TECHNOLOGIA INFORMACYJNA W ZARZĄDZANIU DZIAŁALNOŚCIĄ PRZEDSIĘBIORSTWA

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Adnotacja. Dzisiaj bardzo ważne jest określenie kluczowych pozycji przedsiębiorstw przemysłowych we wskazanych obszarach, aby kształtować strategiczne trajektorie rozwoju biznesu, którego udana działalność innowacyjna determinuje wzrost gospodarczy i dobrobyt całej światowej gospodarki. To strategiczne zarządzanie pozwala nowoczesnym przedsiębiorstwom i organizacjom nie tylko zapewnić uzyskanie pożądanego rezultatu w warunkach cyfryzacji wszystkich procesów biznesowych, ale także położyć podwaliny pod innowacyjny rozwój, który zapewnia wysoki poziom konkurencyjności światowej gospodarki. Cyfryzacja jest jednym z głównych czynników wzrostu gospodarczego i konkurencyjności przedsiębiorstw. Wykorzystanie technologii cyfrowej pozwala przedsiębiorstwom ze wszystkich sektorów gospodarki rozwijać się szybciej, lepiej i wydajniej. Budzi to szerokie zainteresowanie koncepcją gospodarki cyfrowej i cyfryzacji. Celem niniejszego badania jest potrzeba identyfikacji kierunków pokonywania przeszkód i wyzwań wynikających z cyfryzacji na działalność przedsiębiorstw. Celem tego badania jest analiza wpływu cyfryzacji na przedsiębiorstwa oraz naukowe uzasadnienie strategii radzenia sobie z wyzwaniami i przeszkodami rozwojowymi.

Słowa kluczowe: transformacja, przedsiębiorczość, stymulacja, procesy innowacyjne, cyfryzacja.

INFORMATION TECHNOLOGIES IN THE MANAGEMENT OF THE ENTERPRISE

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Abstract. Information technology is widely used in all spheres of modern life, which marks the introduction of the production process in the organization, the activities of which are impossible without an appropriate management system. Constant updating of technologies in modern economic activity requires a careful approach to management, efficiency of which can be achieved through the effective use of information technology systems. Information technology is a process that uses a set of tools and methods to collect process and transmit data to obtain quality information about the state of any object, process or phenomenon. The enterprise management system includes subject areas of organization, motivation and control of production processes of enterprise. Information technology is an integral part of this system to implement software tools and methods of decision-making in various areas of company, such as production cycle, financial structure, quality management, which will significantly increase productivity and help, automate management process.

Key words: information and communication technologies, enterprises, management functions, accounting, digitalization.

ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ В УПРАВЛІННІ ДІЯЛЬНІСТЮ ПІДПРИЄМСТВА

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Анотація. Сьогодні дуже важливо визначити ключові позиції промислових підприємств у зазначених сферах для формування стратегічних траєкторій розвитку бізнесу, успішна інноваційна діяльність якого визначає економічне зростання та процвітання всієї світової економіки. Саме стратегічний менеджмент дає змогу сучасним підприємствам і організаціям не лише забезпечити отримання бажаного результату в умовах цифровізації всіх бізнес-процесів, але й закласти основу для інноваційного розвитку, що забезпечує високий рівень конкуренто-

спроможності світової економіки. Цифровізація є одним із головних факторів економічного зростання та конкурентоспроможності бізнесу. Використання цифрових технологій дає змогу підприємствам усіх галузей економіки розвиватися швидше, краще та ефективніше. Це викликає широкий інтерес до концепції цифрової економіки та цифровізації. Мету дослідження обумовила необхідність ідентифікації напрямів подолання перешкод та викликів, спричинених цифровізацією, на діяльність підприємств. Метою дослідження є аналіз впливу цифровізації на підприємства та наукове обґрунтування стратегій подолання викликів та перешкод на шляху розвитку.

Ключові слова: трансформація, підприємництво, стимулювання, інноваційні процеси, цифровізація.

Introduction. Today the development of informatization and information society is one of the state priorities; it is of national importance. Information technology (IT) is a means of ensuring openness of public information, effective interaction of economic entities, cost optimization, and prompt decision-making. In recent years, IT is developing rapidly in all sectors of the national economy. Today, gaining a proper place in the regional and global market, achieving high productivity depends on the modern information technology application, and the role of these technologies in the management process. Thus, the research of information technology for enterprise management, and issues of their implementation and application is relevant.

Literature Review

Lots of scholars have researched the functioning and implementation of information systems. The development of the information technology market, its problems and prospects have been considered by many researchers (Андрощук, 2012: 82; Бабанін, 2013: 22; Літвін, 2011: 132–134; Полуменко, Рибаков, 2012: 42–43). Some authors have researched the system and technical aspects of accounting automation (Сопко, Бенько, 2010: 186–192). The authors also study the peculiarities of computer information technology application in the accounting and control system of entrepreneurial activity (Маркова, Пчелянська, 2016: 41–42).

Research on the use of information technology in enterprise management is carried out in such areas as:

– economic efficiency of the information technology introduction in accounting (Осмятченко, 2010: 179–180);

– ways of forming and using information to ensure management decisions (Skripnyk et al., 2015: 301–303);

– features of internal audit in the information technology use (Цебень, 2015: 367–368);

– corporate and inter-organizational information systems (Tkal et al., 2016: 162–167);

– issues of automated accounting system implementation at the enterprise, main advantages and disadvantages; review and assessment of the market of information systems of accounting and business management in Ukraine (Марушко, Волянік, 2015: 370–372).

The cloud technologies application in business is the subject of discussion by scientists, IT professionals and entrepreneurs. Thus, some authors conduct a comparative analysis and classify existing solutions for cloud computing (Яковицький, 2012: 320–327).

Many studies have been devoted to the problems of information technology, but the issues of implementation and application of information technology in enterprise management are insufficiently studied. Problems of data processing by information systems operating in cloud technologies are also insufficiently studied. Taking into consideration the rapidly growing level of business informatization, these issues are relevant and of practical importance.

Purpose and objectives

The purpose of the publication is to research the functionality of modern information technology in enterprise management, improving the methodological aspects of their selection, implementation, and application.

Research methodology

The main research methods are analysis, synthesis, description, and bibliographic analysis.

The main research material.

Analysis of the information technology application in enterprise management

Today, the economic situation in the state and legislation has a significant impact on user requirements for the functionality of information technology. Their advantages are fast commissioning, reconfiguration, a single information database, speed of access, the ability to plan activities and operational control etc. The scholars believe that the growth of cybercrime, static, technological upgrades, staff training, high cost, dependence on the Internet and the constant need to adapt to modern times are the disadvantages of information systems application. Thus, the commissioning and reconfiguration of information systems depends on the amount of information that must be added to the program in the initial stages of its work. Reconfiguration of information systems during operation causes a change of data processing and can negatively affect the quality of information. Software development is aimed at implementing an intuitive interface, but the availability of information and high speed of specialists depends on their personal qualities. It is impossible to agree with the static nature of information systems, as licensed programs are quickly updated by developers. The databases that use cloud technology or are accessed remotely are available depending on the Internet.

The application of electronic forms of document exchange and reporting, electronic VAT administration has led to the emergence and development of programs that provide electronic data transmission to commercial partners, supervisors and fiscal authorities. M.E. Doc and 1C: Report is the leaders of the Ukrainian market of electronic document management systems. They provide input and output of primary documents, exchange of information with URTI, preparation of reports and their automated verification, download in format (* .dbf) and sending to regulatory authorities. Such systems use electronic digital signature and cryptographic data protection technologies. Modern information technologies of enterprise management are being developed for complex automation of information

processing. Accounting automation is an integral part of them. However, accounting information is the basis for the operation and processing of data in them. The leaders of the Ukrainian market of automation programs for small and medium-sized businesses are 1C: Enterprise, and jParus.

The choice of information technology by the company is a responsible task. It must be cost-effective and meet the needs of the enterprise. We recommend the company to choose information technology in the following sequence:

1) assess the readiness of the enterprise for automation;
2) estimate the cost;
3) analysis of the information technology functionality;
4) evaluate the economic efficiency of the information system;
5) assess the company's ability to complete the implementation of technology;
6) analysis of the information system reliability;
7) analyze the level of service, support and prospects for the development of information technology.

After selecting and purchasing information technology, the company faces problems with its implementation, it is recommended to perform work in the following sequence to avoid them:

1) registration of general program settings;
2) filling in information about your organization;
3) registration of users and establishing the principles of their work;
4) filling in the main directories;
5) the balances input at the beginning of the period.

General settings of the program include registration of the currency of business transactions and reporting, ways of presenting information, the ability to use the data ban mode, setting access rights to data, etc. Such settings do not affect data processing, but they determine the general principles of the program.

The details of the enterprise, its structure, responsible persons, bank accounts, etc. are entered at the stage of filling in the information about the organization. It is important to adjust the information system accounting parameters and accounting policies because transactions will be recorded and reports will be prepared according to them. Accounting parameters, as a rule, have a general system and do not change. They can determine the sections of analytical accounting of inventories, cash, settlements with counterparties, isolated units, and so on. The established accounting parameters form the principles of primary documents, data processing and generalization in the registers and reports of the system.

The principles of accounting policy are periodic because they may change during the program application. They usually determine the system of the enterprise taxation, inventories and their valuation, the costs recording, the principles for production costs accounting and distribution of overhead costs etc. The principles of accounting policy affect the formation of primary documents. In addition, the chief accountant of the company should read the chart of accounts, and adjust it to the needs of the accounting organization if necessary. Such an adjustment involves the opening of sub-accounts to the accounts, the creation of an analytical data list, and business transactions will be registered in their terms. The functional responsibilities of accounting, human resources, and management personnel who will have access to the information system should be consolidated and distributed to ensure the next stage in the organization.

All the program users must have access to the database in accordance with their responsibilities. It ensures the consolidation of their responsibility for the actions carried out in the system and the protection of information from unauthorized access. The first three stages must be performed before registration in the information system of the enterprise business operations. The works in the fourth and fifth stages do not have this restriction. However, their implementation will ensure the correctness of the data and simplify the further work of users.

Reference data are filled in the fourth stage; they provide analytical records, so their availability and completeness are important for management purposes. Directories contain information on non-current assets, inventories, counterparties, warehouses, employees, standard transactions, tax rates, payments, fees, etc. Deposits at the beginning of the period must be made before the report; otherwise, it will be formed incorrectly. Balances are accounted for as analytical objects.

As soon as the information system has been implemented, we begin to use it; operational data on the enterprise are input and recorded with accounting invoices application. Data from synthetic accounting accounts are a generalized reflection in the monetary dimension of economically homogeneous economic assets. It is important to detail synthetic data in physical and other indices for quick management decisions. Full-fledged analytical accounting of economic activity should be organized with such a degree of detail that meets the needs of management staff. Information technology should provide the following opportunities for the organization of accounting analytics for enterprise management purposes:

– input, storage and processing of analytical information about the funds used by the enterprise;
– search, selection and sorting of analytical data by characteristics;
– analytical information application for the registration of business transactions;
– detailing of generalized synthetic data in different sections of analytical information and their combinations;
– the user customizes the types of analytics offered by the developers of the information system and fills in their own.

The introduction of electronic document management and tax administration has led to the possibility of obtaining and downloading documents (primary and reporting) in special formats (* .dbf, * .xml) that can be processed

by electronic document management systems, electronic services of fiscal authorities, and financial institutions. The need to reduce costs and protect information has led to the emergence of Cloud Computing, which has recently been actively implemented in business. They involve the use of server resources of software that is in the company that provides such services. It is enough to buy processor time, disk space and network of the necessary bandwidth for realization of information systems by means of cloud technologies. It significantly reduces costs and frees up resources for core business processes. Today, the information systems 1C: Enterprise and jParus offer their solutions for enterprise management using cloud technologies.

System 1C: Enterprise in the cloud technologies conditions can work using the following scenarios:

1) cloud within the organization, i.e., the server with the information base is located at the enterprise;

2) cloud inside the holding, i.e., the server with the information base is located in the central office of the holding;

3) cloud for customers, i.e., the server with the information base is at the provider;

4) service model, i.e., the server with the information base is located at the service provider for the use of cloud technologies.

The jParus platform allows you to work in a software environment providing work in the following modes:

1) software as a service (SaaS);

2) platform as a service (PaaS).

When a company uses information systems with cloud computing, it has the following advantages.

1) Access of accounting staff to information resources at any time from any device that has an Internet connection, regardless of location.

2) Reducing the cost of information technology. The introduction of an information system that operates using cloud technologies leads to lower costs for hardware and software, IT specialists, paper cuts and the introduction of electronic document management.

3) High level of security and reliability of information data storage for their professional organization.

4) Unlimited computing resources and increasing their capacity.

We should also mention the risks that the company faces implementing information systems based on cloud technologies.

1) Software is limited because the user has access to information systems that are located in the cloud, and the ability to configure these systems is limited.

2) Lack of absolute confidentiality.

3) The difficulty of recovering information resources lost in the cloud.

4) The need for constant access to the Internet with sufficient bandwidth increases the corresponding costs. There is a need for additional purchase of electronic digital signature keys if electronic document management is introduced.

5) Lack of absolute security and protection of information resources.

The introduction of cloud technologies, the expansion of the use of mobile technology has led to the development of mobile platforms and applications that provide access to the enterprise database regardless of user location using mobile phones, tablets, etc. for mobile information systems. Developers of 1C: Enterprise is implementing a mobile platform based on iOS and Android operating systems. Thus, the users of information systems are accounting and management staff, employees of marketing, supply, sales and other departments of the enterprise.

Increasing the number of users of information technology of the enterprise requires developers to create the most simplified and clear interface. The latter is being implemented (Taxi interface) by the developers of the 1C: Enterprise system. The principles of the Taxi interface are similar to the Internet and mobile applications, which provide a quick start without prior user training, allow you to configure the workspace, get an emergency system, and improve navigation in the system.

Management of a modern enterprise is characterized by an increase in electronic data exchange, which leads to the development of information technology. Modern software products for electronic document management allow you to perform the full range of work on the preparation, verification, and transmission of electronic documents.

The development of enterprise information systems involves comprehensive automation of information processing. The problem of choosing information technology that meets the requirements of the enterprise is relevant at the present stage of business development in Ukraine. We have proposed the stages of work that the organization must perform when choosing software that takes into account the specifics of the company.

When implementing information technology in organizations, it is necessary to perform a certain list of works in accordance with their sequence. We offered to organize such works at the enterprise.

The functioning of the information accounting system is characterized by the interconnection of various objects. It is important to establish analytical accounting of economic activities of enterprises to obtain information for timely management decisions. Modern trends in the development of enterprise information systems are characterized by comprehensive automation and the ability to operate in the global information space. The introduction of cloud technologies in the processing of economic data of the company provides management with virtually unlimited access to information resources, prompt and timely decision-making. However, such technologies application by enterprises is associated with risks.

Process management and business process management (BPM) are the most common terms in today's world of business and ICT. Process management is a natural and integrated approach to management to create a business, which creates the conditions for a highly efficient, fast, innovative and adaptive organization that exceeds one

achieved by traditional approaches to management. Today we meet with processes at almost every step. This term is most popular in companies, corporations operating in the field of information systems and technologies. Sometimes it seems that processes and information technologies are the same. However, the true nature of IT management is very much more complicated. The word process can be used at almost any time and in any sense.

Process management is an activity that leads to the transformation of a functionally oriented organization into a process-based organization. The implementation process requires the security of staff and the project. Solving problems with such a high degree of abstraction and complexity in a heterogeneous environment of the organization's ICT infrastructure must support the relevant ICT technologies. A technology cluster created in an organization from a variety of unrelated software products aims to cover the entire area of process design, process implementation, implementation and monitoring, and must effectively meet the expectations of the organization. Procedural management means a significant change in the perception of the information system compared to the traditional perception. The advent of process management has abolished the concept of information system as a non-monolithic monolith with a given structure, which is determined by a properly developed database and related functionality.

Modern requirements for information systems used in the management of enterprises

Process management requires the information system to be flexibly adapted to the business process because its purpose is to support it. However, business processes change naturally. It has a significant impact on the concept of information system standardization. As it is known from ERP, its concept has traditionally led to a single universal final solution, universally applicable to each organization. It is evidenced by the approach of SAP, the market leader in this area. It has released a new product, SAP Net Weaver, which represents a significant conceptual shift in the company's ERP concept.

The requirements of the organization to its information system are as follows:

– the information system must support all types of business processes, i.e., they must be covered by its functionality;

– the information system must support the management of business processes, so it must monitor them;

– the information system must support all business models, so compliance with all restrictions and rules of the business should help it;

– the information system must ensure the natural transformation of business processes, so it cannot prevent its conceptual or other structural changes.

The data stored in the information system database is its information potential (about the facts of the corporate system and its contexts), its functionality is the action potential (ability to process data). Workflow management system acts as a link between data and system functions, which also allows the enterprise process to use its system data through its functions. The information system of the process-driven organization differs from the traditional one because the functions of the system are separated from the way they are used.

The functionality of the system is the net potential of information support activities, which is as universal as possible and independent of the specific procedure of application. The functions of the system are to support the routine operation of processes, and their combination is always specific because it is determined by the specific situation each time. The application order of system capabilities is always determined by current business processes.

Thus, a process-driven organization may not be sufficient for a traditional information system because it retains the form of procedures by encoding them into functionality and making business processes sustainable. If an organization wants to become dynamic, changeable through a variety of business processes, its infrastructure must also support this variability. They must maintain their ultimate combination in accordance with the ever-changing needs of processes.

SOA (Service Oriented Architecture) is the main trend in the further development of the BPM segment. BPM solutions are a key component of SOA. They are the top layer of architecture organizing the implementation of various services for the implementation of individual steps of the business process. BPM solutions should be closely integrated with other SOA software components, such as Enterprise Service Bus (ESB), SOA lifecycle management solutions, service registry, and more. Reported on the development of BPM-solutions confirms the trend of connecting BPM to SOA. Business process management solutions help design, deploy, implement, and track business processes. They allow you to organize individual, partial, automatic or manual operations according to the requirements of a complex business process. They manage the implementation of processes within the rules of current legislation, standards and organizational recommendations. They support the integration of applications and services into the organization's information system. Adjust process performance to meet business requirements and track current process performance. The benefits of implementing BPM technology in the enterprise IP environment are improving the organization's ability to cope with the demands and opportunities associated with business.

Organizations need to respond flexibly to changes in the environment to maintain their market position. Flexible customization of individual business processes, strategies, needs, services or products depends on the requirements of the customer, partner, and regulator. Most changes require changes in the organization's IT structure.

The ability to flexibly change the information system is a major limitation in changes implementing, which is the need to cope with organizational requirements and capabilities. BPM solutions allow you to quickly change the IT infrastructure associated with business process modeling. BPM solutions allow one set of tools to capture processes from a business perspective and then link them to the IT applications needed to implement them.

There were also some exaggerated expectations at the time of BPM's transition from theory to practice. In small organizations, they welcomed the abandonment of traditional organizational structures and functional systems

and expected that procedural management would have some management release and automatic ability to adapt quickly to changing conditions and improve. Adapting to new conditions takes some time for integrated systems to deliver the expected results. However, the human dimension is the cornerstone of an accident. Anything that is well thought out and planned can go wrong. We must take into account the illogical resistance of employees, the reluctance to try new things, which later saves their work, time, and productivity. Therefore, the human dimension becomes a decisive factor in human motivation, and education.

Information technology optimizes the company's workflow and introduces advanced technologies that simplify the management process by providing employees with a single telephony, such as a virtual PBX system. It is an effective service for companies that decide to replace the physical PBX or even the entire call center. It can be implemented in various ways:

1) hardware, i.e., the software server is installed in the organization's premises and all related software applications are configured;

2) granting a domain;

3) providing a platform, i.e., the virtual machine comes with the selected operating system and software;

4) integrate regular switch users into a common tariff plan; it can be done with additional such functions as voice menu, IVR, and virtual conference room.

The program combines phone numbers, which allows the head of sales or business owner to view all information about employees in real time through online monitoring. Recording telephone conversations of employees in order to further improve the quality of customer service is another advantage. In this case, office and mobile telephony are combined. If the customer calls an employee on a mobile phone, it will be displayed in the company's call line without additional settings. The company's single multi-channel number will be connected. Call forwarding will help transfer calls to the employee regardless of location allowing the employee to be more mobile, able to quickly solve a problem from the consumer, and improve the company's image and rating.

The availability of black and white lists is another advantage. They allow you to block unwanted subscribers or transfer them to a special manager, pre-prepared to communicate with a specific category of consumers. A strategy for the behavior of employees with these customers is also developed, their list is formed and when they contact the company, they are redirected to a permanent manager who is ready to resolve any issue.

Virtual automated telephone exchange does not require the purchase of expensive and complex technical equipment. It will help to provide the office with telephony in a short time, to organize an office anywhere in the world without a specific reference to the physical location.

Thus, a virtual automated telephone exchange helps to establish channels of communication between colleagues, the client and the employee. It will increase the customer base, improve the management process, reduce costs, and minimize costs in the field of telephone equipment.

Conclusions. Today, information and communication technologies (ICT) are an important factor in supporting the achievement of corporate goals. The development of information and communication technologies is forcing the company to increasingly process electronic documents. ICTs are becoming an element that ensures the growth and development of the organization. That is why the demand for ICT is growing.

Gradual development has shown that ICTs help to support business processes by making a profit in technology and business parts of the enterprise. In general, the value of ICT for the enterprise can be considered from an analytical or pragmatic point of view. For many companies, the problem is linking ICT to their strategic interests and day-to-day affairs.

The organization must identify and manage a number of related activities to function effectively. The application of the process system with the identification and interaction of processes, their management can be considered as a process approach. The ability to innovate and change to become a necessary competitive weapon is closely linked to an organization's knowledge potential and the organization's ability to learn. The main principle is a joint effort to achieve the desired common goal by increasing the potential of team action in the process of personal and team learning. The essence of increasing the capacity for action is to be able to respond on the basis of acquired knowledge and develop solutions.

Список використаних джерел:

1. Андрощук Г.М. Інформаційне суспільство в Україні: міжнародний науковий конгрес. 2012. С. 81–88.
2. Бабанін О.С. Статистика розвитку ринку ІТ в США, Україні та світі. *Статистика України*. 2013. № 1. С. 22–28.
3. Літвін А.Е. Тренди розвитку світового ринку інформаційних технологій. *Теоретичні та практичні аспекти економіки та інтелектуальної власності*. 2011. № 2. С. 132–137.
4. Маркова Т.Д., Пчелянська Г.Б. Особливості використання інформаційних систем та технологій в облікових та контрольних системах. *Економіка харчової промисловості*. 2016. № 3. С. 40–45.
5. Марушко Н.С., Воляник Г.М. Облікові інформаційні системи: поточний стан та напрями розвитку. *Науковий вісник НЛТУ України*. 2015. № 25.3. С. 370–377.
6. Осмятченко В.О. Економічна оцінка ефективності запровадження інформаційних технологій в обліку. *Міжнародний збірник наукових праць*. 2010. № 1 (16). С. 178–182.
7. Полуменко С.К., Рибаков Л.О. Щодо окремих питань державної політики розвитку інформаційного суспільства. *Інформаційне суспільство в Україні: міжнародний науковий конгрес*. 2012. С. 42–45.
8. Skripnyk M.I., Matiukha M.M. Formation and presentation of management information system. *Economic analysis*. 2015. № 20. P. 301–305.

9. Сопко В.В., Бенько М.М. Мета та принципи автоматизації обліку. *Бухгалтерський облік, аналіз та аудит.* 2010. № 12 (114). С. 186–192.
10. Tkal Y.S., Chub Y.V., Tkachenko V.V. Particularities of the usage of the information systems in accounting. *Economic analysis.* 2016. № 24 (2). P. 162–167.
11. Цебень Р.Л. Застосування інформаційних технологій у внутрішньому аудиті. *Проблеми і перспективи економіки України.* 2015. № 4. С. 365–369.
12. Яковицький Л.І. Хмарні комп'ютерні технології в управлінні створенням інфраструктури. *Комунальне господарство міст.* 2012. № 102. С. 320–327.

References:

1. Androschuk G.M. (2012). Informacijne suspil'stvo v Ukrayini: mizhnarodny'j naukovy'j kongres [Software industry in Ukraine: state, problems and development prospects]. *Informatsiine suspilstvo v Ukraini: mizhnarodnyi naukovyi konhres(Information society in Ukraine: international science congress)*, 81–88 [in Ukrainian].
2. Babanin O.S. (2013). Staty'sty'ka rozvy'tku ry'nku IT v SShA, Ukrayini ta sviti [Statistics of the IT market development in the USA, Ukraine and the world]. *Statystyka Ukrainy (Statistics of Ukraine)*, 1, 22–28 [in Ukrainian].
3. Litvin A.E. (2011). Trendy' rozvy'tku svitovogo ry'nku informacijny'x texnologij [Trends in the development of the world market of information technologies]. *Teoretychnii praktychni aspekty ekonomiky ta intelektualnoi vlasnosti.(Theoretical and practical aspects of economics and intellectual property)*, 2, 132–137 [in Ukrainian].
4. Markova T.D., Pchelianska G.B. (2016). Osobly'vosti vy'kory'stannya informacijny'x sy'stem ta texnologij v oblikovy'x ta kontrol'ny'x sy'stemax [Features of the use of information systems and technologies in the accounting and control system]. *Ekonomika kharchovoi promyslovosti (Economy of the food industry)*, 3, 40–45 [in Ukrainian].
5. Marushko N.S., Volyanik G.M. (2015). Oblikovi informacijni sy'stemy': potochny'j stan ta napryamy' rozvy'tku [Information systems of accounting: current state and development trends]. *Naukovyi visnyk NLTU Ukrainy (Scientific Bulletin of NLTU of Ukraine)*, 25.3, 370–377 [in Ukrainian].
6. Osmyatchenko V.O. (2010). Ekonomichna ocinka efekty'vnosti zaprovadzhennya informacijny'x texnologij v obliku [Economic assessment of the effectiveness of the information technology in accounting introduction]. *Mizhnarodnyi zbirnyk naukovykh prats (International collection of scientific works)*, 1 (16), 178–182 [in Ukrainian].
7. Polumienko S.K., Rybakov L.O. (2012). Shhodo okremy'x py'tan' derzhavnoyi polity'ky' rozvy'tku informacijnogo suspil'stva [On some issues of the state policy of the information society development]. *Informatsiine suspilstvo v Ukraini: mizhnarodnyi naukovyi konhres (Information society in Ukraine: international science congress)*, 42–45 [in Ukrainian].
8. Skripnyk M.I., Matiukha M.M. (2015). Formation and presentation of management information system. *Ekonomichnyi analiz (Economic analysis)*, 20, 301–305.
9. Sopko V.V., Benko M.M. (2010). Meta ta pry'ncy'py' avtomaty'zaciyi obliku [The purpose and principles of accounting automation]. *Bukhhalterskyi oblik, analiz ta audit (Accounting, Analysis and Audit)*, 12 (114), 186–192 [in Ukrainian].
10. Tkal Y.S., Chub Y.V., Tkachenko V.V. (2016).Particularities of the usage of the information systems in accounting. *Ekonomichnyi analiz (Economic analysis)*, 24 (2), 162–167.
11. Tseben R.L. (2015). Zastosuvannya informacijny'x texnologij u vnutrishn'omu audy'ti [Application of information technologies in internal audit]. *Problemy i perspektyvy ekonomiky Ukrainy (Problems and prospects of the Ukrainian economy)*, 4, 365–369 [in Ukrainian].
12. Yakovytskyy I.L. (2012). Xmarni komp'yuterni texnologiyi v upravlinni stvorennyam infrastruktury' [Cloud Computing Technology as an Instrument for managing infrastructure creation]. *Komunalne hospodarstvo mist (Municipal economy of cities)*, 102, 320–327 [in Ukrainian].