

Innovative Management Approach: Credential Digitalization

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Abstract—This article presents the results of a scientific study on the innovative approach to management of the means of digitalization of credentials in the practice of financial management of an enterprise. Development of digitalization of credentials is due to a new type of economic relations formed under the influence of an innovative direction – the digital economy. Today, digital technologies are becoming an integral part of financial management, which is caused by the general trend of the Industry 4.0, which sets new strategic directions, based on the flow of innovations in various areas of production. Application of strategic financial instruments within digital economy is used to evaluate the quantitative and qualitative parameters of performance. Digitalization in financial management contributes to transparency of accounting and reporting information, the speed of systematic assessment in order to make decisions aimed at achieving the financial goals of the activity taking into account the interests of various users (government, business owners, financial management).

Keywords—*digital economy, credentials, information, company, financial management, accounting and analytical support.*

I. INTRODUCTION

Modern innovative trends in Russian economy are the result of development of industrial production in the process of the Industry 4.0. The digital economy is a new direction of scientific thought, the main effect of the introduction, which is manifested in the acceleration of technological business processes, which leads to a reduction and optimization of fixed assets, which occupy a significant share in the structure of production costs, and an ever-increasing demand for digital technologies.

The relevance of the research topic is determined by the need to generate digital credentials and their subsequent transformation into various types of reporting, to ensure transparency of accounting and analytical information and economic security of the economic entity. The purpose of the study was to develop theoretical and conceptual positions of accounting and analytical work in the context of Industry 4.0, an innovative approach to managing an economic entity.

Industry 4.0 establishes new innovative and strategic directions of development, which are based on the flow of innovations in various areas of production. The use of strategic financial instruments within the digital economy is used to evaluate the quantitative and qualitative parameters of performance. Digitalization in the financial support of management contributes to the transparency of accounting and reporting information, the speed of a systematic assessment in order to make decisions aimed at achieving

the financial goals of the activity taking into account the interests of various users (government, business owners, financial management).

Achieving the goal became possible as a result of the following tasks:

- studying on the background of innovative management of an economic entity;
- developing of the “digital economy” complex with highlighting of the digitalization function of credentials;
- highlighting opportunities and need for digitalization of credentials in order to increase the economic efficiency of the business;
- developing conceptual position of innovation management;
- identifying areas of further research.

The results of the study are in the formulation of the conceptual position of the authors of innovative management of an economic entity.

The theoretical aspects of accounting and analytical work using the “digital economy” complex are analyzed and the need for transforming credentials using their digitalization is identified, which will provide various user needs with accounting information, reduce the cost of labor and allow the use of various analytical capabilities. The creation of digital accounting systems within the framework of an economic entity helps to increase competitiveness, transparency of business valuation, prevention of negative phenomena in the economy and socio-economic development of the territory. The authors have developed methodological approaches to the organization of innovative management of economic activity.

II. METHODS

This study was conducted using methods of analysis, synthesis, comparison, grouping and generalization. The phased development of scientific thought in relation to innovative development, taking into account the vector of the global trend, is considered, the prerequisites of the “digital economy” and the need for updating and adaptation in the modern economic space are highlighted. The authors determined the need of various users (by the method of field research, by means of a survey) for various accounting information and substantiated the need for the transformation of credentials by digitalizing it.

III. RESEARCH RESULTS AND DISCUSSION

A. Genesis of the “digital economy” definition

Formation and development of the economic space of Russia is the result of the development of industrial production. The evolution of the world economic system has reached the stage when, at the global level and at the level of a separate national economic social reproduction, accounting information is transformed into a single global economic space based on the process of globalization [1]. The digital economy is a new direction of scientific thought, which has been developed in the economically developed USA, Great Britain, Germany, Japan, etc. The main effect of the introduction of the digital economy is manifested in accelerating technological business processes, which leads to lower and more optimized assets, better quality and more satisfaction of continuously increasing needs for various information (technical, economic, social, etc.).

The first large-scale constructive discussion of digital economy issues took place at the end of the 20th century, which was caused by the advent of electronic commerce. Don Tapscott proposed the term “digital economy” in 1994 and was one of the first to publish his scientific research regarding this aspect [2]. In 1995, the American computer scientist Nicholas Negroponte formulated the concept of electronic economy in his book “Digital Existence”, which consisted of a transition from processing atoms that make up the matter of physical substances to processing bits that make up the matter of program codes [3]. Despite the existing period of formation and development of scientific views regarding the “digital economy”, there is still no unambiguous opinion.

According to M.A. Zhukova [4], the digital economy represents the level of development of the system of social reproduction, which is characterized by the high quality of the information and communication structure, and represents the possibility of integrating all economic entities into a single information space for the effective use of digital technologies.

Professor G.B. Kleiner [5] understands the “digital economy” as the processes of production, distribution, exchange and consumption, including all related communications, are carried out on the basis of digital technologies, real economic processes, objects, projects, environments are replaced by computer (digital) models. The team of authors composed of S. Alexandrov and R. Iskandarov [6] determine that the digital economy is an economy implemented through digital telecommunications. V.I. Mayevsky and S.Yu. Malkov [7] say that this is an economic production with application of digital technology. According to N.K. Norets and A. A. Stankevich [8], “digital economy” is a system of economic and political, social and cultural relations based on the use of digital (computer) information and communication technologies.

Critically examining the authors’ positions in relation to the definition of “digital economy”, the fact that many authors assign a significant role to the Internet and digital technologies is highlighted, while its need for modern business conditions is determined, which is due to socio-economic relations aimed at improving efficiency and competitiveness of the economy of territories and the state. Attention should be paid to the fact that issues of digital economy are the priority issues at the level of governments of various countries. The Australian Government’s Department of Communications and Digital Economy [9] describes the “digital economy” as a global

network of economic and social activities supported by platforms such as the Internet, as well as mobile and sensor networks. The UK government in its laws and regulations interprets the definition as “...the production of digital equipment, publishing, media production and programming”¹.

In the framework of the implementation of the Decree of the President V.V. Putin dated 05/07/2018 No. 204 “On national goals and strategic objectives of the development of the Russian Federation for the period until 2024”, the Government of the Russian Federation developed a phased program “Digital Economy of the Russian Federation”, which includes the following main elements:

- Block 1 – Regulation.
- Block 2 – Human resources for the digital environment.
- Block 3 – Information Infrastructure.
- Block 4 – Information Security.
- Block 5 – Digital Technology.
- Block 6 – Digital Public Administration.

The Digital Economy of the Russian Federation program is aimed at digital development of the economic space and society, improving the quality of life of the population through the use of information technologies. V.V. Putin says that the digital economy “...is a separate industry, in fact, it is a way of life, a new basis for the development of public administration, the economy and business, the social sphere, the whole society...”².

Thus, the digital economy is a global trend that sets a new strategic development of the Russian economy, requires a science-based approach and includes “... a system of economic, social and cultural relations based on the use of digital information and communication technologies” [10]. The basis of the digital economy is determined by the growing need for the relationship of production and society with information technology and the Internet.

B. The need for innovation management

The integration and globalization of the economic space covers all sectors of the economy, which is due to Industry 4.0 (scientific thought). In this regard, rivalry (competition) between economic entities in territorial industry markets is intensifying. Modern business conditions determine new strategic development opportunities, which are based on a stream of innovations in various areas of production and circulation using strategic financial tools used to assess quantitative and qualitative parameters of performance [11-12]. One of the main tasks of Industry 4.0 is the active use of the most important domestic innovative tools for technological restructuring of industry, which contributes to the creation of new high-tech sectors of the economy, which requires innovative management [13-14]. Industry 4.0 is the driving force of scientific progress and economic growth, which is expressed in the development of high-tech industries and the use of modern IT technologies, business models in various industries (Table I).

1. The UK Digital Strategy. URL: <https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy>.

2. Quotation of the Council’s meeting for Strategic Development and Priority Projects chaired by V.V. Putin, 2017.

Leading researcher and professor at the Global Development Institute – R. Buht and director of the Development Informatics at the Global Development Institute – R. Heeks highlighted the features of the digital economy development, which are as follows:

- spread of the digital economy cannot be uniform and ubiquitous in all sectors at the same time, including the population of the territories, for example, the GDP growth of developed countries is 3.4%, and 1.9% of developing countries, while the GDP’s structure “Internet economy” is 78%, and 22% of developing;

TABLE I. DIGITAL ECONOMY COMPLEX

Tool	Components
<ul style="list-style-type: none"> - Mobile devices - “Internet” platforms - Geolocation technologies - Interfaces - Authentication - 3D printing - Cloud computing - Portable devices - Multilevel interaction - Big-data analytics and advanced algorithms - Intelligent sensors 	<ul style="list-style-type: none"> - Digitalization and integration of vertical and horizontal value chains - Digitalization of goods and services - Digital business models
System monitoring as a key component of economic growth	

- digital economy is growing faster than the general economy, as evidenced by the trend of the Internet economy in the G20 countries, the annual increase is +10% per year, which significantly exceeds the economic growth rate; and the growth rate of the “Internet economy” in developing countries is even more significant +15-25% per year;
- digital economy contributes to a significant increase in employment, while in developed economies labor productivity in the digital economy is usually higher than in the economy as a whole; the digital sector in terms of employment is about 1% in developing countries and about 4% in developed economies.

Thus, the key element of Industry 4.0 is digital technology or the “IT sector”, which is a combination of the services sector and industries of industrial and service industries, covering the transmission and display of information in digitalized, electronic form.

C. Digitalization of financial and economic activities

Any purposeful activity in an innovative environment involves improving the qualitative and quantitative results assessed by the financial criteria of any business. The digital economy and digitalization are driving the transformation of traditional management functions. The accounting and analytical component occupies a significant place in any business process and financial and economic activities [15-16]. The introduction of the digital economy in the process of implementing the functions of accounting and analytical support for financial management can be successfully implemented in economic entities under the following conditions:

- firstly, the business should be ready for the digital transformation of credentials, which is determined by the strategic goals and objectives of financial activity, while financial management is undergoing dramatic

changes in matters of financial management and staffing;

- secondly, the assets (expenses) for digitalization should be commensurate with income and results, otherwise a negative effect arises;
- thirdly, significant changes in relation to financial management by means of digitalization of credentials should undergo adaptation and testing not only within the economic entity, but in the territory as a whole, in order to identify problematic aspects of synchronization and assess the effectiveness of the effects obtained;
- fourthly, there must be confidence that there are needs for the results of digitalization of credentials and the mandatory presence of internal and external users of accounting and reporting information.

Russian enterprises (organizations, small and medium-sized businesses) have quite widely mastered basic and relatively simple digital technologies, but only a few have carried out deep automation and restructured business processes to advanced digital technologies. Today, 83% of Russian enterprises (organizations, small and medium-sized businesses) already use the Internet, 63% – have mastered the technology of electronic document management. At the same time, the share of enterprises (organizations, small and medium-sized businesses) that have mastered more complex technologies is several times lower: cloud services – 23%, ERP systems – 12.2%, RFID technologies – 5% [17-18]. It should be noted that at the low level of development is a comprehensive digitalization of manufacturing enterprises and industries.

The experience of introducing unified digital control systems, technologies and competencies on digital platforms, is in its infancy and is widely discussed in scientific and industrial circles in Russia. The current situation does not allow to respond quickly to possible macroeconomic and meso-economic changes.

Prerequisites for a comprehensive digitalization of the territorial space were formed, which affects the industrial production of various sectors of the economy and households. The importance of a digitalized “smart” society is increasing, which will affect the competence of the labor market, education, healthcare, etc. Digitalization is becoming the impetus for the technological and competency-based restructuring of many labor functions and the emergence of new professions.

D. Conceptual support

In scientific circles, there is an opinion that the digital economy cannot exist as an independent area of scientific knowledge. It should be assumed that the digital economy is an innovative activity in which the key in production is digital data. It contributes to the formation of the information space taking into account the needs of citizens and society in obtaining high-quality and reliable information, the development of the information infrastructure of the Russian Federation, the creation and application of Russian information and telecommunication technologies, as well as the formation of a new technological basis for the social and economic sphere. We are of the opinion that the digital economy is the result of human research activities aimed at the development and implementation of algorithmic

relationships of production factors. This leads to a decrease in labor intensity and an increase in productivity by means of the division of labor and the use of digital technologies (platforms), which are a modern network form of business organization, which allows directing the innovative nature of independent developers to manage the resources of digital platforms with a goal for automation [19]. Based on the foregoing, it can be argued that the modern management of an enterprise (organization, economic entity) should be based on digital technologies (platforms), which is a product of the digital economy and scientific thought. Today, in the practice of financial and economic activities of economic entities and households, digital technologies (platforms) are used, such as:

- DocsPro document designer and platform for optimizing processes; Information and analytical system “Agrotrend”;
- hardware and software platform for automating the production of precision and medium-sized enterprises;
- cargofone – the online freight service; TEKO – the distributed processing platform;
- development of cloud-based (SaaS) “Role-based process modeling systems”;
- IQS – a platform for the interaction of citizens, the state and business;
- “PipelineEngineering” – a specialized software package for managing the life cycle of the construction of a technological pipeline, etc.

Digital technologies (platforms) are the result of generalizing the field of special knowledge, which determines the impossibility of the existence of the digital economy as an independent science (Fig. 1).

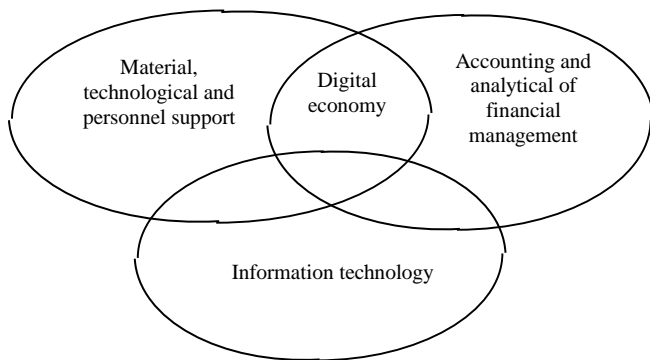


Fig. 1. Competent support of digital economy

The competent support of the digital economy is determined by three components, while it is necessary to take into account the technological features of business processes, which is determined by industry:

- the first component characterizes the material, technical and personnel support, since the sphere of material production cannot exist virtually; the result of any production is a product (work, service) that must be in demand on the market (the use of robot technology in material production ensures quality compliance and has a positive deterministic effect on the result of labor);

- the second component is determined by the need for a system of accounting and analytical support for financial management, which is a complex mechanism that combines the processes of various types of accounting in order to collect, register and summarize information using the appropriate tools and methodology of economic analysis, planning and budgeting, and monitoring for information support various users on the state of finance, financial resources and the effectiveness of financial and business processes, which allows you to generate objective and comprehensive information about the results of the economic entity and will allow you to develop or adjust a management decision aimed at increasing competitive advantages, dynamic, strategic and effective business development [20-21];
- the third component is information technologies that provide the process of automation and information support of business processes, transformation and digitalization of credentials into various types of accounting and reporting, which is determined by the needs of users.

All of the above predetermined the authors’ conceptual position in relation to the digital economy (Table II).

TABLE II. INNOVATIVE MANAGEMENT CONCEPT

Components	Conceptual position		
Theoretical state	Foreign experience in promoting the digital economy	Concepts and definitions	Regulatory and legislative framework
		Configuration and digitalization technology	
Methodical state	Technological and industry-specific features of business processes	Technological parameters of the digital platform	Methodical support for users
HR and competent support	Competent staff training in accordance with the needs and development of R&D	Visualization of output parameters of digitalization	Compliance with unified requirements
		Functions and tasks of managing the digital economy (based on the level)	
Tools	Computer technology	Information technology	Software
	Business model		
Digital economy risks	Lack of investment	Lack of adapted IT servers	Lack of qualified staff

The presented conceptual position is a fundamental component of innovative management at the level of an economic entity. In order to digitalize the Russian economy and society, this process must begin with the primary link of the economy, which is the economic entity (enterprise, organization), which will ensure the management of all aspects of financial and economic activity and contribute to a positive impact on the economic and social life of the territory.

IV. CONCLUSION

Digital economy issues are becoming relevant at various levels of the macroeconomic and microeconomic system.

The implementation of goals and objectives formulated by the Government of the Russian Federation determines the development directions of the modern scientific community, engineering and production technology. At the same time, there is a need to search for investment resources and increase the level of competence of human resources in all sectors of the economy. Results of the presented study cover the basic foundations of building a digital system (digital economy) at the level of an economic entity. In this regard, there is a need to specify the field of scientific knowledge on various aspects of financial management, which determines the direction of further research.

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