Integration of Accounting Management Standards into the Digital Economy: Analysis of Needs and Trends

Svitlana Oneshko
PhD in Economics,
Associate Professor,
Department of Economics and Finance,
Odesa National Maritime University, Ukraine
osvfox1@gmail.com

Iryna Shchyrba
PhD in Economics,
Associate Professor
Department of Financial Control and Audit,
West Ukrainian National University, Ukraine
Research Fellow
Nottingham University Business School (NUBS),
United Kingdom
i.shchyrba@wunu.edu.ua

Nataliia Kudlaieva
PhD in Economics,
Associate Professor,
Dept of Accounting, Analysis and Auditing,
Faculty of Economics,
YuriyFedkovych Chernivtsi National University,
Ukraine
n.kudlaeva@chnu.edu.ua

Konon Bagrii
PhD in Economics,
Associate Professor
Dept of Finance, Accounting and Taxation,
Chernivtsi Institute of Trade and Economics
State University of Trade and Economics,
Ukraine
kononbagriy@gmail.com

Serhii Khomovyi
PhD in Economics,
Head of Department
Department of Accounting and Taxation,
BilaTserkva National Agrarian University, Ukraine
2serik2@ukr.net

Abstract:

The field of accounting is highly responsive to various innovations and the latest digital technologies. However, internal company accounting standards are not updated quickly enough, as most companies are more interested in getting results than in documenting processes. Considering the recognised significance of the subject, the study aims to identify essential strategies for utilising digital tools to enhance and improve accounting practices, as well as to highlight possible updates to accounting standards. Throughout the research, the author noted various areas where accounting standards could be improved to align with advancements in digital technologies, recommending changes in the following areas: the need to regulate the possibility of using analytics results for the purpose of implementing accounting procedures; development of an electronic document management system, standardisation of processes for using electronic documents; determining the possibility of using digital analytics for making management decisions; settlement of issues.

Keywords: Digital Tools, Accounting Standards, Data Analysis, Development of Digital Tools, Information Protection.

Introduction

In the modern business landscape, entrepreneurs understand the crucial role of integrating digital technologies across all facets of business management. The accounting process is no different, as it continually evolves and adjusts to the changing environment. Accordingly, updating accounting standards to reflect current digitalisation trends is a requirement of the times and a prerequisite for successful business development.

In general, accounting plays an important role in businesses of all sizes, but is often not a priority for small business owners who have to oversee and perform a multitude of functions and daily operations (Abdelhalim, 2024; Devterov et al., 2024). However, accounting is somehow an integral part of running a business and preparing its financial statements.

At the same time, the latest trends in digitalisation require the use of new terminology, and the specifics of accounting for intangible assets, such as the value of software or intellectual property, need to be taken into account. However, it should also be borne in mind that digitalisation opens up additional opportunities for accounting and makes it possible to use accountants' working time more efficiently and relieve them of routine monotonous work. Accounting is the process of recording, classifying and summarising financial transactions and analysing the results for future forecasting (Anismanet al., 2024). It is utilised to monitor expenses and receipts. Therefore, all activities involved in the creation and growth of digital services are also relevant to accounting. Accounting gathers and evaluates financial and statistical information to support management in making informed business decisions. Its main objective is to generate valuable insights for internal use within an organization. Business leaders use this data to establish achievable goals, promote strategic planning, and provide a clear direction for the development and management of company resources.

It should be borne in mind that accounting cannot exist without financial accounting, cost accounting and statistics. For this purpose, financial accounting data is collected and the results of the company's financial affairs are evaluated in order to set more accurate goals and improve performance in the future. Management accounting allows solving the tasks of costing and cost planning; analysing and controlling costs for different business segments; accounting for performance by nomenclature groups (Alsharari, 202; Jasim et al., 2020).

Overall, the goal of accounting is to supply owners with the information necessary to make well-informed business decisions, which is greatly facilitated by the use of digital technologies. Managing a company without updating accounting standards is like managing blindly, while digital accounting helps to optimise current operations: efficient use of data, simplification of accounting procedures, etc. Most entrepreneurs today agree that they really need such a system, but do not have time to implement and develop it.

Digital systems and technologies in accounting are gradually changing the usual management structure at an enterprise. Digitalisation of accounting significantly improves the quality of accounting information processing. The work of a qualified accountant is becoming more focused on improving the organisation of accounting (Namazi, 2024; Salehi et al., 2020; Zhang, et al., 2021).

The audit of the financial statements includes the collection of audit evidence by an independent professional auditor and the examination of the financial statements of the organization by analytical procedures,and the creation of a set of working papers, a process that remains largely manual. In contrast, big data methodology introduces a different approach to auditing (Dalleet al., 2021; Iastremska et al., 2024). Big data tools offer advanced learning capabilities and process automation, resulting in more efficient and accurate outcomes. The advantage of big data is its ability to provide a thorough and multidimensional perspective on issues. New systems and methods for conducting both internal and external analyses have been quickly adopted by large corporations and firms specializing in audit and analytical tasks. Given the established importance of the topic, the study aims to outline key strategies for utilizing digital tools to advance and refine accounting practices and to identify potential updates to accounting standards.

Materials and Methods

The study's findings allowed for identifying the areas where accounting standards need to evolve, driven by the increasing adoption of modern digital technologies. The research highlighted that, given the rapid advancements in engineering, technology, and production methods, effectively managing the latest digital tools is becoming crucial for the dynamic advancement of the accounting system.

Data Collection

The study's literature review was conducted using the primary databases Web of Science and SCOPUS, both of which are well-regarded for their authority and comprehensive coverage of various scientific topics. Emphasis was placed on scientific publications from the past five years to ensure the relevance of the material, given

the rapidly evolving nature of digital accounting and the need to analyze the most current literature.

Search Limits

The analysis of scientific literature revealed the key stakeholders interested in the study, such as accountants, business managers and owners, financial directors, and technical specialists. To ensure the research covered the most relevant and comprehensive information, the search period for scientific sources was set from January 2019 to April 2024, aligning with the continuity and thoroughness of studies conducted over the past five years.

Data Analysis

To achieve the results, the author employed a range of general scientific methods such as analysis, synthesis, generalization, systematization, induction, and deduction, alongside specific techniques for statistical data analysis and trend analysis.
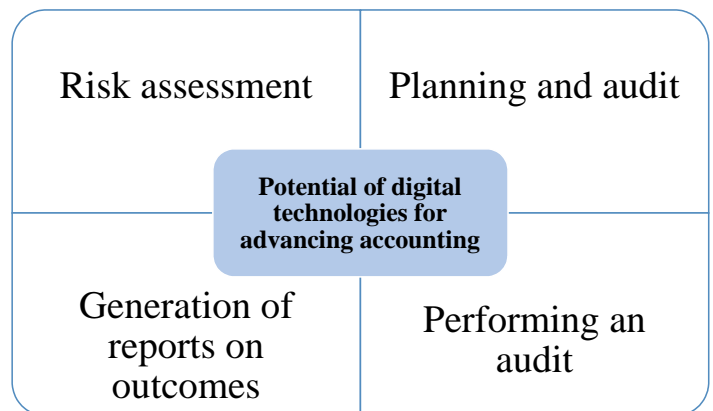
Result and discussion

Data is a resource that requires a system that can actually manage it, which includes the development of a data management platform that will collect and process data, integrate it, and then activate it to generate information. In addition, data management work also requires the development of its own management policy. In particular, big data technology solves the main task of applying analytical procedures - simplifying and reducing the labour intensity of the analysis process. The use of big data analytics is becoming a prerequisite for ensuring business continuity and competitiveness. Already, such large international companies as Amazon, Twitter, Macy's, Michael Kors, Louis Vuitton, Spotify, Pinterest, Netflix, McDonald's (Economic statistics, 2023; Hadid et al., 2021; Kibik et al., 2023; Mölleret al., 2020) and others have realised the need to introduce innovative digital technologies into business processes and are investing heavily in this area.

Leading companies with well-established strategies that emphasize continuous information and data analytics (Magopets et al., 2022) utilize a range of internal and external sources to develop customized databases aimed at addressing specific issues. Advanced technolog iesareused

to collect accurate information and enhance the quality and consistency of their analytical solutions.

In the current unstable economic environment in Ukraine, there is a heightened demand for more effective and efficient analysis by both internal and external users. While the benefits of data analytics for improving accounting quality and relevance have long been acknowledged, recent advancements in data processing and analytics are now offering a chance to reconsider and potentially transform traditional accounting practices. The full use of digital data analytics is transforming and accelerating the accounting process (Figure 1).

Figure 1. Elements of digital data analytics and business intelligence processes for accounting applications

Risk assessment	Planning and audit
Potential of digital technologies for advancing accounting	
Generation of reports on outcomes	Performing an audit

Source: Compiled by authors based on
(Alsharariet al., 2024; Lanka, et al., 2020; Rezvorovych, 2021)

Utilising digital data analysis enhances the quality and relevance of accounting across the board. However, in our country, implementing this approach is challenging due to potential security issues with confidential information and outdated National Accounting Standards. Ensuring the protection of confidential data, safeguarding private information, and managing data quality are essential, regardless of the data set's size (Vasylieva, 2016; Mukhalchenko&Tytarenko, 2023). Nevertheless, the unique characteristics of big data introduce new types of risks that necessitate a comprehensive strategy to enable effective use of analytics while minimizing uncertainties and inconsistent outcomes.

Accounting and auditing processes involve gathering, reviewing, analysing and reporting information from a

wide range of sources at varying levels of detail. Existing accounting processes have little standardised information, resulting in significant manual processes to obtain, validate and analyse information.

The introduction of data analytics methods into the accounting process requires a review and change of at least internal accounting standards. Data analytics should transform the accounting process, not serve as a supplement to it. Therefore, the key factor is the standardisation of financial information by companies. Through data standardisation, companies will be able to automate and unify the process of requesting information, thereby reducing the time and resources required to provide the requested data. Similarly, other consumers of standardised information, such as lenders, will also benefit if a company uses the latest analysis tools.

Big data is a key digital tool in the accounting industry, and its use and processing have seen significant growth in recent years. Global statistics on Big Data usage indicate a continuous increase in the volume of information available for analysis, as well as in the Big Data analytics market, as illustrated in Fig. 2. Additionally, Fig. 2 highlights statistics on the Internet of Things, which is closely linked to Big Data because it facilitates the organization and accumulation of data for further analysis. In essence, the accumulation of information worldwide is expanding rapidly, driven by the digitalization of various life processes and the data access capabilities of social networks, search engines, and other online services.

Figure 2. The key elements of global statistics on the emergence and utilization of Big Data, with projections through 2029 (in billions of US dollars)
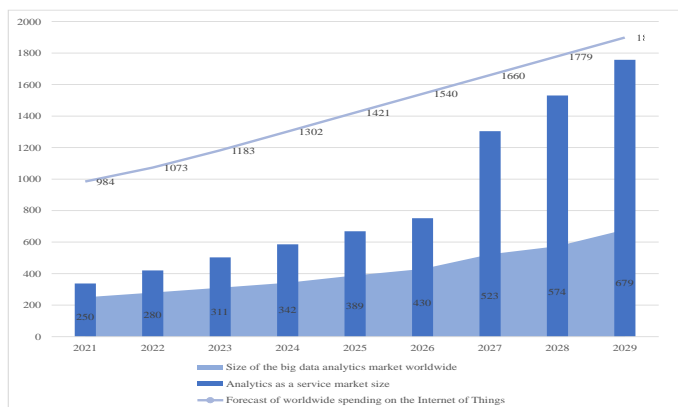
Source: Big data - statistics & facts, 2024

Implementing data-driven solutions in accounting is a crucial strategy for enhancing the efficiency and accuracy of accounting processes. While the latest information technologies provide accountants with new opportunities, they also necessitate updates to accounting standards, as outlined in Table 1.

Table 1. The Big Data Using in Auditing

Area of Application	Features	Areas of amendments to accounting standards
Analysing large amounts of data	The application of big data analytics technologies for handling and analyzing extensive financial information includes utilizing machine learning algorithms to detect anomalies and potential risks	The need to regulate the possibility of using analytics results for the purpose of implementing accounting procedures
Electronic accounting	Electronic audit tools are used to combine electronic signatures and authentication to automate the collection and processing of data and to ensure the accuracy of data	Development of an electronic document management system, standardisation of processes for using electronic documents
Smart analytical tools	Usually analytics are used to evaluate risks and calculate discrepancies in financial statements, followed by the creation of predictive models to mitigate potential issues. Technology is also protecting the confidentiality and integrity of audit data by implementing systems to prevent unauthorized access	Determining the possibility of using digital analytics for management decision-making
Security audit and data protection	Additionally, the use of e-commerce tools has become essential due to the rise of remote purchasing of goods and services	Regulation of data protection issues in accounting standards

Area of Application	Features	Areas of amendments to accounting standards
E-commerce and accounting for accounting transactions	The need to use e-commerce tools as a requirement of the times in the context of the development of remote purchase of goods and services	Regulation of the specifics of e-sales accounting in accounting standards
Use of cryptocurrencies as means of payment	Developing opportunities to pay for goods and services with different types of cryptocurrencies	Determination of the status of cryptocurrencies at the national level with further implementation in accounting standards

Source: Compiled by authors on the basis of (Kaldygozova, 2024; Li et al., 2020; Kuczabski et al., 2023)

The increased use of digital tools allows accountants to combine information from disparate data sources for analysis, visualise financial and other data, and even identify patterns and atypical transactions. Accordingly, it is inappropriate to abandon or reduce the use of digital tools in modern accounting, and therefore it is necessary to adapt its standards to the changing conditions of using the latest technologies.

If the collection and aggregation of various digital tools becomes feasible and relatively easy, accounting standards and regulations should be aligned with the application of data analytics techniques. Analysts in the industry are generally using more and more digital tools every year.

Discussion

In broad terms, digitalization refers to the process of converting information into a digital format, which enhances efficiency, reduces costs for city enterprises, and fosters the development of new areas. Current academic literature highlights that digital tools can bring numerous benefits to accounting.

Specifically, digitalization can lead to a reduction in the costs associated with maintaining accounting staff (Litvinenko, 2020; Odonkoret al., 2024; Zhang et al., 2020). It is important to note that this reduction does not imply a decrease in the organization's size but rather suggests that employees may need upskilling or retraining for new roles, such as transitioning from an accountant to a financial engineer. The evolving economic and technological landscape necessitates the development and adoption of methods to help individuals acquire essential digital economy skills, promote widespread digital literacy,

and personalize education. However, some authors highlight the high costs of implementing digital technologies in accounting, suggesting that cost reductions will only be realized after the full integration of these innovations.

Moreover, digital tools can positively impact the efficiency of financial and economic activities, provided they are utilized effectively and judiciously (Magnaccaet al., 2024; Okpebenyo et al., 2024; Trachova, 2022). It is also important to recognize that for many companies, improvements in accounting not only enhance financial and economic performance but also boost the performance of other related departments.

Of course, digital tools can affect the speed of data and information processing (Rummanet al., 2024; Salemanset al., 2024). This positive aspect should be unequivocally agreed upon, and it should be emphasised that positive changes in the work of the accounting department will have a positive impact on information processing within the company.

In summary, it is important to note that companies today have substantial opportunities to advance their accounting systems through the adoption of digital innovations. These advancements can positively affect a company's financial health and enhance its long-term competitiveness. The study identified key digital tools and opportunities for modern businesses, such as big data processing, cryptocurrency usage, and electronic document management. However, businesses should not attempt to implement all available digital tools simultaneously. Instead, they should select one or two that best fit their

specific needs and objectives. The study employed the hierarchy analysis method to determine that businesses should prioritize big data processing and the development of digital twins to boost their long-term competitiveness.

Additionally, aligning with the views of many researchers (Tylchyk et al., 2018; Sturgeon, 2021), it is acknowledged that the digitalization of accounting is a relatively new and promising area of business development. Companies must therefore focus on data protection and information security, which also warrants increased attention from scholars.

Conclusion

To bridge the gap between theory and practice, it is crucial to grasp the extent and nature of digital data analytics and other contemporary analytical tools within accounting practices. This study concludes that many modern companies have yet to fully leverage the potential of digital tools to enhance the accuracy, reliability, and cost-effectiveness of their accounting processes. The current advancements in data analytics in financial management are primarily seen in the involvement of both senior management and internal audit teams in the decision-making process. This includes setting goals, developing algorithms or statistical models for data analysis, and forming teams with the necessary resources and technical expertise for real-time data analysis, managing extensive information systems, automating routine tasks, and utilising artificial intelligence.

The report also highlights areas where accounting standards need to be updated to keep pace with digital technology developments, specifically recommending adjustments in the following areas: the need to regulate the possibility of using analytics results for the purpose of implementing accounting procedures; development of an electronic document management system, standardisation of processes for using electronic documents; determining the possibility of using digital analytics for making management decisions; regulation of data protection issues in the standards of big data.

References

- Abdelhalim, A. M. (2024). How management accounting practices integrate with big data analytics and its impact on corporate sustainability. Journal of Financial Reporting and Accounting, 22(2), 416-432.https://www.emerald.com/insight/content/doi/10.1108/JFRA-01-2023-0053/full/html

- Alsharari, N. M. (2024). The interplay of strategic management accounting, business strategy and organizational change: as influenced by a configurational theory. Journal of Accounting & Organizational Change, 20(1), 153-176. https://www.emerald.com/insight/content/doi/10.1108/JAOC-09-2021-0130/full/html

- Alsharari, N. M., & Daniels, B. (2024). Management accounting practices and organizational change aspects in the public sector: contextual/processual approach. Journal of Accounting & Organizational Change, 20(1), 177-204. https://www.emerald.com/insight/content/doi/10.1108/JAOC-10-2021-0143/full/html

- Anisman, H. B., Dewi, F. G., &Oktavia, R. (2024). Strategic Management Accounting Information, Service Quality, and Knowledge Management to Company Performance: A Literature Review. Journal of Management, Accounting, General Finance and International Economic Issues, 3(2), 339-352. https://transpublika.com/ojs/index.php/MARGINAL/article/view/952

- Big data - statistics & facts (2024). Statista. https://www.statista.com/topics/1464/big-data/#topicOverview.

- Dalle, J., Hayat, A., Karim, A., Tirtayasa, S., Sulasmi, E., &Prasetia, I. (2021). The influence of accounting information system and energy consumption on carbon emission in the textile industry of Indonesia: Mediating role of the supply chain process. International Journal of Energy Economics and Policy, 11(1), 536-543. https://www.zbw.eu/econis-archiv/bitstream/11159/8149/1/1766005063_0.pdf

- Devterov, I., Tokar, L., Silvestrova, O., Lozo, O.,

&Poperechna, G. (2024). Philosophical Dimensions of Digital Transformation and Their Impact on the Future. Future Philosophy, 3(4), 4-19. https://doi.org/10.57125/FP.2024.12.30.01

- Economic statistics / Science, technologies and innovations. (2023). State Statistics Service of Ukraine. https://www.ukrstat.gov.ua/.

- Hadid, W., & Al-Sayed, M. (2021). Management accountants and strategic management accounting: The role of organizational culture and information systems. Management Accounting Research, 50, 100725. https://www.sciencedirect.com/science/article/abs/pii/S1044500520300494

- Iastremska, O., Bielikova, N., Kozlova, I., &Herashchenko, I. (2024). Strategic management of innovative development of enterprises according to the experience economy model: a review. Future Economics & Law, 4(3), 158-176. https://doi.org/10.57125/FEL.2024.09.25.10

- Jasim, Y. A., &Raewf, M. B. (2020). Impact of the information technology on the accounting system. Cihan University-Erbil Journal of Humanities and Social Sciences, 4(1), 50-57. https://eprints.cihanuniversity.edu.iq/id/eprint/256/

- Kaldygozova, S. (2024). Using mobile technologies in distance learning: A Scoping Review. E-Learning Innovations Journal, 2(1), 4-22. https://doi.org/10.57125/ELIJ.2024.03.25.01

- Kibik, O., Taran-Lala, O., Saienko, V., Metil, T., Umanets, T., &Maksymchuk, I. (2022). Strategic vectors for enterprise development in the context of the digitalisation of the economy. Postmodern Openings, 13(2), 384-395. https://doi.org/10.18662/po/13.2/460 (Web of Science Core Collection)

- Kuczabski, A., Aleinikova, O., Poberezhets, H., Tolchieva, H., Saienko, V., &Skomorovskyi, A. (2023). The analysis of the effectiveness of regional development management. International Journal for Quality Research, 17(3), 695-706. DOI:10.24874/IJQR17.03-05

- Lanka, E., Lanka, S., Rostron, A., & Singh, P. (2020). Why we need qualitative research in management studies. Revista de AdministraçãoContemporânea, 25(2), e200297. https://www.scielo.br/j/rac/a/7rtjHBPXpTz8zwqKBRCJHQx/

- Li, K., Kim, D. J., Lang, K. R., Kauffman, R. J., &Naldi, M. (2020). How should we understand the digital economy in Asia? Critical assessment and research agenda. Electronic Commerce Research and Applications, 44, 101004. https://www.sciencedirect.com/science/article/pii/S1567422320300818

- Litvinenko, V. S. (2020). Digital economy as a factor in the technological development of the mineral sector. Natural Resources Research, 29(3), 1521-1541. https://link.springer.com/article/10.1007/s11053-019-09568-4

- Magnacca, F., &Giannetti, R. (2024). Management accounting and new product development: a systematic literature review and future research directions. Journal of Management and Governance, 28(2), 651-685. https://link.springer.com/article/10.1007/s10997-022-09650-9

- Magopets, O., Havrilenko, N., Yashchyshyna, I., Kobus, O., &Kononova, D. (2022). Strategic management accounting in the conditions of digitalisation of the economy. Ad Alta: Journal of Interdisciplinary Research, 12(1), 92-96. https://www.magnanimitas.cz/ADALTA/120125/PDF/120125.pdf"

- Möller, K., Schäffer, U., &Verbeeten, F. (2020). Digitalization in management accounting and control: an editorial. Journal of Management Control, 31(1), 1-8. https://link.springer.com/article/10.1007/s00187-020-00300-5

- Mukhalchenko, H., &Tytarenko, M. (2023). Data analytics and personalised marketing strategies in e-commerce platforms.Future Economics & Law, 3(3), 114-138. https://doi.org/10.57125/FEL.2023.09.25.07

- Namazi, M., & Rezaei, G. (2024, April). Modelling the role of strategic planning, strategic management accounting information system, and psychological

factors on the budgetary slack. In Accounting Forum (Vol. 48, No. 2, pp. 279-306). Routledge. https://www.tandfonline.com/doi/abs/10.1080/015599 82.2022.2163040

• Odonkor, B., Kaggwa, S., Uwaoma, P. U., Hassan, A. O., &Farayola, O. A. (2024). A review of US management accounting evolution: Investigating shifts in tools and methodologies in light of national business dynamics. International Journal of Applied Research in Social Sciences, 6(1), 51-72. https://www.fepbl.com/ index.php/ijarss/article/view/726

• Okpebenyo, W., Ogini, S., &Ileleji, P. A. (2024). Working Capital Management and the Performance of SMEs in Delta North. Future of Social Sciences, 2(3), 106-121. https://doi.org/10.57125/FS.2024.09.20.07

• Rezvorovych, K. (2021). World experience of the land sale market reform: a temporary legal measure. Scientific Journal "Philosophy, Economics and Law Review", 1(1), 76. https://phelr.dduvs.in. ua/?page_id=1578&lang=uk

• Rumman, G., Alkhazali, A., Barnat, S., Alzoubi, S., AlZagheer, H., Dalbouh, M., ... &Darawsheh, S. (2024). The contemporary management accounting practices adoption in the public industry: Evidence from Jordan. International Journal of Data and Network Science, 8(2), 1237-1246. https://growingscience.com/ beta/ijds/6704-the-contemporary-management-accounting-practices-adoption-in-the-public-industry-evidence-from-jordan.html

• Salehi, M., Tarighi, H., &Shahri, T. A. (2020). The effect of auditor characteristics on tax avoidance of Iranian companies. Journal of Asian Business and Economic Studies, 27(2), 119-134. https://doi.org/10.1108/ JABES-11-2018-0100

• Salemans, L., & Budding, T. (2024). Management accounting and control systems as devices for public value creation in higher education. Financial Accountability & Management, 40(1), 105-123. https://onlinelibrary.wiley.com/doi/full/10.1111/faam.1 2365

• Sturgeon, T. J. (2021). Upgrading strategies for the digital economy. Global Strategy Journal, 11(1), 34-57. https://onlinelibrary.wiley.com/doi/abs/10.1002/gsj.13 64

• Trachova, D. (2022). Rationale for the need to use blockchain technology to record and control operations for the export of grain (the example of Ukraine). Independent Journal of Management & Production (IJMP), 13(3), PP347-360. https://doi.org/10.14807/ ijmp.v13i3.1980.

• Tylchyk, O., Dragan, O., &Nazymko, O. (2018). Establishing the ratio of concepts of counteraction to legalisation (laundering) of illegally-obtained income and counteraction to the shadow economy: the importance for determining performance indicators of the European integration processes. Baltic Journal of Economic Studies, 4(4), 341-345.

• Vasylieva, N. (2016). Cluster models of households' agrarian production development. Economic Annals - XXI, 158, 3-4(2), 13-16. https://doi.org/10.21003/ ea.V158-03.

• Zhang, W., Zhao, S., Wan, X., & Yao, Y. (2021). Study on the effect of digital economy on high-quality economic development in China. PloSOne, 16(9), e0257365. https://journals.plos.org/plosone/article ?id=10.1371/journal.pone.0257365

• Zhang, Y., Xiong, F., Xie, Y., Fan, X., & Gu, H. (2020). The impact of artificial intelligence and blockchain on the accounting profession. IEEE Access, 8, 110461-110477. https://ieeexplore.ieee.org/abstract/ document/9110603