

Assessment of Readiness of Accounting and Statistical Systems for Digital Economy Transactions

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Abstract—The digital economy is a given. The digital economy has already taken its share in various spheres, industries and territories as part of the traditional economy and will only grow. This will happen for a number of objective reasons, as digitalization leads to the growth of economic benefits, to the growth of capital and national economies. The article presents an overview of the possibilities and limitations of the functioning of accounting and statistical systems in the digital economy. It is considered how accounting systems cope with the reflection of transactions in the digital economy. The conditions for the implementation of business processes, in which the accounting system without any difficulties reflects the economic essence of economic operations, are highlighted, and the conditions under which digital transactions require additional methodological descriptions and developments are considered. Examples of insufficient readiness of accounting and statistical accounting systems to fully provide information on transactions of the digital economy are shown. Conclusions are drawn about the inevitability of the formation of new rules for the evaluation and recognition of new digital transactions. At the same time, in some cases, we can talk about a paradigm shift and modernization of the accounting and statistical system.

Keywords—*accounting and statistical systems, forms of statistical observation, respondents, digital economy, digital environment, transactions.*

I. INTRODUCTION

Digital online Internet technologies in a short time entered the economy of all business units and economic entities and made their financial and economic operations part of the digital economy. All of us, both business structures, and consumers, and institutions of the state, de facto are already in the digital environment and daily are consumers of electronic services and services (public services, consumer and communication). And the trends of transformation in favor of further digitalization will develop and grow. The program "Digital Economy of the Russian Federation" was adopted at the state level [1]. In connection with the coming and inevitable transformation of business processes, it is important to investigate and assess how much accounting and statistical systems are ready for the transformation of accounting processes and whether they are able to reflect such transactions by existing methods, ways and tools? The study is aimed at identifying the "readiness" or "unpreparedness" of accounting and statistical systems to perform their main task of reliably reflection of all transactions of economic entities. Not being able to recognize, evaluate, take into account a number of transactions in accounting systems will definitely lead to a decrease in the quality of reporting information and its relevance to users at all levels of consumption of such data (owners, government agencies and institutions, etc.)

II. LITERATURE REVIEW

Over the past few years, the scientific community is quite widely represented research in the field of digital economy. The authors studied the development of the digital economy, trends, problems, terminological and conceptual apparatus, as well as features of accounting and technological processes and their results.

The term "digital economy" – the digitaleconomy – was implemented by Don Tapscott in 1997 [2].

Savina T.N. in her article "Digital economy as a new paradigm of development: challenges, opportunities and prospects" summarizes that "total digitalization and implementation of information and communication technologies is a natural and well-formed process, and therefore inevitable. The basic reason for the expansion of the digital segment of the economy is the growth of the transactional sector (public administration, information services, consulting, finance, services, etc.)" [3]. That fully coincides with our opinion.

Colleagues outside Russia are also exploring digital business processes. Thus, the team of co-authors in their work "Dynamics of digital entrepreneurship and innovation ecosystem" conducted a study of digital entrepreneurship and came to the conclusion about "... significant differences among the participants of the innovation ecosystem. This is how companies with different levels of innovative development function and interact in the digital environment, which is expressed in different levels of digitalization" [4]. Separate segments of the digital economy, such as the Internet of things, are studied [5].

The factors contributing to the growth of purchases through mobile applications by US consumers are studied. The results of the study and suggestions for improving marketing were presented in the article "Participation in consumer mobile commerce in the United States: use of in-depth interviews to offer an acceptable mobile commerce model based on shopping apps" [6].

In the article "Formation of digital economy in Russia: essence, features, technical normalization, development problems", the team of co-authors showed that "... the digital economy has a huge potential to promote economic development" [7] and in the process of the study identified and formulated the main problems of the digital economy in Russia, such as:

- lack of legislative and regulatory framework;
- lack of institutional infrastructure;

- significant gap in the level of technology development in various sectors of the economy (digital inequality);
- insufficient information security of state/business/citizens;
- effects of structural changes in domestic and foreign labour markets;
- disadvantages of the system of qualified personnel training" [7].

It is impossible to disagree with these statements, in our opinion, they completely correspond to the current reality.

In his study, Lapidus L.V. highlights the characteristics of the digital economy: "...the signs of the digital economy are:

- 1) Change of the nature of companies.
- 2) Emergence of digital products and electronic services.
- 3) Creation of digital platforms as the basis of the digital economy ecosystem.
- 4) Change of the nature of competition.
- 5) Change of consumer behavior.
- 6) Emergence of new production models.
- 7) Emergence of new business models.
- 8) Transformation of business models of traditional companies under the influence of Industry 4.0 technologies." [8].

Understanding these features is essential for further research of business processes in the digital environment in the accounting system.

Lapidus L.V. in his monograph presents an overview of the evolution of the digital economy and identifies five stages of its development. Here are the last three of them, as they, in our opinion, have had and will have a significant impact on the reflection of financial and economic operations in the accounting and statistical systems in the digital economy:

- "2010-2015 "growth of digital economy" (explosive growth of new types of digital products and electronic services);
- 2015-2020 "digital fever" (chaotic restructuring of business processes and transformation of business models);

- 2020-2030 "system transformation" (justified digitalization from the position of the system approach, orientation on qualitative system shifts)" [9].

III. RESEARCH METHODOLOGY

In the course of the work such general scientific methods as observation, analysis, synthesis, abstraction and induction were used.

The study was conducted by purposeful study of the described phenomena, such as business processes and transactions in the digital environment, followed by analysis of these phenomena (processes) from the position of their origin and development, as well as their involvement in the digital economy. The stages of scientific research made it possible to proceed to the grouping of selected business processes in the digital environment by means of their synthesis and subsequent abstraction through the connection into groups by common features and further consideration of the properties inherent to these specific groups. Induction, which allowed to formulate general conclusions on the basis of the identified results of the study of individual facts, served as the final method of research, determining the results of research.

IV. RESEARCH RESULTS

The stages of the study allow the author to divide all transactions in the digital economy into the following 4 groups, taking into account features such as the involvement of transactions in the digital economy and evolutionary formation (historical appearance):

- 1) those that have been transformed from existing (traditional) business processes into digital ones;
- 2) those that were formed under the influence of online Internet technologies and immediately became digital, but have a traditional economic essence;
- 3) "asset" formed in a digital environment, but not subject to evaluation and recognition in accordance with accounting rules;
- 4) and radically new technologies and business processes.

In the presence of such a grouping, it is possible to obtain data on the readiness of the accounting system to provide relevant information about financial and economic operations in the digital environment.

TABLE I. GROUPING OF BUSINESS PROCESSES TAKING INTO ACCOUNT THEIR HISTORICAL FORMATION IN THE DIGITAL ENVIRONMENT AND ASSESSMENT OF OPPORTUNITIES AND LIMITATIONS OF SUBSEQUENT RECOGNITION IN THE ACCOUNTING SYSTEM (COMPILED BY THE AUTHOR)

Grouping taking into account historical formation	Example of a business process in a digital environment	Use of digital Internet technology	Possibility of reflection in the accounting system (AS)
1. Business is a process existed before the digital environment, but transformed under its influence	1. Trade networks - have the opportunity to sell more also on Web 2. Food service enterprises - have the opportunity to sell also on Web 3. Enterprises of culture, leisure, (theaters, museums, cinemas, hotels, etc.) - have the opportunity to sell more also on Web. 4. Transformed products: audiobooks, e-books, online betting, Internet games. 5. Online training	1. Own trading platforms on the Internet (sites, portals) 2. Own mobile applications to order products and goods. 3. Services with digital content 4. Technological platforms for online training	It is not difficult and allows you to fully reliably reflect business transactions taking into account the methodology and rules of accounting Including acquiring operations, settlements with payment systems, etc.

<p>2. Business processes have already formed in the digital environment, but have an economic essence similar to group 1</p>	<p>1. Food service enterprises - do not sell by themselves, but through aggregators services (often mobile) 2. Transport services (taxis, air transportation) do not sell by themselves, but through aggregators services (often mobile) 3. Services of the enterprises of culture, leisure, (hotels, leisure centers, theaters, etc.) - sell not by themselves, but through services aggregators (often mobile) 4. Video content 5. Online training</p>	<p>1. Mobile food ordering and delivery apps. 2. Mobile applications (web resources) to order taxi and purchase tickets. 3. Mobile applications (web resources) for booking and payment for hotels, other rental housing, tickets for cultural events 4. Digital platforms for online study with interactive technologies</p>	
<p>3. Valuable "asset" formed in a digital environment</p>	<p>1. Client bases, subscriber bases (in social networks, at retailers, aggregators, sellers)</p>		<p>It is not possible to measure and recognize in accordance with accounting rules and methodology May result in misstatement of accounting information Requires additional measures for methodological development of accounting rules</p>
<p>4. New technologies of the digital environment, which have no analogues before</p>	<p>1. Artificial intelligence 2. Crypto currency 3. Cybersecurity 4. Other large-scale Internet technologies (blockchain) 4. Virtual and augmented reality</p>		

As we can see from the examples given by the author in table 1, in a number of specific cases, the accounting system is able to perform its tasks of collecting, processing and providing (reliable, relevant) economic information about the activities of economic entities. But along with this, we also see that part of the business processes in the developing digital environment, the accounting system is not yet able to reflect in the form of relevant accounting information due to the lack of appropriate methods and tools for this. It also becomes apparent that the assessment and recognition of such transactions will require further development of methods and methodology, legislation, other regulations and rules.

In accordance with the legislation [10] data in the statistical accounting system are formed on the basis of accounting data in terms of information provided by respondents (economic entities) through forms of statistical observation. Also, in accordance with the current legislation [11] such data provided by respondents to Rosstat must contain reliable accounting information generated by the accounting data of respondents. And if the data in the accounting system allow us to form accounting information about financial and economic transactions in the digital environment, then these data can be presented in the forms of statistical observation.

V. CONCLUSION

Based on the review of the situation and the study, we can conclude that the accounting and statistical systems are able in some cases to reflect the relevant transactions of the digital economy, this applies to the business processes of groups 1 and 2 of the formed grouping. In the other two (group 3 and 4), it is currently very difficult to implement accounting procedures and to provide relevant, transparent reporting information to interested users. Such business processes require the development of additional accounting tools and methods. New theoretical, methodological and applied rules and regulations for the valuation, recognition and reflection of such assets, business processes and transactions are expected to be such tools and means in the near future.

Colleagues come to similar conclusions in their study "Development of types, objects and methods of accounting in

the digital economy and information society" T.M. Odintsova and O.V. Ruhra. In their work, they talk about the need for "modernization of accounting in the conditions of digital economy and information society", consider the main directions of such modernization and give an "assessment of the theoretical prerequisites and opportunities for changing the accounting paradigm" [12].

The results of the study revealed the main problems arising in modern accounting systems in the field of digital economy and concluded that there is an urgent need for accounting and statistical accounting systems in the new rules for a continuous, reliable reflection of all transactions of the digital economy. Such tasks will face both the scientific community and the management of companies, as well as institutions of public administration.

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