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THE IMPACT OF THE DEVELOPMENT OF FINANCIAL TECHNOLOGIES  
ON THE LEGAL REGULATION OF THE FINANCIAL SERVICES SECTOR

O IMPACTO DO DESENVOLVIMENTO DAS TECNOLOGIAS  
FINANCEIRAS NA REGULAÇÃO JURÍDICA DO SETOR DE SERVIÇOS  
FINANCEIROS

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**ABSTRACT**

**Objectives:** The purpose of the study is to determine the main directions of improving the legislation regulating the use of modern financial technologies in the financial and banking sector. The authors of the article identify the main features that affect the understanding of the role of the financial regulator in the dissemination of digital technologies.

**Methodology:** Authors used document analysis method and the expert survey method.

**Results:** The authors examined the successful experience of regulating technologically developed countries, the main ones being the United Kingdom and Singapore. It has been noted that the state's participation in these processes should be of a coordinating and integrating nature, which allows using the ideas of all participants in the financial and banking sector and further unifying approaches and standards for the use of modern financial technologies.

**Contributions:** The approaches proposed by the authors to the regulation of the use of constantly developing financial technologies in the field of financial services, due to their flexibility and mobility, allow, on the one hand, standardizing the processes taking place in the banking sector, and on the other hand, ensuring the rights of consumers of financial and banking services.



**Keywords:** financial technologies; legal regulation; regulatory sandbox; artificial intelligence; financial services.

## RESUMO

**Objetivos:** O objetivo do estudo é determinar as principais direções de melhoria da legislação que regulamenta o uso de tecnologias financeiras modernas no setor financeiro e bancário. Os autores do artigo identificam as principais características que afetam a compreensão do papel do regulador financeiro na disseminação das tecnologias digitais.

**Metodologia:** Os autores utilizaram o método de análise documental e o método de perícia.

**Resultados:** Os autores examinaram a experiência bem-sucedida de regulação de países tecnologicamente desenvolvidos, sendo os principais o Reino Unido e Cingapura. Observou-se que a participação do Estado nesses processos deve ser de natureza coordenativa e integradora, que permita utilizar as ideias de todos os participantes do setor financeiro e bancário e ainda unificar abordagens e padrões para o uso das modernas tecnologias financeiras.

**Contribuições:** As abordagens propostas pelos autores para a regulamentação do uso de tecnologias financeiras em constante desenvolvimento no campo dos serviços financeiros, devido à sua flexibilidade e mobilidade, permitem, por um lado, uniformizar os processos que ocorrem no setor bancário, e, por outro, garantir os direitos dos consumidores de serviços financeiros e bancários.

**Palavras-chave:** tecnologias financeiras; regulamentação legal; caixa de areia regulatória; inteligência artificial; serviços financeiros.

## INTRODUCTION

Today, high technologies are widely and rapidly being introduced into the sphere of financial services around the world. Russia is not an exception. The most striking example is the first Russian virtual bank – Tinkoff Bank. Its success can be evidenced by the fact that the customer base has grown by 13% over the past year (Tinkoff, 2021). Therewith, many systems developed and implemented in the financial and banking sector are currently being operated outside the legal field, without having official status. The lack of legal recognition of blockchain technology in Russia makes the use of financial systems based on it, such as the Masterchain developed by the Central Bank of the Russian Federation, not entirely legal. Preventing the introduction of these technologies is not only pointless but also dangerous (Talapina, 2020) since there is a



great risk for the state to become a technologically backward country that loses in global economic competition as a result.

Thus, the activity of the state (this applies to any country that seeks to integrate with the international financial community) should be aimed not at limiting, but at supporting the introduction of breakthrough information technologies that allow improving the quality of services provided and expanding their list (Ruchkina, 2017; Nimatulaev et al., 2021), while ensuring the security of national financial systems.

Fintech, developing outside the framework of legal regulation and state control, as N.A. Povetkin and Yu.V. Ledneva (2018). note, due to its cross-border nature and the use of the Internet, can become a serious problem in the provision of financial services, extending far beyond the financial system of a single state.

We believe that the relations that develop in the provision of financial and banking services should be fully covered by legal regulations and be under the control of the state, which does not use excessive and unreasonable prohibitions in the regulation practice, guided by the principle of reasonable sufficiency, which does not hinder the promotion of innovations in the financial sector, working exclusively to reduce the potential risks of both consumers and providers of financial services, as well as developers of financial technologies, investors.

Fintech (i.e. "financial technologies") is a "business direction that uses new technologies and innovations in the financial services market. It includes such areas as digital and mobile payments/transfers, electronic wallets, online lending, P2P platforms, crowdfunding, online funds, online insurance and brokerage services" (EY, 2019). In our opinion, the allocated services are constantly expanding, literally every year there are modifications of services based on new technologies. Therefore, at the present stage of development, the active development of the fintech industry requires the development of ways to solve problems in the field of financial and regulatory technologies, among which the regulatory and legal regulation of fintech is becoming particularly relevant based on maintaining a balance of interests of the state, fintech companies, as well as direct users of financial technologies.

The Russian financial market is characterized by a high level of penetration of fintech services due to the technological capabilities of the "classic players" of the financial market, primarily banks. Thus, according to experts, 95% of all developments in Russia are in the banking sector (Bizhiov, 2020; Krylova, Prudnikova, & Sergeeva, 2021). According to the data of the global study "Index of penetration of Fintech services



2019", the Russian Federation ranks third in the world in terms of penetration of fintech services (82%) and is the undisputed world leader in terms of penetration of fintech services for transfers and payments (EY, 2019). "The state of the Russian Federation strongly supports the development and active implementation of financial technologies, which is reflected in the provisions of the Passport of the national project "National Program" Digital Economy of the Russian Federation", approved by the Presidium of the Presidential Council for Strategic Development and National Projects, Protocol No. 7 of June 4, 2019" (The Russian Government, 2019). However, until now, there are areas in the field of fintech that are not fully regulated, in particular, there is no sufficient legislative registration (legal regulation) of financial technologies in the Russian Federation.

The circumstances revealed by us are of undoubted interest to researchers studying the possibilities and directions of the development of legal regulation of financial technologies. At the moment, many works of researchers on the prospects of legal regulation of financial technologies have been published. The works of S.V. Bank et al. (2021), A.V. Ostroushko (2019), analyzing the possibility of using the international and foreign experience of legal regulation of financial technologies in Russian legislation, L.A. Konshina (2020), exploring the features of legal regulation of financial technologies in Russia, R. Lehner (2021), who studies the problems of European countries in the regulation of fintech should be mentioned. However, most researchers touch only on individual problems of fintech regulation, while, in our opinion, attempts to analyze the problems of this sphere in a complex are of much greater interest. The results of the study aimed at such an analysis can be extremely in demand by developers of legal regulation of innovative financial technologies in the field of financial services.

Accordingly, the purpose of this research is to study the state policy and the main provisions of the legislation of various countries that have a positive experience in regulating the use of IT technologies in the financial and banking sector and to determine the prospects for applying this experience in Russia.

Research hypothesis. The regulation of modern financial technologies requires the development of special legislation since traditional regulatory legal acts are not suitable for solving the tasks of such regulation.



## METHODS

To achieve the most reliable scientific results, the document analysis method and the expert survey method were used.

Using the document analysis method, we investigated the main program, organizational, legal, and regulatory acts in the field of regulating the use of modern intelligent technologies (IT) in the financial and banking sector, as well as several scientific studies on the topic. The selection of documents was carried out according to the criteria of the greatest coincidence of the title of the submitted article and the title of the document, the text containing the largest number of keywords for the submitted article. According to the degree of significance, first of all, normative legal acts were selected in their hierarchical sequence, then scientific works published in official publications, after them statistical and other information posted on Internet sites.

The method of the expert survey of employees of fintech companies (45 people, at least 5 years of experience) offering their products for Russian banks. The experts were sent the same email at the same time and given an equal number of calendar days to fill it out, which made it possible to provide equal conditions for experts. The experts filled out a questionnaire consisting mainly of closed-type questions concerning the difficulties of implementing information products for the provision of financial services.

## RESULTS

Experts believe that a new niche of business has been created over the past 10-15 years at the mass level to provide banks with special software. The IT market offers the banking sector technological innovations that allow providing new types of services, products, and business models. The way of providing services has changed since it is now possible to process millions of transactions per second, with a significant reduction in costs and a potential increase in profit, as well as offer everyone the same type of advice. We see this as a potential source of democracy (Lehner, 2021). On the other hand, it is obvious that the development of "automatic" services, the replacement of human thinking with algorithmic one, the use of an infinite information space created by big data (in connection with which some have started talking about "autocracy" (Matassoglio, 2019)), raises doubts and concerns. Regulators are carefully studying this phenomenon both at the international and national level, and, recognizing its advantages, they are afraid of its threats. For example, according to experts, there are



concerns and doubts about both quantitative management algorithms used to assess the quotes and risks of financial instruments to ensure more rational and less risky investment management, and client profiling algorithms, which are instead designed to determine the most suitable securities portfolio for the client. To paraphrase this in other words, based on the research of American researchers, then the control system realizes that it must intervene, but is completely unsure of what action needs to be taken (Aneesh, 2006).

Such phenomena lead to the fact that traditional legislative techniques, including those based on primary principles, even supplemented by the detailed implementation of by-laws, are gradually giving way to the so-called "soft" law or other tools, such as "regulatory sandboxes", which are flexible enough to allow legislators to keep up with changes.

The interviewed experts noted that there is already a significant, although not always positive, experience of normative activity in the field of regulation of financial technologies, accumulated primarily in the world leaders in their development and implementation. Such countries include the United States, Great Britain, Singapore, etc. Russia cannot yet fully provide itself with Russian IT technologies, most of them are imported to Russia. We will look at some individual examples of such an experience.

The experience of UK regulation in the field under study seems to be the most interesting, since this country is a recognized European leader in the development of fintech (Financial Conduct Authority, 2015), and its capital, London, has become a fintech capital of Europe almost from the moment the first developments appeared. The so-called "regulatory sandbox", today widely known as the set of rules applicable to fintech, was developed in this country as one of the first, back in 2015 (Kyrlan, 2018). Today, in accordance with the noted rules, British companies can conduct trials of new technologies, for example, on a blockchain platform, in a sandbox by applying and obtaining permission from the UK Financial Conduct Authority (FCA). During sandbox testing, the company must report the results to the FCA. If the sandbox testing is successful, the company is allowed to launch a service that meets the regulatory conditions on a broad commercial basis (Ostroushko, 2019). The basic act of regulation of financial technologies in the UK is the Digital Economy Act of the United Kingdom of 2017 (Digital Economy Act 2010, DEA). It is also worth noting that the implementation of fintech innovations in the financial services sector is under the control of the Department for Business, Energy & Industrial Strategy (BEIS), a single specialized body, due to



which the effectiveness of such implementation is ensured. According to M. Kyrlan, a similar specialized body that carries out state management in the field of financial technologies should be created in Russia (Kyrlan, 2018). The above experience of creating "regulatory sandboxes" also seems to be applicable on Russian soil.

Singapore's experience in creating a special regulation of financial technologies is also interesting. The Monetary Authority of Singapore has issued the Principles to Promote Fairness, Ethics, Accountability, and Transparency in the Use of Artificial Intelligence and Data Analysis in the Financial Sector of Singapore (Principles to Promote Fairness, Ethics, Accountability and Transparency (FEAT) in the Use of Artificial Intelligence and Data Analytics in Singapore's Financial Sector, hereinafter referred to as the FEAT Principles) (Matassoglio, 2019), which should be applied by financial operators using AI technologies and data analytics in the implementation of financial products and services. By its legal force, the FEAT Principles can be attributed to the guideline, one of the tools of the Monetary Authority of Singapore as a financial regulator (Monetary Authority of Singapore, 2018), authorized to issue such regulatory documents as regulations, instructions (directives and regulations), manuals, codes, circulars, and practical regulations. The FEAT principles regulate the behavior of financial operators: violation of such regulations is not an offense and does not entail administrative sanctions, but the degree of their compliance affects the overall risk assessment for a particular financial operator (Walters & Coghlan, 2019). The document consists of 9 sections, which, in addition to the introduction and final provisions (acknowledgment to the developers, representatives of financial operators, and consultants), are devoted to the specifics of the application of this document, define the scope and list of definitions, give a summary of the principles and characterize each of them separately (fairness, ethics, responsibility, transparency) (Goryan, 2018).

In the Russian Federation, which is not yet a leader in the development and distribution of financial technologies, the level of their legal regulation today can be characterized only as initial, not fully consistent with modern realities. This situation has arisen due to the fact that until recently, commercial banks that are leaders in the fintech market, caring only about achieving current commercial goals, were not seriously interested in creating an appropriate legal mechanism for regulating financial technologies in the Russian Federation, while foreign states introduced fintech, creating its legal regulation, as an alternative to traditional banking solutions. The digital transformation of the economy, the course for which was announced in Russia in 2017,



changed the current situation, activated the fintech market, which in turn led to the need to settle new legal relations between the state, suppliers, and recipients of financial services regarding the creation and use of financial technologies. Thus, individuals have the opportunity to conduct identification without personal presence via the Internet not only in state information systems but also in banks and other organizations. Since October 1, 2019, such active fintech users as micro-credit companies can instruct a credit institution to identify an individual client. Since October 1, 2019, digital rights have become a new object of civil rights.

The legislators also plan to create and develop elements of the digital financial infrastructure, legal support in the field of financial technology development, increase the flexibility and adaptability of regulation, create a regulatory platform of the Bank of Russia for piloting innovative financial technologies, transition to electronic interaction, etc.

The state of legal regulation discussed above is presented in the form of a table (Table 1).

**Table 1**

Country	State support measures	Special legal regulation
Great Britain	Functioning of a specialized autonomous body (BEIS) that coordinates the development and implementation of financial technologies. Creation of laboratories developing "sandboxes" for financial technologies	Digital Economy Act 2010, DEA
Singapore	Agreement on exchange and cooperation in the field of financial technologies between the Singapore financial regulator and several major banks	Principles (FEAT)
Russia	It is planned to create and develop elements of the digital financial infrastructure, legal support in the field of financial technology development, increase the flexibility and adaptability of regulation, create a regulatory platform of the Bank of Russia for launching pilot fintech projects.	Absent

**DISCUSSION**

The financial technology market is a test not only for traditional business models but also for EU legislators, who, in the absence of regulation, discuss the relationship between technologies and norms in this area. They considered whether regulation is necessary and, if so, whether the platforms or algorithms on which they are based should be regulated. The principle that should be observed in any legislation on fintech, not to mention the diversity of entities engaged in certain activities, is as follows: "The same rules should apply to the same services and the same risks, regardless of the type of legal entity or its location in the Union," along with such key principles as



proportionality concerning risks and technical neutrality (Ostroushko, 2019). However, the issues of "how to regulate" (expanding the existing European rules following the approach based on specific types of activities) and "for what purpose" are still being actively discussed, since it is very likely that new financial services based on the widespread use of technologies may remain outside the regulation of activities of the current legislative framework and, as a result, will be regulated at the level of individual member states (Ostroushko, 2019). Indeed, as the report of the Financial Stability Board shows, some countries, including the EU Member States, have introduced or are considering introducing multi-sectoral rules, in particular concerning payment systems, crowdfunding, and lending. Thus, the intervention of legislators in fintech is still haphazard and fragmented. This issue was considered by the European Commission in 2018 in the above-mentioned Fintech Action Plan "for the European strategy for creating a single technological market for financial services". One of the possible regulatory tools proposed in the Plan is the use of "innovation catalysts" (in particular, regulatory "sandboxes" and innovation centers), for this purpose, the ESA Joint Committee was instructed to prepare a report on innovation catalysts in Europe and identify best practices in their design and operation. In fact, "sandboxes — are a "safe space" in which financial products and services can be developed and tested before they are offered on the market (Corapi, 2019). The report, published on January 7, 2019, shows that the number of innovation catalysts has been growing rapidly over the past few years. Based on the fact that international cooperation is a key element for the success of regulatory "sandboxes", the supervisory authorities propose to create a network of catalysts with the participation of all competent EU authorities (Ostroushko, 2019).

The interviewed experts note that the Russian regulatory requirements do not correspond to the level of technology and the mechanism for regulating fintech is at an initial stage. Experts and researchers name the following among the main problems of legal regulation of fintech in Russia (Konshina, 2020): disagreements between the government of the Russian Federation and the Bank of Russia; the problem of digital identification and authentication; lack of access for fintech companies to government sources of information; lack of regulation regarding cryptocurrencies; the need to regulate digital rights; obstacles to the introduction of fintech services through legislative licensing. In this context, the starting point is the presence of state will and a long-term policy towards financial technologies in general" (Vaganova et al., 2020a).



The analysis of the systems of legal regulation of fintech allows identifying the most successful measures that can be applied in the Russian regulatory practice in the future:

1. Creation of a specialized institute (division) based on the Ministry of Finance, with powers in the field of fintech management (Konshina, 2020);
2. Creation, considering the existing positive foreign experience, regulatory sandboxes, and innovation centers involved in the implementation of innovative financial technologies, within which innovative companies operate outside the legal field, but under the supervision of state bodies (Vaganova et al., 2020b);
3. Development and use of mechanisms for encouraging and supporting fintech startups;
4. Legislative registration of the legal status of cryptocurrencies and clear rules for the circulation of digital financial assets and the use of ICOs (Vaganova et al., 2018).
5. Legislative consolidation of the rules for assessing new financial technologies that meet the conditions for the safety of consumers of services, counter-terrorism, and create consumer confidence in new technologies (Vaganova & Likhosherstova, 2011).

Along with the implementation of the above measures, the state must exclude the appearance on the market of technologies that have not been properly tested and do not meet safety requirements. Considering that the provision of financial services through the latest IT solutions is provided mainly through the Internet, affecting the interests of various social groups, we join other researchers (Nikitina, Nikitin, & Galper, 2018) who support the proposal on state regulation and defining not only the general direction of development of financial technologies but and the development of the Internet and the information technology industry in general.

## CONCLUSION

Thus, the development and dissemination of intelligent financial technologies require significant regulatory changes. The traditional legal regulation, consisting of federal laws and regulatory legal acts supplementing them, does not have time to change as quickly as modern financial technologies are being developed and implemented. Therefore, traditional regulatory and legal instruments, with the help of which it is impossible to solve complex problems of regulating the modern financial services market promptly, will gradually be replaced by special legislation, various legal



instruments of "soft law" (principles, regulatory instructions, rules, recommendations, etc.), as well as specific tools, such as "regulatory sandboxes", especially since there is a well-established practice of using these instruments in the world experience of regulation. Thus, the research hypothesis has been proven.

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