між бухгалтерською освітою і практикою (внаслідок чого навички, отримані у процесі навчання, не трансформуються в навички, які потрібні на ринку праці) та фокусування при навчанні сучасним цифровим технологіям на навігації, а не на інтерпретації вихідних даних (що навчання здійснюється ІТ-фахівцями які не мають базових компетентностей аудиторів).*

*Доведено, що одним із шляхів активізації впровадження сучасних цифрових технологій в аудит є подолання розриву між освітою і практикою. Акцентовано увагу на тому, що це передбачає перегляд освітніх програм аудиторів та застосування міждисциплінарного підходу для формування інтегрованого мислення при підготовці аудиторів.*

*Напрямами подальших досліджень є визначення складу перспективних цифрових технологій та можливості*

їх практичного використання у бухгалтерській та аудиторській діяльності.

**Ключові слова:** аналіз, аудиторські послуги, цифрові компетентності, освіта, практика

**JEL classification:** L 84, M 40, C 89

**Formulation of the problem.** Today is characterized by total digitalization, which is one of the most important changes and problems in modern society due to its impact on all spheres of life. Digitalization has a significant impact on the audit procedure. In the context of the introduction of digital technologies, the profession of auditor is being transformed.

Even though digital technologies have been used in auditing for quite some time, most auditors around the world use the traditional time-tested spreadsheet processor MS Excel to perform their audits. Different products represent modern digital technologies and, accordingly, given the diversity of the audit, it is possible to use different digital technologies to perform various audit tasks. Nevertheless, today, most audit firms (including Big4) use traditional tools, among which the leader is the MS Excel spreadsheet processor when conducting audit procedures. MS Excel is a good product that allows auditors to automate various tasks [1], but the use of modern digital technologies creates opportunities to increase the relevance of the audit, create conditions for expanding the range of audit services, improve the quality of the audit, etc.

**Analysis of recent research and publications.** Currently, the issue of using digital technologies in the audit is a leading topic of research by both domestic and foreign scholars. Thus, A. Shapovalova, O. Kuzmenko, O. Polishchuk, T. Larikova, and Z. Myronchuk have developed a concept of modernization of the national accounting policy taking into account global trends and modern technological achievements of the digital economy, which takes place in the context of the Accounting 4.0 paradigm. Scientists note that the implementation of this concept should improve the efficiency and quality of accounting and auditing, promote the development of the digital economy, and increase the country's competitiveness in the international arena. In their research, the scientists also note that this is achieved through the introduction of modern digital technologies that automate processes, improve data analytics, and enhance the reliability and transparency of accounting and auditing. Such changes will help to increase productivity, reduce risks, and strengthen confidence in financial statements [2].

Oneshko S. V., Viter S. A., and Viremeichyk A. M. in their work developed strategic directions of development that would reduce both the number of problems and the degree of their impact on the processes of audit activities in the context of digitalization of the economy [3]. A. O. Nikolashyn outlined the main characteristics and approaches to the use of electronic procedures and algorithms for digital audit [4]. The work of V. M. Panasiuk is aimed at identifying trends and prospects for the development of domestic audit activities in the direction of its digitalization. They are most relevant for both auditors and the business community in general [5]. V. Korol, O. Dmytryk, O. Karpenko, V. Riadinska, O. Basiuk, D. Kobylnik, V. Moroz, O. Saffronova, E. Alisov, and T. Mishchenko developed

recommendations for the development of the state internal audit system in the context of digital technologies [6].

The works of S. Vitali, and M. Giuliani proved that modern digital technologies would have a positive impact on audit activities, as they will allow working more efficiently and effectively [1]. Vuković, B., Tica, T., and Jakšić, D. investigated the opportunities and challenges of key digital trends in auditing and the use of big data analytics, artificial intelligence, blockchain technology, and robotic process automation [7]. Lois, P., Drogalas, G., Karagiorgos, A. and Tsikalakis, K. investigated the features of continuous audit in the digital era from the point of view of audit firm employees. They also analyzed the current factors affecting continuous audit, as well as the methods that can be used to implement it. It is proved that technological advances are a prerequisite for creating an effective digital audit system [8].

However, paying tribute to the achievements of these authors, despite the rather deep level of developments on the use of digital technologies in the audit, issues related to the problems and prospects of using modern digital technologies in the audit require further research.

**The purpose of the article** is to study the problems of using modern digital technologies in auditing and determine the prospects for overcoming them.

**The main material.** Accounting and auditing professionals have always been characterized by a certain inertia, which we are witnessing today when introducing new digital technologies into the audit procedure. Scientists attribute this primarily to the specifics of the profession and, accordingly, the inertia of thinking of both accountants and auditors. However, the process of introducing and using modern digital technologies in audit activities is only a matter of time. Therefore, those audit firms that will be the first to take advantage of modern digital technologies will be able to gain significant advantages in the audit services market. Managers of large firms understand this and have already invested heavily in the implementation of modern digital technologies. However, audits are carried out by auditors, most of whom are quite often reluctant to rely on the results obtained using modern digital technologies when conducting audit procedures [9]. Most auditors use traditional digital technologies (most often MS Excel) when performing audit procedures, while the use of modern digital technologies (such as Power BI, and Alteryx) is very limited [10, 11]. Scientists attribute this primarily to the fact that training in the use of modern digital technologies is carried out by IT specialists who focus on navigation rather than on the interpretation of source data. However, when conducting an audit using modern digital technologies, the necessary set of skills that is most often used is the ability to interpret source data to identify anomalies and determine the impact on the audit judgment [10]. Accordingly, the auditor must have not only professional competencies but also digital ones. This necessitates the use of an interdisciplinary approach in the training of a modern

auditor [12].

When introducing new digital technologies into the audit procedure, it should be borne in mind that their use creates not only new opportunities but also leads to new risks. It is expected that by 2025, 30% of corporate audits will be performed by artificial intelligence [1]. However, digital technologies will never completely replace the human auditor but may lead to a reduction in the number of employees of audit firms and to changes in the requirements for auditor qualifications. Even today, the auditor must have digital competencies and constantly update them, and the scope of his activities is changing from collecting, processing, and transmitting data to evaluating the results of the audit using modern digital technologies and analyzing the data obtained. That is, for an auditor, possession of digital competencies, data analysis, and visualization skills, the ability to perform predictive modeling, and data mining are becoming extremely important. Accordingly, the requirements in the labor market for auditors are changing - today, an auditor with digital competencies and in-depth knowledge of data analytics is needed [1]. The emergence of audit data analytics (ADA) in audit practice necessitates the integration of ADA content into the audit curriculum in the training of auditors [10]. At present, there is a gap between accounting education and practice, because of which the skills acquired during the training process are not transformed into the skills required in the labor market. Therefore, there is a need to transform the education of accountants and auditors. The Institute of Management Accountants (IMA) Report states that employers require auditors with the necessary business intelligence competencies [13]. Therefore, it is now a global practice to revise auditor education programs and include data analytics content in them.

Even today, large audit firms (Deloitte, KPMG, and Ernst & Young) have invested heavily in modern digital technologies, including innovative ADA tools, which can improve audit efficiency. Modern ADA tools can transform the audit procedure - instead of relying on transaction samples selected from aggregated and structured data, the use of sophisticated ADA tools allows auditors better understanding the client by analyzing complete sets of data from multiple sources. In addition, some ADA tools can increase audit efficiency by automating tedious tasks, allowing auditors to focus their efforts on matters that require professional judgment.

The use of ADA tools in audit practice creates a need

for new auditor competencies. In addition to knowledge of accounting and auditing, a modern auditor must have a wide range of ADA skills, including data mining, programming, machine learning, and knowledge of multivariate statistics. Accordingly, it is extremely important to align audit training programs with practice. In this regard, the Association to Advance Collegiate Schools of Business (AACSB) Standard A5 states that AACSB-accredited accounting programs should integrate data analytics and new technologies into the curriculum. In addition, a section of the CPA 2024 audit exam includes the auditor's professional judgment based on information derived from the use of data analytics [10].

The modern transformation of the audit profession is complex and multifaceted. The introduction and use of modern digital technologies in the audit are taking place in parallel with the processes of globalization [14], ensuring the implementation of the Sustainable Development Goals [15], the formation of Society 5.0, etc. [16, 17], which necessitates an integrated approach to the formation of the competencies of a modern auditor.

**Conclusions.** The use of digital technologies is a traditional audit practice, but it is mostly MS Excel. Even though auditors have adapted this product to audit procedures and have been using it for many years, the introduction of modern digital technologies creates opportunities to increase the relevance of the audit, create conditions for expanding the range of audit services, improve the quality of the audit, etc.

The slowdown in the implementation and use of modern digital technologies by auditors is caused by several factors, the main ones being:

- traditional inertia of accounting and analytical specialists;
- the gap between accounting education and practice;
- focus on navigation rather than interpretation of source data when teaching modern digital technologies.

One of the ways to intensify the introduction of modern digital technologies in the audit is to bridge the gap between education and practice, which involves revising auditors' educational programs and applying an interdisciplinary approach to form an integrated mindset in the training of auditors.

Areas for further research include determining the composition of promising digital technologies and the possibility of their practical use in accounting and auditing activities.

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