

# Availability of Digital Financial Services: Problems and Solutions



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**Abstract** *Purpose:* The aim of the study is to identify the main problems and limitations of the availability of innovative financial services and the search for possible solutions on the example of the Russian economy. *Design/methodology/approach:* Despite the intensification of scientific research and applied developments in the field of the digital economy, the problems of the wide availability of modern digital services for the population and economic entities, territorial imbalances, and improving the elements of the financial mechanism of systems that conduct digital innovations remain relevant. Applying theoretical, empirical, general logical methods of scientific knowledge and a systematic approach, the study identifies technical, regulatory, legislative, infrastructural, organizational, industry problems that impede the widespread use of innovative financial services, and suggests separate ways to solve them. *Results:* It was revealed that the problems under study are of a technical, legislative, infrastructural, organizational, and sectoral nature. To solve them, the authors propose an algorithm for combining industry ecosystems containing universal platforms and services. The algorithm includes 3 stages: the creation of innovative technologies in the economic and social spheres with the subsequent development and standardization of industry-specific digital competencies; Innovation of industry (financial) markets (payment, credit, insurance, securities market, precious metals market, etc.) and the creation of basic infrastructure platforms;

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creation of a single digital environment, including compatible industry environments (institutional and infrastructure). *Conclusions:* Together, a single digital environment ensures the interaction of financial market entities and the development of infrastructure platforms and technologies; industry environments are merging into a single ecosystem of the digital economy. The proposed approach to the system formation of a single digital environment will contribute to the increase in the availability of digital financial services.

**Keywords** Digital economy · Finance · Financial market · Financial services · Digital technology

**JEL Classification** E51 · E71 · G21 · G24 · O33 · O35

## 1 Introduction

The digital economy can be useful to people, successful today and promising in the future, if the effects of scale and totality of its implementation are provided. Different areas perceive digital innovations differently. There are high-tech sectors of the economy that are producers and accelerators of digital innovation, but there are also traditional, analog sectors that are primarily recipients who need both innovation and transmission mechanisms for digital innovation of activities.

The producers and accelerators of digital innovation should be not only companies in the telecommunications and other technology sectors that produce basic equipment and technologies, but also companies in the financial sector. Their ability to accelerate and bring digital innovations to end users is determined by the fact that the financial sector provides the most mass, regular products and services (payment, credit and deposit, insurance, investment, etc.) to the general public and organizations of the real sector of the economy. It can be argued that it is the financial sector that sets innovative standards for mass service.

For their part, consumers place high demands on the innovativeness of financial services, demonstrate growing digital needs and thereby stimulate competition.

The offer of digital services, including financial, is interested in maximally satisfying the growing needs, however, there are a number of limitations not only of technological, but also of legislative, infrastructural, organizational nature, which restrict the availability of financial services and the development of the digital economy.

The purpose of this study is to identify the main problems and limitations of the availability of innovative financial services and the search for possible solutions on the example of the Russian economy.

The novelty of the study is provided by the following:

1. identifying and grouping the problems of limiting the availability of innovative financial services: technical, legislative, infrastructural, organizational, sectoral, based on, according to the authors, the underlying problems of socio-economic and political development of the country;

2. developing an algorithm for combining industry ecosystems that contain universal platforms and services and includes 3 stages: the creation of innovative technologies in the economic and social spheres; Innovation of industry (financial) markets and the creation of basic infrastructure platforms; creating a single digital environment. The proposed algorithm will ensure the interaction of financial market entities on an innovative basis.

## 2 Materials and Method

The ideas of the digital economy have long attracted the attention of scientists, businesses, states and users of digital services around the world. There is an understanding that the countries that have achieved the greatest success in this area will not only increase the economic and social effects within the state, but also strengthen their competitive positions in the global economy [3]. In different countries, the ambitious tasks set are more or less successfully solved [17].

The issues of theory and methodology of financial markets, financial infrastructure and financial services were considered in the works of foreign and Russian scientists [1, 2, 7], etc. Some aspects of digitalization of the economy, Digital innovations in financial services were developed [4, 5, 10] and others. The problems of regional economy, spatial development, stimulation of economic growth of territories, the search for its accelerators and innovation growth points were studied [8, 9, 11–15], etc.

Scientific and technological progress in the field of engineering and information technology has intensified applied financial research. Science and practice develop and test innovative technologies—artificial intelligence, neurotechnologies, quantum technologies, etc. Based on innovative technologies, new forms, methods, methods, financial services and products are proposed to meet the growing needs of society and the individual. But solving common problems does not mean solving them in special cases. The problems of widespread, widespread accessibility of modern digital services to the population and economic entities, territorial imbalances, improvement of the elements of the financial mechanism of systems implementing digital innovations remain relevant.

Applying theoretical, empirical, general logical methods of scientific knowledge and a systematic approach, the study identifies technical, regulatory, legislative, infrastructural, organizational, and sectoral problems of the availability of digital financial services and suggests separate ways to solve them.

### 3 Results

#### 3.1 *Technical Problems and Their Solutions*

For various reasons, the processes of digitalization of the economy in Russia are not of a total nature and mainly affect urban conglomerations with a high population density. Many financial services are still not sufficiently accessible not only for the Russian population living in remote rural areas, but also for economic entities operating in these territories. Of course, this situation does not contribute to the socio-economic growth of territories and entities. The reason for the low availability, in our opinion, is primarily the insufficient development of high-speed Internet networks. As the developers of the state program “Digital Economy of the Russian Federation” noted in 2017, at the time of the formation of the program, only 10% of municipalities met the requirements for digitalization established in the legislation of the Russian Federation. Aligning the socio-economic development of territories and increasing the availability of digital services, in our opinion, are possible due to the digital innovation of the main industries, which are regional drivers.

The financial industry has changed significantly in recent years due to an increase in the speed of innovation, which creates the conditions for the accelerated introduction of the digital economy in the financial sector, and then in the serviced market segments. We consider the diffusion property to be the key in the process of acceleration and transmission of digital innovations to non-financial market entities. We believe that companies in the financial sector that provide the most popular services to economic entities and the public should become agents of digital innovation in traditional, analogous sectors of the regional economy.

#### 3.2 *Regulatory and Legislative Problems and Their Solutions*

The most pressing and controversial issue from the point of view of legalization and regulatory regulation are financial services related to cryptocurrencies and their circulation. Due to the supranational and cross-border nature of cryptocurrencies, formally, they are a widely available asset attractive for speculative investment due to the high price volatility. This determines the wide popularity and prospects of cryptocurrency circulation, but at the same time creates fundamentally new risk situations. On the one hand, any state is obligated to protect the interests of its citizens in the financial sphere; on the other hand, the state is obliged to guarantee the rights and freedoms of citizens. In fact, there was a situation where the cryptocurrency emission and turnover market objectively functions, but without the presence of a regulator in the traditional sense applicable to legal segments of the financial market.

Currently, developed countries are on the way to solving the problem of legalizing cryptocurrencies, individual countries issue cryptocurrencies secured by physical

assets, however, an unequivocal answer to cryptocurrency circulation issues has not been developed.

### ***3.3 Infrastructure Problems and Their Solutions***

In the digitalization of individual, primarily remote from the center rural areas and the increase in the availability of financial services, the key role belongs to regional financial institutions. The main regional financial organizations in Russia are universal commercial banks. In our opinion, it is important to maintain and develop the regional banking sector and regional financial infrastructure, creating conditions for increasing the availability of financial innovations. Not only state-owned corporations, large industrial banks (Rosselchozbank, Gazprombank and others), but also small and medium-sized regional banks that are well acquainted with the conditions and characteristics of economic activity in a certain territory are able to fully satisfy the demand for financial services of regional business entities in Russia. Regional commercial banks act as subjects of the financial system as its full-fledged infrastructure elements, provide regional clients with equal access not only to national, but also international financial instruments, products, services, and services.

At the same time, the Bank of Russia, pursuing a policy of improving the financial sector, is reducing the number of small and medium-sized regional banks. For example, in 2010, 5 regional banks were registered in the Volgograd Region (with a total number of banking system institutions in the region of 716 units), and by the end of 2019, there was only one local bank, NOKSSBANK, a bank for the development of oil and gas production, conversion, and shipbuilding and construction [6] (the total number of banking system institutions in the region as of 01.07.2019 decreased to 515 units). According to the Bank of Russia, the leaders in the number of banks registered in the region as of July 1, 2019 are Moscow and the Moscow Region (238 units), St. Petersburg and the Leningrad Region (28 units), the Republic of Tatarstan (17 units).

The ongoing processes are also caused by the displacement of traditional forms and channels of banking services by innovative forms [16]. Financial institutions are moving from multichannel to omnichannel interaction. To equalize the regional imbalance and solve the problems of accessibility of financial services, the state significantly expanded the functions of the FSUE Russian Post, created a specialized Post Bank, and digitalized postal channels.

### ***3.4 Organizational Problems and Their Solutions***

The organizational aspect of the problem of accessibility of financial services is that there is no single digital environment and a single ecosystem of the digital economy. Separate digital platforms and services are actively developing and competing among

themselves, as a result of which private current needs for financial services are satisfied. Obtaining comprehensive services, especially inter-sphere services (for example, inter-budget services, commercial services with state identification), in a single digital environment is in most cases impossible. To solve the problem, we offer the integration of private (industry) ecosystems containing universal platforms and services into a single digital ecosystem. Diffusion of financial digital innovations in industries and sectors of the economy can occur on the basis of adaptation of platforms and technologies, on the basis of which general and specific competencies are formed for the development of industry markets.

### ***3.5 Sectoral Aspects of the Problem and Their Solutions***

The problem of sectoral imbalances in development has been relevant for a long time. In Russia, sectoral problems are often superimposed on the problems of territorial imbalances. An example of this is agriculture, which is least digitalized of all economic spheres.

Agriculture in Russia is carried out on an area of 17.1 million km<sup>2</sup> in five climatic zones with different climatic, demographic, infrastructural, social and other conditions. According to the Federal State Statistics Service, 17,480 rural settlements are home to 25.43% of Russia's population. Agriculture is a traditional (non-digital) sector of the economy that comprehensively uses land, labor and material resources to ensure food security of the state. Despite the traditional nature of the rural structure, productive forces and industrial relations in agriculture, it needs not only technological, technical, but also financial innovations produced by the symbiosis of the financial and IT sectors. The tendencies to a decrease in the physical presence of banking and other financial organizations in the peripheral territories with respect to the federal center, noted earlier in Sect. 3.3, confirm the relevance of innovative methods and mechanisms for increasing the availability of digital services for the population and economic entities working in rural areas (in relation to the peripheral territories about the problems of accessibility not only of digital financial services, but also of various other digital services).

Innovative digital technologies in the modern world are recognized as key drivers of economic growth, which can be achieved through the transformation of traditional business models of the so-called "analogue" economy. According to the authors, end-to-end digital technologies can find application in the following non-digital areas of agribusiness and thereby increase the availability of financial and other services for agribusiness entities and the rural population:

- Cloud technologies allow to place arrays of archive information outside the own information circuit, reducing the cost of storing and transmitting information without losing data security. In agribusiness, this can be not only financial information, but also technological information about the state of land, material, labor, financial resources, the dynamics of crop yields, animal productivity and so on.

The availability of storage capabilities for large archival data forms an array of big data and opens up prospects for their most informative processing.

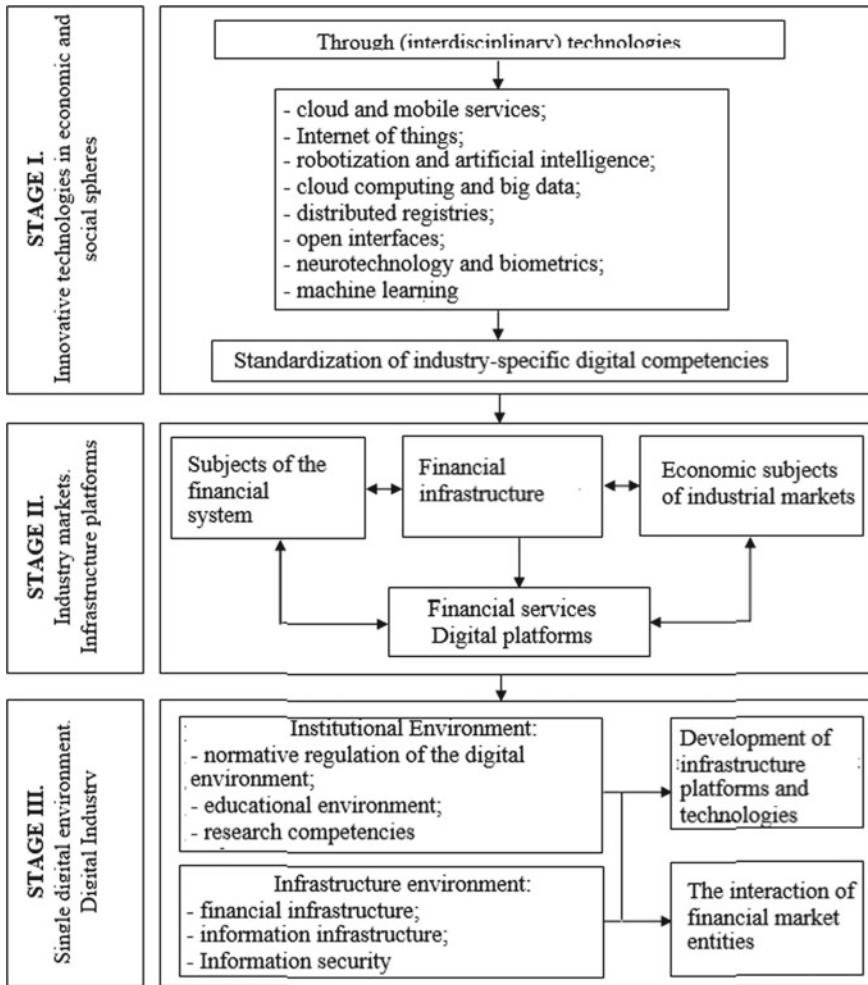
- Technologies for working with big data provide the highest level of generalization and analysis of information, which is important for predicting future overall performance, crop programming, predicting animal productivity, environmental control, building logistics supply chains of resources and sales of manufactured products, etc.
- Artificial intelligence and robotics not only release human resources from low-skilled, labor-intensive, dangerous or unhealthy segments, but also significantly increase human productivity. In Russian agriculture, there is a problem of a shortage of labor resources in the most labor-intensive and non-prestigious areas of work, in work with conditions harmful to human health, at extremely low or high temperatures. Such areas of work primarily require robotics.
- Open interfaces and distributed registries are of interest in connection with the use of blockchain technologies for decentralization of operations, bypassing intermediaries. In agriculture, it is advisable to develop an industry-wide decentralized platform based on blockchain technologies to create a transparent base of product manufacturers (including organic products), resource suppliers, product processors, logistics centers, etc.
- Biometric processing of information helps to solve both the problem of the territorial availability of digital services for individuals and the task of optimizing operations in a geographically remote business. Unlike other innovations, the success of biometrics as a technology is determined not so much by technical and technological factors as psychological factors, namely the ethical acceptability of personal data collection for individuals. The use of biometrics for personal identification in the mass segment of financial and non-financial services is advisable only if the conditions for mass participation in the project are observed. If there are at least some number of refusals by individuals to transfer biometric data to databases, then this may become an insurmountable obstacle to the widespread dissemination of technology as a whole. However, biometrics can be used and be useful in the non-financial activities of agricultural producers for the qualitative identification of biological assets (productive and livestock, dong animals, etc.).

### ***3.6 Algorithm for Creating a Unified Digital Environment That Provides Increased Access to Digital Services***

To solve the problems posed, the authors propose an algorithm for creating a single digital environment that combines industry markets and industry environments (Fig. 1).

The algorithm includes 3 stages:

Stage I—the creation of innovative technologies in the economic and social spheres with the subsequent development and standardization of industry-specific



**Fig. 1** The algorithm for creating a single digital environment. *Source* Developed and compiled by the authors

digital competencies. At this stage, it is necessary to create and implement interdisciplinary (cross-cutting) technologies, which are products of the symbiosis of IT-developments and industry-specific (financial) innovative developments. The presence and successful application of new industry technologies will contribute to the innovation of industry markets. At this stage, in our opinion, it is important to develop industry standards and standardize industry competencies. Financial companies engaged in large-scale digital development, bring unique digital platforms and services to the market, which are often not compatible with competitor technologies. As a result, closed digital environments are formed that are not integrated into a



single digital market environment. A particular effect is achieved for developers and owners of the platform, but there is no increase in utility across the market.

Stage II—the innovation of industry (financial) markets (payment, credit, insurance, securities market, precious metals market, etc.) and the creation of basic infrastructure platforms. The presence of platforms allows to create innovative financial services.

Level III—a single digital environment, including compatible industry environments. The institutional environment should develop in three areas: regulatory regulation of the digital environment; educational environment; research competencies.

The infrastructural environment should develop in the following areas: financial infrastructure; information infrastructure; Information Security.

## 4 Conclusions

Thus, a study of the problems and limitations of the availability of innovative financial services on the example of the Russian economy showed that they are based on the underlying problems of the country's socio-economic and political development. The main problems are technical, legislative, infrastructural, organizational, and sectoral in nature.

To solve the identified problems, the authors propose a conceptual algorithm for combining industry ecosystems that contain universal platforms and services and includes 3 stages: creating innovative technologies in the economic and social spheres; Innovation of industry (financial) markets and the creation of basic infrastructure platforms; creating a single digital environment. The proposed approach to the system formation of a single digital environment, presented in the developed algorithm, will contribute to the increase in the availability of digital financial services in both the territorial and operational aspects.

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