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MODERN TECHNOLOGIES IN ACCOUNTING
AND TAX ACCOUNTING

Abstract. The goal - to identify the main advantages and features of the use of modern information technology in accounting. The article analyzes the concept of "cloud" technology and technology blockchain with their practical use in accounting and tax accounting; advantages, disadvantages and features of accounting in the use of these technologies, including related online services for outsourcing firms and budget organizations, as a promising working environment for an accountant.

It is concluded that the use of cloud technologies and blockchain technology in accounting provides new opportunities for all business entities, regardless of their organizational form and scope of activities, due to the advantages of online accounting in the form of unlimited or limited availability of information, flexibility of connected services, reduced maintenance costs and high security.

Keywords: cloud, blockchain and information technology, accounting, online accounting, accountant, investor

Introduction

Although information technology (IT) in the application aspect develops much faster than accounting practice, their development is sooner or later reflected in accounting practice: from simple classes of single-user programs without a window interface to complex integrated ERP systems (enterprise planning system) of enterprise management, allowing to solve as problems of accounting and tax accounting (transition from traditional paper, manual document management to electronic (automated)), and automated resource management of the organization as a whole, providing analysis and planning of its activities.The development of IT allows: 1) to increase: a) efficiency, timeliness and relevance of accounting data, providing the opportunity in a mode close to online, b) qualitatively analytical accounting capabilities, providing the possibility of parallel accounting in several standards; c) the quality of the calculations and information in the accounting and tax accounting by reducing the influence of the "human factor", the number of arithmetic errors, creating a single information base; 2) to reduce the time and labor costs for processing accounting operations, to increase the speed of collecting, transmitting, processing information, compiling reports and maintaining documentation, thereby increasing the productivity of all employees of the organization, not just those involved in accounting; 3) to assess the current and forecast financial condition of the company; 4) to carry out the delimitation of access to information, separation of functions, to ensure the possibility for rapid assessment and control of activities by the management of the organization; 5) large-scale implementation of electronic document management of organizations with relevant subjects of the tax system, the pension system, social and medical insurance, providing the opportunity to minimize the time of preparation and analysis of reporting documents and their submission to the tax service. Automated accounting has its own characteristics as compared with manual accounting in terms of the technology of registration, accumulation and processing

of accounting data and the formation of accounting reports, in addition with the development of IT, new opportunities for automating accounting are emerging. Let's analyze them.

Methods. Automation of accounting using cloud technologies. The idea of this technology is to provide network access on demand to a common pool of computing resources (for example, modern data networks, servers, data storage devices, applications and services for creating, storing, processing and searching data) from any device (computer, tablet, smartphone, etc.), regardless of the location of the user with minimal cost [1]. "Cloud" servers no matter what software platform the user uses, what geographic region he is in, only the standard workplace and a reliable and fast channel of communication with the Internet are needed.

Data centers (specialized protected building to accommodate (hosting) server and network equipment in which the cloud is deployed) operate in the 24/7 format (this ensures reliable, round-the-clock service), are provided with fault tolerance and redundancy systems, which allows you to get round-the-clock guaranteed access to services in the "cloud". The most commonly used are independent European (Baltic states, Germany, the Netherlands) and Russian (St. Petersburg, Moscow) data centers [2].

According to the magazine Byte, during the period 2014-2018. the volume of calculations performed in public (accessible to an unlimited circle of users) "clouds" is growing at a rate of 44% per year.

The developers moved the ERP system to "the cloud" - "1C: Accounting" (service "1C: Fresh", launched into commercial operation on May 17, 2012). This software product is provided on the principle of SaaS (software as a service): the customer pays only for the rental of software for the actual time of using the service, there is no need to acquire ownership of the product[1]. For the accountant, there are few differences in the operation of the system compared to the traditional version built on the client-server architecture. For the 1C administrator, it is also possible to gain access to the configuration and administration of the used configuration.

The principle of working with "1C: Fresh" is similar to how the user usually works with e-mail or visits websites: you need to open a supported browser program, enter the website address, personal login and password. Using the functions of the personal account, you can create the necessary database configurations, add and delete users. The databases themselves are stored on the cloud server "1C", the company "1C" updates and stores the software complex [3].

A user can download a copy of the database to his computer. Thus, compatibility between all products of the 1C: Enterprise series is maintained. Similarly, the local version of the database can be uploaded to the site and continue working there in the online service mode [2]. There is an option for joint mixed work in the database using a program on a computer without access to the Internet or using a web browser, for which you need to set up an autonomous workplace to get started. The technology of the latter assumes that: 1) the user can work with the base via the Internet or locally on the computer; 2) the configuration update on the computer is carried out on the basis of the current version available on the Internet; 3) the data in the offline workplace is always up to date. Synchronization in the service and on the computer is carried out automatically on a schedule or at the request of the user [2].

The main advantages of using "cloud" technologies in relation to accounting:

1) cost reduction for: a) technical support due to the lack of need for a specialist in technical support, installation of updates and software on a user's computer, b) acquisition of licensed software provided as a service, c) hardware and software infrastructure. The problem of using unlicensed software is eliminated (1C, or its official partner that provides this service, provides updates, backups, data synchronization, load balancing on computing resources of servers [2];

2) scaling and flexibility: you can increase / decrease the number of users, add new services, connect / disconnect services with minimal time and financial costs. Fast connection of external users (partners, clients) is provided, since software installation is not required, and access is possible from any place and software platform. Often, simultaneously with the accounting services, the services "Garant", "Consultant Plus" are connected; reporting through the Internet, electronic document circulation, platforms for participation in public procurement and tenders, they operate in the "one window" mode [2];

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[1]Rakhimberdiev A. Cloud accounting on the basis of "1C". URL: http://www.audit-it.ru/

3) high security and safety of information due to the fact that it is located on a remote server; when connected via the Internet, the "https" secure protocol is used to encrypt the communication channel; data stored on servers is encrypted with crypto-resistant algorithms; To control all operations, a log of user actions is provided, which can be viewed online and it is impossible to delete records from it; if necessary, it is possible to establish who performed the relevant operations to the nearest second[2];

4) mobility: employees can move within the organization and between offices, work on a business trip and vacation, and have access to software from any device (computer, tablet, phone) connected to the Internet;

5) high data exchange rate allows you to work with their large arrays and instantly get results, for example, open documents or view generated reports.

Results. Disadvantages of cloud technologies:

1) the service requires constant Internet access and fairly high connection speeds, which incurs additional costs. Currently, to work in the "cloud" you need to have a connection using xDSL equipment, modern fiber-optic connections or mobile Internet with a connection speed $\geq 3G^3$;

2) online accounting supports work mainly with standard configurations only. Although the administrator has the ability to customize a specific "1C" configuration to the needs of a specific business entity, these possibilities are quite limited, especially if an organization uses configurations written for it or its activity is far from standard typical solutions [3]. The user also has limitations in the software being used and sometimes does not have the ability to completely customize it for his own goals and objectives;

3) confidentiality. Security in storing and transferring data largely depends on the service provider, while financial liability for data loss and unauthorized access often does not exceed the monthly cost of the services provided, i.e. in fact, the client chamber of subscribers. Its value cannot be comparable with real risks. One of the possible solutions to the problem may be insurance for data loss. It is also possible that the servers on which the working "cloud" is located can be hacked, and the databases and personal information of users are stolen. Normative legal acts and technologies that guarantee 100% confidentiality of data are not developed. Therefore, the most valuable data is not recommended to be stored in the "cloud" accessible to an unlimited or wide range of users. It is necessary to provide data with limited access to individual employee references;

4) in order to receive "cloud" services, a permanent connection to the Internet is necessary, which may cause problems of preserving the integrity of data, correct and timely updating of information in data warehouses.

In addition to the end user, online accounting is useful for firms providing accounting services on the terms of an outsourcing contract to a small business, when accounting is transferred to the 3rd organization [1]. Finished documents are transferred to specialists for processing and entered into the "1C: Fresh" database in the office of the corresponding outsourcing company. Accounting reports and tax returns are compiled based on the results of entering information provided by the client. The functions of the chief accountant are carried out by a professional accountant of an outsourcing company engaged in the management of operational data of the client, tax planning, preparation of financial statements and tax returns. At the same time, there is no transfer of documents from departments to accounting, re-entry into the computer of already created documents. For the manager, round-the-clock online access to the accounting database and control of the organization's performance indicators is possible [3].

Online accounting for budgetary institutions and large companies. Due to the fact that in such institutions accounting can be carried out centrally, and funding, especially in times of crisis, is very limited, this allows you to:

1) centralized accounting of a group of institutions in the same database, using common state classifiers, lists of contractors, nomenclature of non-financial assets, expenditure items, etc. All accounting is standardized and unified, but flexibility remains in the program, for example, reporting can be formed both separately and consolidated for the whole group of institutions;

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[2] Cloud Accounting "1C". Should I go to the cloud? Materials online conference from 04.19.2013. URL: http://www.klerk.ru/buh/
[3] Cloud Accounting "1C". Should I go to the cloud? Materials online conference from 04.19.2013. URL: http://www.klerk.ru/buh/

2) separate accounting for sources of financial security in one base. An accountant may receive separate reporting within a specific institution. The structure of accounts for each source of financial security may be different;

3) accounting in full compliance with Russian legislation. The program uses a single chart of accounts for the accounting of public institutions and the budget classification of the Russian Federation [4].

Centralization in this case implies a reduction in operating costs, since the head structure specialists set up a high-performance server, and all other workplaces are formed remotely. From the user (accountant) of the budget institution there is no need to install the platform and configuration of the accounting information system: all maintenance, updates and configuration operations are performed on the main, virtual server via remote access[5]. All you need is a computer and internet access. For example, the company "RZDstroy", which has 16 divisions, is registered in 190 tax inspectorates, while participating in tenders, which obliges it to constantly monitor the status of settlements with the state. Assistance in conducting such a large number of reconciliations with tax authorities is provided by a taxpayer information service (ION), through which 190 requests pass, each $\leq$ 5 minutes of employee's working time. The processed data is automatically uploaded to Excel spreadsheets, which eliminates errors due to human factors. A large state carrier, TransContainer, with 250 subdivisions throughout Russia, needs to ensure the required regional coverage and quick system setup when changing tax inspections: about 100 reporting forms and> 100 ION / month requests pass at the same time for reporting. only on the head office. This work is handled by a staff of 5 employees[6].

With the development of IT, it will be possible to change the methodological principles of accounting, for example, the principle of "double entry".

Technology blockchain in accounting. This technology is a decentralized (independent), open, distributed database (decentralized application) that is simultaneously stored on multiple data storage devices (for example, computers) connected to each other on the Internet but not connected to a common server.

Its main advantage is a secure way of storing information consisting of separate blocks and protected from unauthorized access (it is difficult to hack, forge transactions, or quietly change information recorded in the database, and only add new blocks), while all participants of the blockchain can see the whole chain of blocks [five].

The blockchain concept[7] is the distribution of the database, expressed in its architecture as chained blocks (each block contains a link to the previous block), and all this is «hashed»[8]. As a result, it is impossible to fake a block so that no one will see it. Regardless of the number of users, 1 block is generated every 10 minutes. As a result, the block consists of standard hash transactions in 256-bit increments (nonce).

A joint project of Sberbank of the Russian Federation and the Federal Antimonopoly Service of the Russian Federation "Digital interaction of the FAS Russia with banks and business entities based on the blockchain technology" was launched in Russia at the pilot production stage. Sberbank of the Russian Federation using blockchain technology and cryptographic tools certified in Russia[9].

The blockchain technology in accounting is a kind of decentralized distributed registries that form a new type of "triple-entry" accounting system aimed at simplifying the accounting of production and

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[4] Go to the clouds. Online accounting in 2014. URL: http://www.klerk.ru/buh/articles/356357/

[5] Piskunov I.V. Accounting in the cloud: modern automation technology. 05/07/2015. URL: http: //xn----7sbbaj7auwnffhk.xn--p1ai/article/2718

[6] How "clouds" facilitate working with the state // According to Forbes. URL: http://www.buhonline.ru/pub/press/2015/1/9447

[7] Basic concepts. 01/25/2018 URL: http://a-erp.com/articles/23

[8] Lun Hans Peter (in German Luhn Hans Peter) in January 1953 put forward a systematic idea of "hashing" and proposed "hash coding". Arnold Dumey (Eng. Arnold Dumey) in 1956 in the "Computers and automation" work described the idea of "hashing" in the modern understanding of it by most programmers, considering "hashing" as a solution to the "dictionary problem". Thanks to the work of Academician of the Academy of Sciences of the USSR A.P. Ershov (the creator of the Siberian School of Informatics) in the USSR as the equivalent of the term "hashing" since 1956, the term "arrangement" was used. A hash function is a mathematical transformation of information into a short, defined length string.

[9] Russia officially used blockchain for the first time. RIA News. 12/19/2018 URL: https://news.mail.ru/economics/32015073/?frommail=1

economic processes, while all information is open and transparent to interested users. This technology is similar to a decentralized ledger in which every transaction of the interested party is recorded and ensures that the records will not be forged. When a transaction occurs, the blockchain registers goods in the general ledger as a transaction status and confirms information related to the production and management of goods: place and date of production, price, quality, etc. The opacity of the transaction process is a big problem for e-commerce now, and technology blockchain can improve its transparency.

Discussion.

1. The methodology of the automated form of accounting requires an increase in: a) the comparability of accounting information systems of different subjects, optimization of the amount of information in these systems without loss of quality and b) high qualification of users of such information systems, as well as improvements in: a) accounting automation systems part of the streamlining and optimization of its practical management, reducing the number of errors in accounting due to the use of embedded algorithms internally go automated control of accounting data; b) formalization of accounting procedures [6].

2. Accounting is the informational basis for the adoption of the most important management decisions by the management of the organization — internal users of information, and evaluation of the enterprise's activities by external users: state regulatory bodies, shareholders, investors, creditors, etc. [6]. However, up to the present, these users, primarily investors, in modern software for accounting automation have not worked out the possibilities of automated generation of accounting and analytical information, taking into account the time value of money, which is one of the main requirements of IFRS for accounting and analytical information on many accounting objects (revenues, investments, fixed assets, financial instruments, etc.). With the development of IT, it is necessary to introduce into the software products mathematical algorithms that allow to calculate the corresponding indicators taking into account the time value of money, while ensuring the possibility of accounting according to the standards of RAS and IFRS with minimum labor costs. To be able to apply the discounting procedure in accounting, you need to know the discount rate and the dates of the transaction and cash flow. The latter are defined as the dates of receipt of the asset and its payment[10]. The choice of the discount rate depends on the yield on three-month government securities or alternative investments and inflation levels (currencies of cash flow, region, state, input resources, output products and services, salary and a number of other factors) and risk (organization, asset, project, industry, region, general economic and a number of other factors), and also involves the professional judgment of the accountant. This indicator suggests the possibility of updating it in the accounting information system as needed when its value changes.

3. It is necessary to develop regulatory legal acts and "cloud" technologies that guarantee 100% confidentiality of data and exclude prerequisites for loss of information or access to it, if it is remotely accessible on servers that are not owned by the organization (in the "cloud") [7-9].

4. Firms that develop software need to determine the optimal and acceptable levels of "cloudiness" and implementation of a "cloud" strategy in accordance with their requirements and customer requirements [10], including in terms of confidentiality and ensuring the security of their data.

5. As part of improving the automated accounting system, it is necessary to develop algorithms for building information systems of the type "artificial intelligence" or "expert systems" [11], which contain a knowledge base and are self-learning. Data in these systems is accumulated, their interconnection is ensured through the use of parallel distributed and neural networks, hybrid algorithms, evolutionary computations and other modern technologies, as a result of which data can be used to create new knowledge and solutions to various accounting and tax accounting tasks.

Conclusion.

1. The use of cloud technologies and blockchain technology in accounting provides new opportunities to all business entities, regardless of their organizational and legal form and scope of activities, including budget institutions, non-profit organizations and firms providing outsourcing services in terms of accounting. The main advantages of online accounting are wide availability, flexibility of connected services, reduced maintenance costs, high security.

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[10]Pavlova A.N., Seryavina T.V. Use of information technologies in accounting. Prospects for automation. 04/27/2016. URL: http://jurnal.org/articles/2016/ekon51.html

2. The use of discounting in accounting will improve the quality of the relevant accounting information and financial reporting as a whole and the level of compliance with RAS and IFRS.

3. Although the development of IT in accounting significantly increases the efficiency and quality of the accountant's work, monitoring the financial and business activities of the organization, the accounting automation system cannot completely replace the accountant for problems that require professional judgment based on personal experience and professional knowledge of an accountant.

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БУХГАЛТЕРЛІК ЖӘНЕ САЛЫҚТЫҚ ЕСЕПТЕГІ ЖАҢА ТЕХНОЛОГИЯЛАР

Аннотация. Мақсаты – заманауи ақпараттық технологияларды бухгалтерлік есепте қолданудың негізгі артықшылықтары мен ерекшеліктерін анықтау. Мақалада бухгалтерлік және салықтық есепке алуда практикалық қолдануымен «бұлт» технологиясы мен технологиялық блокчейн түсінігі талданады; бухгалтерлер үшін перспективалық жұмыс ортасы ретінде аутсорсинг фирмалары мен бюджеттік ұйымдарға арналған онлайн қызметтерін қоса алғанда, осы технологияларды пайдалану кезінде есепке алудың артықшылықтары, кемшіліктері мен ерекшеліктері.

Осылайша, бұлтты технологияларды және бухгалтерлік есепте блокчейн технологиясын қолдану, барлық ұйымдастырушылық нысандарға және қызметтің көлеміне қарамастан, онлайн-бухгалтерлік есептің артықшылықтары шектеулі немесе шектелген ақпараттың қол жетімділігі, кірістірілген қызметтердің икемділігі, техникалық қызмет көрсету шығындарын төмендету және жоғары қауіпсіздік қамтамасыз етіледі деген қорытынды жасалып отыр.

Түйін сөздер: «бұлтты», блокчейн және ақпараттық технологиялар, бухгалтерлік есеп, онлайн-бухгалтерия, бухгалтер, инвестор.

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СОВРЕМЕННЫЕ ТЕХНОЛОГИИ В БУХГАЛТЕРСКОМ И НАЛОГОВОМ УЧЕТЕ

Аннотация. Цель – выявить основные преимущества и особенности использования современных информационных технологий в бухгалтерском учёте. В статье проанализированы понятия «облачная» технология и технология блокчейн при их практическом использовании в бухгалтерском и налоговом учёте; преимущества, недостатки и особенности ведения бухгалтерского учёта при использовании данных технологий, в том числе сопутствующих онлайн-сервисов для аутсорсинговых фирм и бюджетных организаций, как перспективной рабочей среды для бухгалтера.

Сделан вывод, что использование «облачных» технологий и технологии блокчейн при ведении бухгалтерского учёта предоставляет новые возможности всем хозяйствующим субъектам независимо от их организационно-правовой формы и сферы деятельности за счёт преимуществ онлайн-бухгалтерии в виде неограниченной или ограниченной доступности информации, гибкости подключаемых сервисов, снижения затрат на обслуживание и высокой безопасности.

Ключевые слова:«облачная», блокчейн и информационная технологии, бухгалтерский учёт, онлайн-бухгалтерия, бухгалтер, инвестор.

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