

The Impact of the Digital Economy on Accounting, Reporting and Audit

Kamordzhanova N.

Saint Petersburg State University of Economics, Russia
e-mail: kna@unecon.ru

Selezneva A.

Saint Petersburg State University of Economics, Russia
e-mail: sandrine_rom@mail.ru

Abstract—The article considers the issue of accounting reporting and how the rules and standards have to change in conditions of rapid development of information technologies in order to remain relevant for the evaluation of digital business. Digital transformation forces Russian companies to pay more attention to the development of a clear and transparent development strategy, and more often than international companies to audit their corporate structure.

The foreign experience of recognition of new objects and tools of digital economy is analyzed. The favorable and unfavorable influence of the digital economy on the activity of operating enterprises is revealed. In particular, the technology of the distributed registry (lock-up), crypto-currencies, robotization, the Internet of things, the expansion of business opportunities in the market and the absence of common rules for the use of these tools threaten existing enterprises.

There is a need and reflection in the reporting of new data and objects. For example, the information on the ecosystem of the digital economy (partnership of organizations, ensuring the constant interaction of their technological platforms, applied Internet services, analytical systems, information systems of government bodies of the Russian Federation, organizations and citizens).

Keywords—digital economy, accounting, audit, blockchain, artificial intelligence.

I. INTRODUCTION

The digital economy is a set of challenges: distributed registry technology (blockchain system), crypto-currencies, robotization, cloud technologies.

Expansion of market opportunities and the absence of common rules for the use of these instruments entail certain risks for operating enterprises.

The transition to a digital economy from the economy of production processes and resources requires changes in the accounting system, leads to the evolution of accounting in general, and as a consequence requires changes in the processes of audit and internal control, as will be described in the article.

II. THE MAIN TECHNOLOGICAL TRENDS OF THE XXI CENTURY AND THEIR IMPACT ON ACCOUNTING, REPORTING AND AUDIT

In the course of writing this article it was carried out an analysis of the experience of foreign and Russian researchers: K. Schwab, E. Brynjolfsson, A. McAfee, M. Spence, M. Matthews, N. Kamordzhanova, A. Bakaev, I. Semina, S. Dyatlov, D. Gilmanov, D. Pankov and many others on the impact of digitalization on the functioning of the economy, enterprises,

the work of the financial sector, the methods of accounting, changing the existing business model. Also, the article is based on research by organizations such as Ernst&Young, PwC, McKinsey & Company, PEW Research Center, Agency for Strategic Initiatives, materials of the annual conference of the Russian Association for Electronic Communications (RAEC), articles of periodicals, on changes in legislative and other normative acts, etc.

Among the main trends of the digital economy include technologies such as Big Data, artificial intelligence, a distributed registry system and crypto-currencies, cloud technologies, augmented reality, neurotechnologies, etc. Pressing issue is about how in the conditions of rapid development of information technologies accounting and reporting rules and standards should change in order to remain relevant for the evaluation of digital business.

A. Trends and Influence on Accounting and Reporting

With the development of technologies, a huge amount of information from physical media has been translated into digital format (electronic registers) stored on a server to which network access is provided. After authorization on a server users of electronic registries access the complex functionality of various applications, be it human resource management, planning, financial reporting, verification of transactions between business partners, etc.

The usage of cloud technologies for the company's IT infrastructure allows users to access it from any mobile device, regardless of geolocalization and time of day, providing timely accounting, monitoring and response to what is happening.

Implication of such a trend as block chain, relieves the need for inter-company verifications, because all the necessary information is kept unchanged in blocks. Accordingly a decrease in the number of intermediaries reduces the risks of possible intrusion into the internal ecosystem of the company.

The modern market cannot be called completely transparent, that is not all market participants can have all the information. Some participants gain a competitive advantage due to imbalance in the information on the market, and in the digital economy, information is a priority commodity (an unlimited resource).

Block Chain provides full transparency of all operations, which can transform the concept of private information, where the details of the transaction are known only to counterparties. Distributed registry technology could lead to what will be car-

ried out public records of activities within a given ecosystem in which all market participants have equal access to information in real time.

The growing usage of crypto-currencies that arose in 2009 in response to the crisis of 2008 and the next collapse of the banking system, when it became impossible for ordinary intermediaries and transaction protocols to be trusted, has a great influence on accounting: changed the concept of money and assets. In the ongoing debate on the legalization of the usage of the world's crypto-currency and equating them to cash (Table 1) [5].

TABLE I. WORLD PRACTICE OF ACCOUNTING AND IDENTIFICATION OF CRYPTO-CURRENCIES

Subject	Approaches to crypto currency identification
United Kingdom	«Private money» (from the point of view of nature)
Finland	Financial instrument of payment, not an asset. All operations with crypto currency are considered as banking services.
Israel	Asset (item of goods), not cash or securities.
Japan	Freely transferable value used as means of payment; Bitcoin and Ethereum since April 2017 have been accepted as legal means of payment.
Australia	Instrument of payment (c 30.10.2017 г.)
Sweden	Instrument of payment, mining — a labor activity.
USA	Instrument of payment.
Republic of Belarus	Asset, in accordance with the Decree of the President No. 8 of December 21, 2017 «On the Development of the Digital Economy» that came into force in March, 2018.
Russian Federation	Draft of a bill «On Digital Financial Assets»
Securities and Exchange Commission (SEC)	A digital embodiment of value that is disseminated in digital form. It can be used as a medium of exchange or a unit of counting or accumulating means
European Central Bank (ECB)	Convertible decentralized virtual currency

Currently, even personal data can serve as a currency.

On the legal and economic status of the e-currency disputes are conducted, as crypto-currency release takes place decentralized, making it difficult to exercise control. Similarly, digital currencies do not meet the definition of cash or cash equivalents, or of financial instruments, but, according to IAS 38 and IAS 2, they can be considered as intangible assets or inventories. Therefore, there is a necessity to develop a new standard or adjust the existing ones, update the definition of the term «cash and cash equivalents» and «financial assets». [1]

General Data Protection Regulation (GDPR), passed in May 2016, provides for strict control over the processing of personal data and their transfer outside the European Economic Area (EEA). Information exchange using cloud technologies is unimpeded if data are processed in a country that is on the list

or the territory of the European Union (EU). In the event that a counterparty company is not included in the EU list, there are additional means of protection, for example, typical contractual provisions for data transmission. In case a counterparty company is not included in the EU list, there are additional means of protection, for example, typical contractual provisions for data transmission.

Apart from block chain, crypto-currencies and cloud technologies, there is much concern about the issue of legislative regulation of the activities of robots and artificial intelligence [3, 4, 7]. At the moment, there are no legislative acts in the world that regulate the accounting and exploitation of robots in companies. In many countries the government has assembled working groups engaged in the development of regulatory acts.

In 2017, the European Parliament adopted a resolution «Draft Report with recommendations to the Commission on Civil Law Rules on Robotics» («Civil Law Standards on Robotics»), based on the three laws of robotics by Isaac Asimov. The Recommendations emphasize the importance of protecting personal data when using robots and artificial intelligence, meeting the requirements associated with the use of sensors and cameras.

In South Korea, the draft law has been developed, the main purpose of which will be to ration the ethical and ethnic relationships between people and robots. According to the comments of the Minister of Trade, Industry and Energy Joo Hyung-hwan, it is planned to develop the «Standing rule of Ethical Standards for Robots» for both developers and users. The items of this bill will be part of the robot software.

In Russia, there are proposals for the establishment of a system for individual recording of robots by the type of the Unified State Register of Legal Entities, nominated by the founder of Grisin Robotics and the co-founder of Mail.ru Dmitry Grishin [6]. Legislative regulation can also be based on amendments made to the Civil Code of the Russian Federation and special federal legislative acts, in particular, such as the equating of a robot to an animal (the same rules and requirements are applied when damage is inflicted and an inventory number is assigned), keeping a register similar to Unified State Register of Legal Entities of Russian Federation, or accounting by analogy with physical persons.

B. Trends and Their Impact on Audit

Comprehension, that digital changes are based on the recognition, that just technologies are the basis for almost any company on the market, stimulates the development of a business management strategy through the opportunities provided by the technical process, but also emphasizes the attendant risks.

Lauren Massey («PwC») notes the need for auditors, especially for internal auditors, to monitor risks that depend on the introduction of new technologies. Also emphasizes the importance of self-introduction of advanced technologies. Examples of new technologies that have an impact on audit activity are: augmented reality, virtual reality, block chain technology, artificial intelligence, 3D printing, drones, robotics and Internet of things, industrial Internet of things (network access control of physical objects).

Thus, a report PwC «Moving at the Speed of Innovation» (2018), revealing the current state of the profession of the internal auditor shows that a huge number of internal audit functions in the near future are transformed under the influence of new technologies. Experts predict it will happen in the next two years. PwC conducted a survey among more than 2,500 board members, executive officers and auditors in 92 countries [2].

Thus, respondents' responses are conventionally divided into «three main categories:

«Envolvers» (14%) – they are advanced in their technology adoption;

«Followers» (46%) – they are taking notice and following the Envolvers' technology adoption, but more slowly;

«Observers» (37%) – if use, then they use only basic technologies; while the active introduction of technology, as statistics show, pays off

«Others» (3%)» [2].

Also, in response to technological trends in the digital economy, the IT audit is widely represented in the audit services market. IT audit is divided into different types: IT survey; audit of IT-department conducted in conjunction with the audit of all IT-related business processes; expert review of IT, which allows to identify the possibility of IT infrastructure reforming; technical IT audit; audit of IT-criterion; integrated IT-audit.

For each business entity a special role is acquired by internal audit, since its timely conduct and a clear understanding of what is happening are key to the successful development of modern business. Digital changes in internal audit affect the mindset of employees: it is proposed to use the Business Intelligence portal of internal audit, namely the use of new technologies, methods and directly IT tools. The main purpose of Business Intelligence is the correct interpretation of a large amount of data, focusing on the key performance indicators, and with the help of Business Intelligence, it becomes possible to model various options for the company's development by monitoring the results of decisions.

Through the instrumentality of Business Intelligence, internal audit will be able to provide management with new ideas on strategic development of the company. That can provide them with transparency in understanding and help manage the organization's strategy, as well as manage risks.

Talking about the fact that all processes are automated, we can safely say about the transition to a new level. Earlier, much attention was paid to the methodology for developing the system of indices and key risk indicators (KIRs), which were effective tools for identifying information about changes in the level of operational risk in companies. At the moment, automated risk indicators and risk indicators, which arise in real time, come to replace. Internal audit can start their analysis in a timely manner, which saves considerable time in their search.

The auditor's work will become flexible and can be reduced in real-time mode, where the auditor have access to the information systems and data as part of their work. It is understood that, for example, an internal audit expert will have information

for more in-depth study and identification of causes of non-compliance, and also focus on areas that require more attention.

The value of auditors, who have mastered or are able to master new technologies as soon as possible, significantly increases. For example, it is understood that the internal auditor will respond promptly to management's requests, develop verification tools, and also promptly and exactly distribute them in his organization.

The results of the changes in the audit will not take long, as all the processes will be less time consuming, and the necessary reports will be replaced by constant communication using a special platform for obtaining detailed information.

III. CONCLUSION

The main conclusion: new technologies of the digital economy are aimed at increasing the security and efficiency of using information — the main resource of the digital economy.

More reliable registration and storage of the facts of companies' financial and economic activities, increasing the speed of processing and checking records is possible when using the block chain technology or cloud technologies. A central system with unchanged data allows inspectors and regulators to monitor the flow of accounting figures in real time.

World's minds are developing the legal framework for accounting and control of all the technological innovations brought by the digital economy.

Accounting reporting takes on a special format — a continuous flow of data delivered in near real time through the usage of modern information technologies. All stakeholders can operate with these kind of modern information technologies.

Standardization of accounting will allow auditors to check automatically a significant part of the important information that makes up the financial (accounting) reporting and non-financial reporting. And the cost and time required for the audit will be significantly reduced in that case.

REFERENCES

- [1] GAAP.RU Homepage, <https://gaap.ru/news/155373/>, last accessed 2018/04/21.
- [2] PWC Homepage, <https://www.pwc.com/na/en/assets/pdf/2018-pwc-state-of-the-internal-audit.pdf>, last accessed 2018/05/18.
- [3] Blockchain Homepage, <https://www.blockchain.com/>, last accessed 2018/06/05.
- [4] Schwab, K.: The fourth industrial revolution Crown Business, New York (2017).
- [5] Accounting for crypto-currencies Homepage, <https://www.pwccn.com/en/migration/pdf/accounting-cryptocurrencies-dec2016.pdf>, last accessed 2018/05/06.
- [6] A. Gontar, D. B. Solovev, "Artificial Neural Network Model for Systems of Economic Security of Bank", *Advances in Economics, Business and Management Research*, Vol. 47, 2019. [Online]. Available: <https://dx.doi.org/10.2991/iscfec-18.2019.181>
- [7] Dmitry Grishin Homepage, <https://www.crn.ru/news/detail.php?ID=116198>, last accessed 2018/06/16.