

# Digital Audit as an Imperative for Ukraine's Way out From the COVID-crisis and a Tool to Increase the Competitiveness of the State

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**Abstract.** The article is devoted to the issues of organization and prospects of audit development in terms of digitalization. The state and the measures needed to improve audit effectiveness in the context of automation are investigated and analyzed. The factors that negatively influence the audit digitization process and the possible directions of development of audit activity in the computerized environment are identified. The use of automation helps auditors process more data and focus on identifying risks, allowing for higher quality audits. Classification of information technology of audit, conditions for the development of audit software, factors that impede audit automation are given. Audit digitization is a new level in the audit field that is rapidly evolving and rapidly expanding in enterprises, especially those that use an automated accounting method. The software currently used by auditors needs to be refined to meet the demands of today's world. Digitization will become relevant for all audit firms seeking to gain competitive advantage and take a place in the audit services market.

## 1 Introduction

The rapid spread of COVID-19 is forcing many businessmen to change their priorities. Thus, companies that have traditionally provided services offline are trying to adapt their services to new realities. Despite the negative impact of the pandemic on the world economy, it significantly accelerates the development of digitalization.

Due to the digital transformation of companies there is a need to improve and optimize the functions of auditors. Large amounts of information must be used effectively to conduct a high-quality audit. Instant access to all the necessary information will allow professionals to quickly identify risks and generate business solutions.

According to the COVID-19 Global Study: Impact on Business and Counteraction, conducted by the Association of Chartered Certified Accountants (ACCA), the COVID-19 pandemic had a significant impact on auditing [1]. In our opinion, auditors in a COVID crisis need to plan their activities in accordance with current research. A survey was conducted on the impact of the pandemic on audit firms, and it was found that there were significant difficulties in working with clients. The majority of respondents (53%) said that they feel some pressure when working with clients, and more than a third (36%) said that they are not able to meet the deadlines for reporting. A quarter of respondents said that the process of gathering audit evidence had become much more complicated, and 27% said that the audit risk

associated with valuing assets, meeting obligations and ensuring continuity of operations had increased.

In the context of the COVID-19 pandemic, many businesses were faced with the question of organizing further activities, as some of them already had to submit financial statements. Limited conditions for the operation of companies have a negative impact not only on themselves but also on auditors.

Under the influence of restrictions caused by the need for self-isolation, businesses faced difficulties in preparing reports and, therefore, in conducting audits from the very beginning of quarantine. Because these limitations affect not only the ability to meet and relocate, but also the auditors' ability to gather sufficient evidence to provide an audit opinion, there is a direct need for auditors to consider alternative approaches to the audit [11].

Auditors need to consider the impact of COVID-19 on the following factors:

- gathering sufficient appropriate audit evidence. At the same time, auditors must recognize that in a pandemic, it is not possible to conduct standard audit procedures in the normal manner, so the methods of gathering evidence will require adjustment or total changes. There may also be a need to develop alternative procedures;
- in the case of an audit of a group of companies, it is necessary to pay attention to how the audit of individual units within this group is planned;
- significant attention in the audit will require the auditor's ability to provide a reasonable and reasonable assessment of the continuity of activities

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and the absence of the need or preconditions for the liquidation of the audited company;

- ability to obtain reliable and validated information from the auditor about the actual extent of the impact of COVID-19 on the activities of the audited entity and to compare it with the published;
- the auditor will need to assess the need for some of the planned procedures, as well as discuss with the auditee the possibility of providing information as quickly as possible due to the rapid change in the situation in the country [2, 19].

It should be noted that audited entities, in turn, are more profitable to work with auditors and promptly provide reliable information so that the auditor can ensure that the level of disclosure during a pandemic does not differ from the level of disclosure that auditors would expect to see in financial statements, normal operating conditions of the enterprise. In this way, auditors will have a real opportunity to communicate the existing risk to the business, industry or specifically to the company [20].

Significant growth of information, working with Big Data requires the development of new approaches to auditing. For auditors, the key point is digital audit.

Problematic and controversial issues need to be addressed in order to formulate a comprehensive approach to audit digitalization using economic transformation and restricted business practices caused a global pandemic 2019-2020.

The economic consequences of the pandemic have been studied by Ukrainian and foreign scientists such as Kulitsky S. [9], Stavtysky A. [18], Nezhyva M. [14] and Miniailo V. [14], Naveen Donthu [6] and Anders Gustafsson [6], Alexander W. Bartik [3] and other.

S. Kulitsky studies the problems facing Ukrainian society, including economic ones [9]. He determines the impact of the pandemic on the economic and social spheres of life. Naveen Donthu [6] and Alexander W. Bartik [3] analyze consequences of the COVID-19 for different industry sectors and the economy in general. They found that a lot of businesses, especially small firms, were closed and employment had fallen.

All authors note that businesses have to use innovative strategies to meet the customer demands during the COVID-19 crisis. A. Stavtysky [18] says that the pandemic and economic crisis should form a new country in which there will be changes in the structure of the economy. M. Nezhyva and V. Miniailo [14] determine problems faced by auditors and suggest ways to solve these problems by using professional software products.

The purpose of the article is to determine the role of digitization in the financial spheres, in particular in the sphere of audit, to study the results of technology implementation in foreign countries and to identify promising areas of development for Ukraine in the conditions of COVID-19.

## 2 Materials and methods

The materials of the study were indicators of the spread of the COVID-19 pandemic in the world, public publications of scientists, official reports of international organizations, regulations, etc. In the study, the theoretical and methodological basis consisted of general scientific and special methods of cognition, based on a dialectical approach to the consideration of economic processes. To solve the tasks were used: methods of analysis and synthesis – to study the economic essence of the audit in terms of COVID-19; system approach – to determine the methodological foundations of the enterprise management system; methods of general analysis, etc. In the study, used general and specific methods of understanding the objective nature of economic phenomena and processes to analyze the impact of the COVID-19 pandemic on business; methods of causation – to study the impact of digitalization on the audit process; methods of grouping and compilation, sample observation – for statistical data processing. Based on the methods of systems analysis and scientific abstraction, general conclusions are formulated. In addition, a set of complementary methods of scientific research of economic processes and phenomena using statistical and analytical materials, as well as the results of their own research.

## 3 Statement of the main research

In Ukraine, in 2019, the Ministry and the Committee for Digital Transformation of Ukraine [13] were established to implement digital policy. The purpose of the ministry is to accelerate the digitalization of the country, which aims to bring online at least 50% of all public services.

The newly created ministry will be responsible for the formation and implementation of state policy in the field of digitalization, open data, national electronic information resources, implementation of electronic services, etc.

The primary goal of this ministry is to provide full coverage of Ukraine with high-quality high-speed Internet. Further plans are to teach about 6 million people digital skills. It is also planned to launch an online platform where everyone will be able to acquire such skills for free.

In addition, the ministry will support the IT sector, where it is planned to receive up to 10% of the country's GDP. The developers are currently working on the ACTION platform, through which government services will be provided online [7].

The International Auditing and Auditing Standards Board (IAASB) has developed a strategy for 2020-2023, taking into account the active development of technology. The main tasks for this period include: improving the internal processes of auditors through the introduction of new technologies; correct allocation of resources; compliance with the growing needs of key stakeholders.

In connection with the adoption of tax changes in Ukraine as a step in the implementation of the BEPS

Plan [10] and the prepared package of new recommendations of the Organization for Economic Cooperation and Development, tentatively called "BEPS 2.0 Plan", which aims to implement measures to address tax challenges global digitization and which consists of two parts.

The first part recognizes how the current rules of international taxation can be modified to take into account the digitalisation of the world economy and the changes it will bring. The second part deals with other issues that remain open. In particular, it is necessary to deprive multinational corporations of the opportunity to withdraw profits to low-tax jurisdictions.

Experts note that the process of digitalization will actively contribute to the growth of the world economy in the coming years and in 2025 the digital economy will cover almost a quarter of world GDP [13].

Under quarantine conditions, given the existing restrictions on movement and actual access to businesses, alternative procedures are used to obtain audit evidence. They use remote photo and video recording of the inventory process, online communication with the client's staff through secure communication channels.

It was allowed to extend and publish the financial statements and the auditor's report, which greatly simplified the audit process and allowed to postpone some of the audit procedures related to direct access to the primary documents and assets [15].

Auditors should consider how to gather sufficient audit evidence in the face of existing constraints. Given that most now work remotely, workflow control is required. This can be done with various software [12]. An example is CaseWare Cloud, which allows a company to control all workflows. And in combination with CaseWare Working Papers, the audit becomes more efficient and structured, because this software is fully automated. In addition, all stages of audit procedures comply with International Standards on Auditing.

These programs help auditors to observe the performed procedures. They allow you to view tasks online from any device, allowing auditors to stay up to date of all workflows, regardless of their location.

The following benefits of CaseWare Cloud can be highlighted:

- control work tasks by using just mobile phones or computers;
- no need for employees to be in the office;
- ability to plan an audit;
- constant updating of data, which allows you to work with current information.

In terms of privacy, the program is equipped with high-level physical security features, including compliance with SSAE 16 standards, has PCI level 1 certification, ISO 27001 and is compatible with all security systems.

In terms of audit software, the most used programs are Word and Excel. In small firms, auditors replace specialized programs by performing simple calculations, printing standard forms of working audit documents; make queries to the electronic database;

check separate calculations carried out at different areas of accounting; form accounting registers using the client's electronic database and conduct a comprehensive analysis of the financial condition of the economic entity using separate programs [4, p. 9]. In "Big 4" companies, any element of work can be done with the help of specialized programs adapted to the work of each company. Such programs include random number generators, databases that allow you to store large arrays of data, applications for automatic construction of analytical graphs, charts, and more.

Ernst & Young was able to implement a huge number of digital innovations in auditing, which improved risk identification, reduced the burden on customers and provided operational benefits and quality audits.

EY Canvas is the first online audit program, the advantage of which is the ability of the auditors to communicate with the client, regardless of their location. Audit firms have the ability to remotely perform the audit process, coordinate and manage their own employees, while providing high quality audit services [5].

With the program, auditors have access to the overall audit plan, can review the tasks on a daily basis and share their own intermediate audit results.

EY Canvas has many benefits, such as [5]:

- existence of a central plan and performing audit by teams according to this plan and a single methodology;
- quick reaction, which allows you to immediately report the findings;
- rapid adjustment of the strategy to different geographical regions and reaction to the constantly changing environment;
- constant monitoring of the audit process and timely response to inquiries;
- optimized communication with customers through an integrated online network.

In addition to EY Canvas, Ernst & Young developed a program called EY Canvas Client Portal, which allows clients to communicate directly with auditors so they can look after the progress of audit.

This program allows to [5]:

- reduce e-mail inquiries and provide better communication with customer, which saves time;
- review the status of inquiries;
- improving customer data security;
- multilingual support (supports 10 languages).

Automation and robotics processes are becoming more widespread in the world, the advantages of which are:

- security – non-interference technology, can be configured for existing IT systems in the "as is" mode, flexible configuration;
- action monitoring – recording and storing all actions in the system;
- retention and development of employees – employees switch to painfully intellectual tasks;
- speed – reducing the time to complete tasks, increasing productivity;
- significant cost reduction;

- 24/7 mode;
- reliability – systematic work without breaks, sick leave, weekends and holidays.

Ernst & Young actively uses "smart" technologies for specific audit procedures [17]:

1) inventory - for accurate measurement of volumes of bulk materials. It is provided as a tool of visual analytics with the accuracy of measurement of 95-97% and which can be carried out by means of the smartphone camera is developed.

2) contract analysis – reduced deadlines and increased accuracy of contract verification through the use of artificial intelligence. A tool has been developed including further functions: obtaining primary rental documents with a text in the form of a picture; use of optical character and word recognition; identifies and retrieves key data; performs data verification; marks parts of the text based on their compliance with accounting rules; sends requests for the involvement of specialists to analyze deviations. As a result, auditors can focus on performing other intellectual tasks, such as preparing recommendations for the client.

3) automation of administrative processes – automatic conversion of scanned copies of documents into electronic; depersonalization of documents with the help of machine learning technology; real-time tracking of the status of performance of works within the framework of the audit task (EY Canvas).

Digitization is a new trend of the present, which requires changes in personnel, new management styles, and other systems of work organization. Recent studies

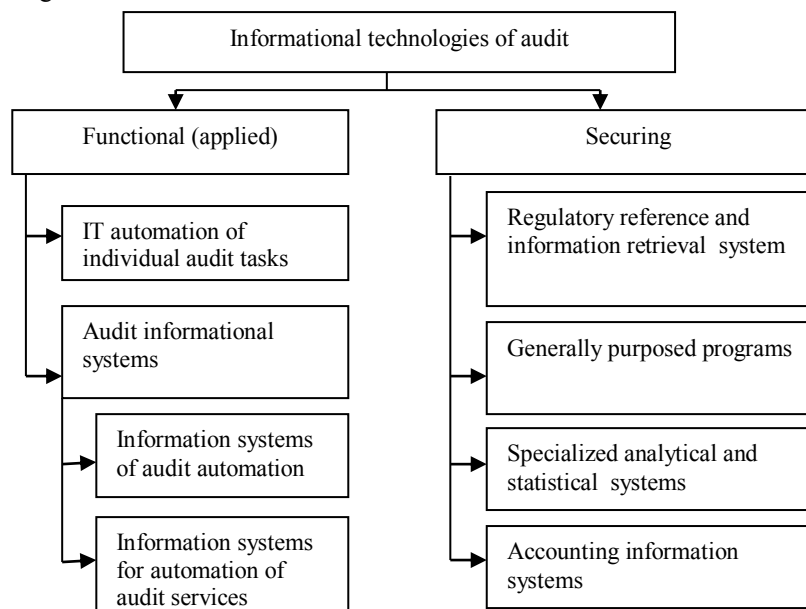
indicate that most traditional companies are not ready for digitization yet. The main problem consists of people who are used to working with traditional tools and methods of interaction with each other and with clients.

The corresponding changes caused by the digitalization of financial and economic processes at enterprises led to the emergency to create conceptually new, digital economy. The digital economy is an economy based on digital computer technology. The digital economy is also sometimes referred to as the internet economy, the new economy, or the web economy. The digital economy means manufacturing, selling and delivering products through computer networks.

The digital economy and digitization processes, however, aim to use information technology in as many processes as possible.

Computer auditing should be understood as a high level of automation of auditor activity, characterized by: the use of the latest information technology as a key tool in the process of preparation and verification in the computer information system; an audit approach that assesses the reliability of the computerized information system environment as a basis for drawing conclusions about the reliability of the financial statements.

Thus, the purpose of information technology (IT) in the audit can be divided into security and functional (Fig. 1).



**Fig. 1.** Classification of information technology of audit

The use of automated software in the audit allows to obtain information faster from the enterprise-client database, gives the opportunity to process large amounts of information, accelerate the implementation of audit procedures, makes the documentation of results more convenient.

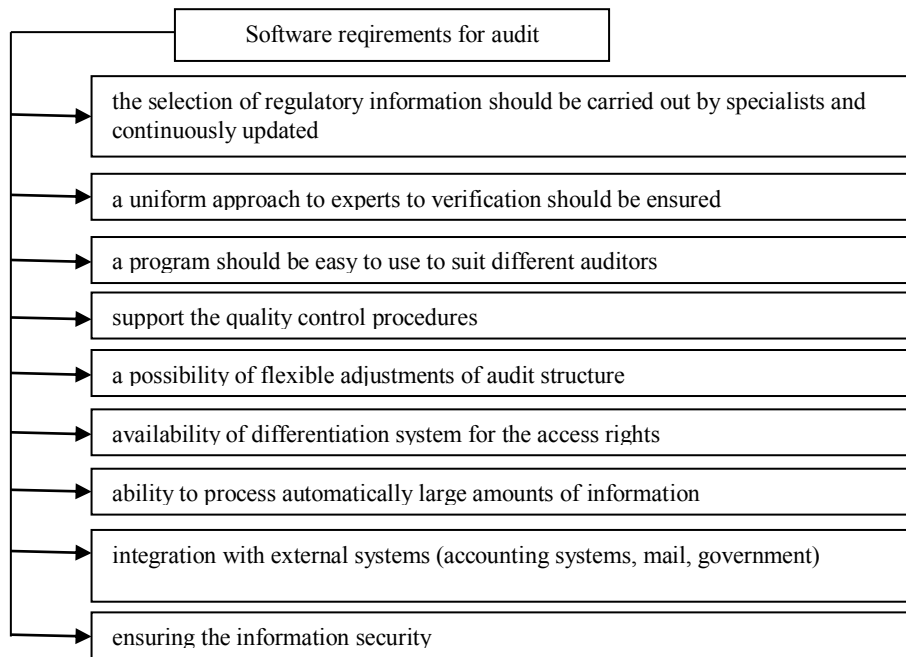
Computer-assisted audit methods can be used to perform a variety of audit procedures, including:

- testing of information processing in the client's accounting system;
- analytical review of procedures to identify uncertain cases;
- access to data files and libraries;
- tests for compliance of software and management and accounting systems.

Approximation to international auditing standards and practices requires the introduction of up-to-date

technologies that would automate the financial statement verification process and help accomplish assurance and related tasks. You can formulate a

number of requirements for the audit software as follows (Fig. 2).



**Fig. 2.** Conditions for the development of audit software

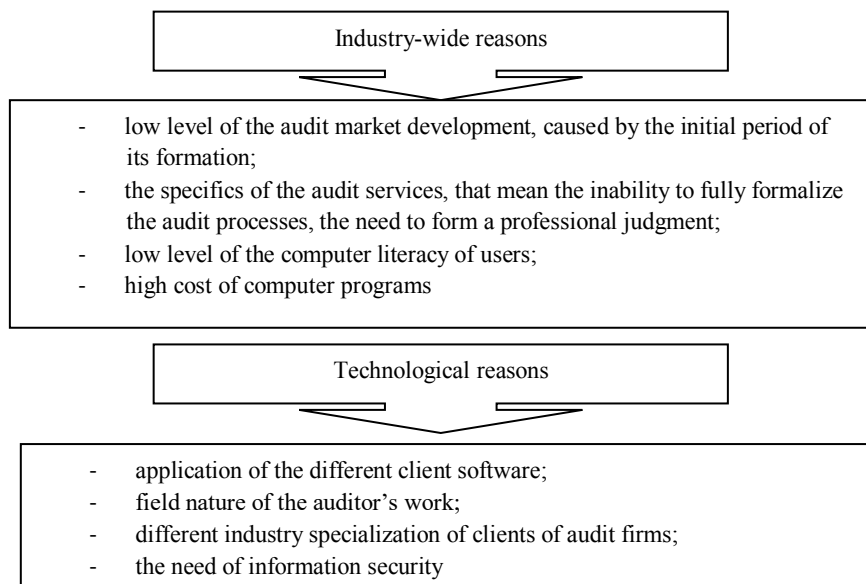
However, the use of automated software in auditing is complicated by certain factors. Among them is the fact that the client companies use different software that does not allow to fully perform automated audit procedures. Thus, the main requirement for audit programs is their flexibility, ie the ability to adapt to the peculiarities of accounting in a particular enterprise.

There are certain reasons that hinder the implementation of software in the audit process (Fig. 3) [8].

The main prospects for the development of audit automation programs include:

- integration with the accounting system and accounting software;

- creation of the concept and the detailed instruction on adjustment by users of algorithms of formation of the reporting on the basis of the imported data of accounting of the enterprise;
- embedding and regular updating of audit methodology in terms of auditor's working documents, database of potential (typical) violations and distortions;
- embedding the ability to describe the customer's business processes;
- calculation of key indicators based on reporting data [16].



**Fig. 3.** Factors that prevent the digitalization of the audit



Audit information technology is a set of methods and procedures that provide the functions of collecting, accumulating, storing, processing and transmitting data using technical means to achieve the audit objective in the best possible conditions.

Digital audit provides the ability to perform audit procedures in accordance with the standards, taking into account the use of information visualization and analytical tools in order to obtain the required level of audit confidence on large data sets, as well as analytical procedures for non-financial audit

The current state and dynamics of business processes of the XXI century is accompanied by a significant increase in the amount of information that the company receives, processes and produces. This has led to the formation of large amounts of information, which in the digital economy has received its own name - big data (large arrays of information). In the end, Big data as a phenomenon has created a separate market for companies that provide a wide range of services related to such information - storage, protection, processing, visualization of large amounts of information and more.

In each market, there are companies that are audited for their own needs (so-called initiative audit) or according to the legislation of the country or supranational associations (independent external, mandatory audit). As a result of these information transformations in the digital economy there is an important, almost equal user of big data enterprises - an audit firm, the results of which are of public interest. Execution of audit procedures requires obtaining and processing large data sets not only of one business entity, but a certain number of clients-clients of the audit, which are in the portfolio of the audit firm.

In addition to the direct audit of financial statements, companies additionally order or will be required to order as mandatory non-financial audit: controls, processes, IT-audit of software and more.

In the field of audit services, there was an evolutionary transition from paper procedures to procedures in Microsoft Office software, but with the advent of Big data, such a transition to a universal mass tool for processing large databases has not yet taken place. The absence of such a single mass tool indicates a potential reduction in audit effectiveness. To maintain the required level of efficiency, companies use both extensive ways (increase in staff) and intensive. In particular, the use of macro add-ons for MS Excel. Such measures are considered temporary because they do not take into account the annual growth of information; the increase in the number of employees has its limit, and the use of add-ons to MS Excel is limited by a set of tools of the software itself.

## 4 Conclusions

The use of information technology is a topical and important issue for the successful work of the auditor, especially in a pandemic. Digitalization of audit is a new level in the field of auditing, which is developing

rapidly and is spreading rapidly in enterprises, especially those that use automated accounting.

The software currently used by auditors needs to be improved in accordance with the requirements of the modern world. In the near future, digitalization will become relevant for all audit firms that are trying to gain a competitive advantage and take a place in the market of audit services.

Problematic and controversial issues need to be addressed in order to formulate a comprehensive approach to the digitalisation of auditing in the course of economic transformation and limited business practices caused by the global pandemic of 2019-2020.

## References:

1. Research by the Association of Chartered Certified Accountants (ACCA). Homepage, <https://www.accaglobal.com/gb/en/news/2020/april/ACCA-Covid-19-Research-Audit.html> (2020).
2. B. Aditya, R. Hartanto, L. Nugroho, *The Role of IT Audit in the Era of Digital Transformation*, IOP Conference Series: Materials Science and Engineering, **407**, 1-6. (2018).
3. A. Bartik, M. Bertrand, Z. Cullen, E. Glaeser, M. Luca, C. Stanton, *The impact of COVID-19 on small business outcomes and expectations*, Proceedings of the National Academy of Sciences, **117(30)**, 17656-17666 (2020).
4. E. Bogdanova, *Comparative analysis of functional and technical capabilities of domestic audit automation programs*, System management: electronic scientific publication, **1 (7)**, 1-17 (2010).
5. M. Delarue, M. Jeschonneck, R. Leali, *EY Canvas*. Homepage, [https://www.ey.com/en\\_gl/audit/technology/canvas](https://www.ey.com/en_gl/audit/technology/canvas) (2020).
6. N. Donthu, A. Gustafsson, *Effects of COVID-19 on business and research*, Journal of Business Research, **117**, 284-289 (2020).
7. Electronic application "ACTION". Homepage, <https://plan2.diaa.gov.ua/>
8. O. Kudirko, *Computerization of audit in Ukraine: actual problems and real prospects*, Economy and state, **9**, 34-38 (2018).
9. S. Kulitsky, *Problems of economic development of Ukraine caused by the pandemic of coronavirus COVID-19 in the world, and finding ways to solve them*. Ukraine: events, facts, comments, **9**, 47-53 (2020).
10. Law of Ukraine On Amendments to the Tax Code of Ukraine to improve tax administration, eliminate technical and logical inconsistencies in tax legislation from 16.01.2020, № 466-IX. Homepage, <https://zakon.rada.gov.ua/laws/show/466-20#Text>.
11. Legal newspaper online. *Audit and coronavirus: The FRC recommends developing alternative audit procedures to gather evidence*. Homepage,

- <https://yur-gazeta.com/golovna/audit-i-koronavirus-frc-rekomendue-rozrobiti-alternativni-auditorski-proceduri-dlya-zboru-dokaziv.html> (2020).
12. J. Merhout, D. Havelka, *Information Technology Auditing: A Value-Added IT Governance Partnership between IT Management and Audit*, Communications of the Association for Information Systems, **23** (2008).
  13. Ministry and Committee for Digital Transformation of Ukraine. Homepage, <https://thedigital.gov.ua/>.
  14. M. Nezhyva, V. Miniailo, *Digitalization of audit in the conditions of the COVID-19*, Visnik KNUTE, **3**, 123-134 (2020).
  15. A. Nguyen, H. Ha, S. Nguyen, *Determinants of Information Technology Audit Quality: Evidence from Vietnam*, The Journal of Asian Finance, Economics, and Business, **7(4)**, 41-50 (2020).
  16. G. Pchelyanskaya, V. Nemchenko, *Audit in terms of using computer systems*, Odessa: Phoenix (2016).
  17. G. Shinin, S. Azizyan, A. Larin, *Innovation in auditing*. Homepage, [https://www.ey.com/ru\\_ru/audit/innovation](https://www.ey.com/ru_ru/audit/innovation) (2019).
  18. A. Stavitsky, *Economic scenarios of the pandemic: how to transform Ukraine*. Economic truth. Homepage, <https://www.epravda.com.ua/rus/columns/2020/04/7/659085/> (2020).
  19. D. Stoel, D. Havelka, J. Merhout, *An analysis of attributes that impact information technology audit quality: A study of IT and financial audit practitioners*, International Journal of Accounting Information Systems, **13(1)**, 60-79 (2012).
  20. A. Ullrich, J. Enke, M. Teichmann, A. Kreß, N. Gronau, *Audit - and then what? A roadmap for digitization of learning factories*, Procedia Manufacturing, **31**, 162-168 (2019).