

ICEST 2021

II International Conference on Economic and Social Trends for Sustainability of Modern Society

**“REGULATORY SANDBOXES” IN THE FIELD OF DIGITAL
INNOVATION: CONCEPTUAL REPRESENTATIONS**

A. N. Sukharev (a), Yu. I. Schmidt (b), I. V. Zhupley (c)*, L. I. Soldatova (d), N. A. Tretiak (e),
D. V. Mukhina (f)

*Corresponding author

(a) Tver State University, Tver, Russia

(b) Tver State Agricultural Academy, Tver (Sakharovo), Russia

(c) Primorskaya State Academy of Agriculture, 44 Blucher Avenue, Ussuriisk, Russia, zirinavik@mail.ru

(d) Kostroma State Agricultural Academy, Karavaevo village, Kostroma district, Russia

(e) Vladivostok branch of the Russian Customs Academy, Vladivostok, Russia

(f) Primorskaya State Academy of Agriculture, Ussuriisk, Russia

Abstract

The essence and mechanism of experimental legal regimes in the field of digital innovations (the so-called "regulatory sandboxes") are considered; the experience of using the "regulatory sandbox" mechanism abroad is described; the features of the conceptual model of experimental legal regimes in the field of digital innovations for Russia are described; possible directions of application of this mechanism are considered. The prospects for the use of "regulatory sandboxes" in the agricultural sector were separately investigated due to the fact that digitalization in the industry is impeded by the risks caused by the current level of development and the peculiarities of legal regulation in the agricultural sector. A well-grounded conclusion was made that the existing legal system in Russia does not promote, but rather hinders the development of digital technologies in the country (including due to the fact that digital innovations are capable of initiating legal risks). And "regulatory sandboxes" allow overcoming obstacles from the legal environment, solving the problem of legal risk, and allow implementation of new digital technological solutions that serve as the basis for technological development. In Russia, the mechanism of experimental legal regimes has become possible since January 2021 and requires the adoption and justification of a set of regulatory legal acts in this field.

2357-1330 © 2021 Published by European Publisher.

Keywords: Digital innovations, experimental digital technologies, regulatory sandboxes



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

In the modern world, new realities are unfolding in the field of the digital economy. Digital innovations, which qualitatively change industrial relations, financial, economic and other social relations are the most important engine for the development of the modern economy. At the same time, the development of digital innovation is constrained by the legal environment, which includes existing business regulations. This creates legal risks and uncertainties for organizations introducing digital innovation (Dostov et al., 2017a; Efremov, 2019; Zetzsche et al., 2017). In order to overcome this, in 2016 the UK developed and began to use a model of “regulatory sandboxes” that allows creating a legal environment for specific digital innovations, including a set of financial, economic and other norms (Dostov et al., 2017b). The effect of these legal norms applies only to a limited number of persons - participants in a particular digital innovation, and this is only one organization - the creator of the innovation and the consumers of such an innovation. Thus, as noted by Basova and Ogloblina (2020), the “regulatory sandbox” mechanism is the creation of an experiment in the use of digital innovations in the limited space”. The name "sandbox" denotes limited use (perimeter), the possibility of building something new (sand) and childhood (the beginning of the path of digital innovation). The advantages of regulatory sandboxes are: first, the possibility of constructing an experiment that will have public utility, and for the organizer of the sandbox - profit; second, the use of a sandbox helps reduce legal uncertainty and legal risks for financial market participants; third, the ability to further replicate effective sandboxes, creating adequate legal regulation for them (Kuklina, 2019; Zavyalova et al., 2019).

The “regulatory sandbox” must meet the following requirements:

- Innovation governed by “sandboxes” should have novelty and significantly different from existing technological solutions.
- The innovation must have benefits for consumers (public utility), not just for profit. The need should be obvious and not related to the satisfaction of "harmful" needs and which the society should give up (for example, smoking).
- The ability to scale and replicate, that is, the ability to increase the number of goods produced, the volume of services provided or the performance of work, both within this company and among other firms.
- The presence of the investment into the relevant innovation in the firms. The investment level allows it to be brought the innovation to the level of commercial use.

At present, the process of creating national legislation allowing the use of the mechanism of “regulatory sandboxes” has begun to develop rapidly in the world. "Regulatory sandboxes" are used today in Australia, Bahrain, Great Britain, Indonesia, Canada, China, Malaysia, United Arab Emirates, Singapore, United States of America, Thailand, Switzerland, etc. (Cornelli et al., 2020; Gromova & Ivanc, 2020; Ringe, & Ruof, 2020; Salikhov, 2020). In the Russian Federation, the mechanism of “regulatory sandboxes” has recently been officially launched. Therefore, the research topic is relevant and has obvious scientific novelty.

2. Problem Statement

In Russia, on July 31, 2020, federal law No. 258-FZ was adopted. It allows the creation of "regulatory sandboxes". The law entered into force on January 28, 2021. This federal law was named "On Experimental Legal Regimes in the Field of Digital Innovations in the Russian Federation" and in its development, the Decree of the Government of the Russian Federation (RF) of December 15, 2020 No. 2115 "On the approval of the Regulation on the specifics of the application of the provisions of the Federal Law" was adopted. "On experimental legal regimes in the field of digital innovations in the Russian Federation" to legal relations arising in connection with the establishment and implementation of an experimental legal regime in the field of digital innovations in the direction of the "financial market". The mechanism of "regulatory sandboxes" in legislation was called experimental legal regimes. Such modes can be used in the following industries: medical activity; design, production and operation of vehicles; Agriculture; financial market; sale of goods, works, remote services; architectural and construction design, construction, major maintenance, reconstruction, demolition of Capital construction objects, operation of buildings, structures; provision of state and municipal services and implementation of state control (supervision) and municipal control; industrial production (industry); other directions of development, testing and implementation of digital innovations established by the Government of the Russian Federation. It can be expected that in the future, this list of industries may be increased as the experimental legal regimes are implemented in previously permitted industries.

3. Research Questions

During the study, the following questions were considered:

- What is the conceptual legal model of experimental legal regimes in the field of digital innovation in Russia?
- What is the present and future of regulatory sandboxes in the context of digital development and digital innovation?
- What are the prospects for using "regulatory sandboxes" in a separate sector of the Russian economy to reduce legal risks in the introduction, implementation and replication of digital innovations?

4. Purpose of the Study

The purpose of the study is to study the features of the application of a new for Russia mechanism of experimental legal regimes ("regulatory sandboxes"), potentially helping reduce legal risks and uncertainties in the implementation and diffusion of digital innovations in various sectors of the economy, as well as identify problem areas and "growth points".

5. Research Methods

Experimental legal regimes detail and simultaneously expand the legal space for digital innovation entities, giving them additional rights while protecting the interests of third parties (Martynov & Bundin, 2020). As is known from the theory of law, a special law has an advantage over a general law, since the first one detail the rights and obligations, normatively regulating more limited social relations. This increases legal certainty and allows the courts to "accurately" resolve the relevant cases, without delaying the proceedings due to the comprehensive study of the circumstances. It also leads to an increase in the uniformity of court cases on the same issues and circumstances. In this regard, the mechanism of experimental legal regimes acts as a special law in relation to the existing norms of the civil law. In order to protect the rights of citizens and legal entities, when establishing experimental legal regimes, the procedure for informing them about this may be envisaged, giving them the opportunity to enter into legal relations arising from such legal regimes.

It should be noted that not every experimental legal regime is permissible. Digital technologies which can cause an unacceptable risk of damage to society, the individual and the state, as well as if their use introduces prohibited goods, works or services into circulation cannot be used. Experimental legal regimes should not violate the constitutional rights of citizens, lead to a decrease in the country's defence capability, damage national interests or the protection of state secrets, etc.

Each experimental legal regime that is being created for the implementation of a specific digital innovation requires the formation of an adequate financial and economic model, which must be expressed in the rule of law created for this regime. Bearing in mind the complexity of digital innovation, there is an urgent need to develop a theory and methodology for constructing financial mechanisms for experimental legal regimes. "Regulatory sandbox" regime is essential for innovative development. It can be especially in demand by innovative firms, accelerators (startup support institutions), software firms, and technology companies. Attracting financing is the main line of demand.

Because of the peculiarities of digital innovations and the possibility of their implementation, experimental legal regimes can be demanded by large firms (although the legislation provides for the possibility of their implementation by small businesses, including individual entrepreneurs). Innovative firms must have sufficient financial resources or insure their activities in case of harm to third parties when introducing their product (works, services).

Digital technologies are the main driver not only for the development of the economy, but also for the qualitative transformation of society and its institutions. Digital technologies are now being introduced into all fields of activity, so it is fair to speak of a transition to a qualitatively new technological order and method of production. The basic elements of digital technologies today are Big Data, Smart Data, biometrics, open interfaces (Open API), mobile technologies, distributed ledger technologies, machine learning, artificial intelligence, etc. In the field of Big Data, special technologies are being developed for processing huge amounts of information in order to identify patterns and anomalies that can be used to increase the efficiency of economic activities, maximize profits for commercial organizations, improve the quality of goods and services, ensure the safety of the functioning of various systems, etc. (Popkova, 2020). Smart Data technologies make the transition from "big data" to "smart data" based on segmentation of

objects in order to provide a targeted supply of necessary goods, works, services. Examples of this would be targeted the advertising. Therefore, Smart Data technologies are essentially effective targeting technologies.

Today, distributed ledger technologies (blockchain) have gained particular popularity, which is associated with the "success" of bitcoin, which uses this technology. The blockchain began to be used not only in payment systems, but in maintaining registers of property (real estate objects, owners of securities), identity cards, and more. The Open Application Programming Interface (API) is a tool in the form of a publicly available set of algorithms that allow communication among different software applications. Machine learning technologies are so-called semantic networks that allow a program to self-learn based on processing "historical" information. This is where a heuristic process takes place, which in a way resembles creative thinking, search, and discovery.

Artificial intelligence is a complex of technologies with the help of which the imitation of human intellectual activity takes place. The development of artificial intelligence occurs not only on the basis of improving software, but also on the formation and implementation of qualitatively new hardware in the form of recognition of images and speech synthesis.

Regulatory Technology (RegTech) and Supervisory Technology (SupTech) technologies are developing in the financial field. With the help of regulatory technologies, controlled persons can automatically fulfill the instructions of the regulator (according to norms and other restrictions). SupTech technologies allow the regulator to continuously monitor the implementation of these instructions (transition from a form-centric to a data-centric approach). This allows the regulator in his actions not to go beyond the normatively permissible (the information system will forbid him to do this). This also reduces the costs of submitting reports to the regulator and makes it possible to reduce the legal risks of violation of regulations (regulatory restrictions). The regulator reduces control costs and increases the ability to use "point" prescriptions for targeting purposes.

In October 2019, the "National Strategy for the Development of Artificial Intelligence for the Period up to 2030" was approved by the Decree of the President of the Russian Federation. In accordance with it a set of measures is to be taken to conduct R&D in the field of artificial intelligence and their implementation in all spheres of public relations. The general list of technologies that fall under the federal law on experimental legal regimes was approved by Decree of the Government of the Russian Federation on October 28, 2020 No. 1750. These technologies are broken down into ten large blocks and include neurotechnologies, quantum technologies, virtual and augmented reality technologies, industry digital technologies, and others.

6. Findings

Let us explore what prospects for the use of "regulatory sandboxes" exist in a separate branch of the Russian economy using the example of agriculture. We will explain the choice for the consideration of agriculture. First, the agrarian sector of the economy is the basis for the food and, therefore, economic independence of the state. Second, the current level of development of the domestic agricultural field (Zhupley & Potenko, 2020), the technical and technological lag of the sector in comparison with the industries, the weakness of the information component do not allow the widespread introduction of

digitalization in rural areas. Third, the low level of innovative entrepreneurship (including digital innovation) hinders the progressive development of agriculture in Russia (Zhupley et al., 2018). As noted above, agriculture is included into the list of sectors in which experimental legal regimes can be created. The development of agriculture based on digital technologies can qualitatively change the way of production in it, significantly increasing labour productivity. As is well known, the growth rate of labour productivity in agriculture lags behind the growth rate of labour productivity in industry. It is connected with the specifics of agricultural production and so far with the impossibility to fully implement the principles and approaches on which industrial production is carried out.

In agricultural production, experimental legal regimes related to the collection and processing of large databases, the creation of so-called "smart" production, the development and implementation of life cycle management technologies, platform technologies "customer-production", etc. may be in demand. All these technologies are capable of moving from "traditional" to "smart" agriculture, in which the production of agricultural products will be carried out with minimal human influence on the basis of robotization and automatic control of production parameters, accumulation and processing of data on production facilities in order to select the best units for subsequent reproduction (replication).

Digital technologies, in addition to software, require the creation of appropriate hardware, with the help of which the impact on material objects should be carried out. This hardware has significant differences in crop and livestock production. In crop production, agricultural robots are already used for planting seeds, harvesting. Automated systems are used for monitoring the environment, including temperature conditions, soil moisture, and others. In the world, automated systems have been developed that allow picking tomatoes, picking strawberries using robotics, removing weeds and thinning lettuce in greenhouses. In animal husbandry, systems of automatic feed supply, automatic milking, robotization of sheep shearing and others are in demand.

Experimental legal regimes can be used in the development of information and communication technologies in agriculture, which include all types of wireless technologies, global positioning systems, geographic information systems, systems for animal identification, mobile applications in feed supply, automatic milking, robotization of sheep shearing and others. Experimental legal regimes can be used in the development of information and communication technologies in agriculture, which include all types of wireless technologies, global positioning systems, geographic information systems, animal identification systems, mobile applications in agriculture, e-commerce, etc. In particular, geographic information systems are already used today in "point" agriculture. Based on the set of data entered into such a system about soil and other features of the land, an automatic decision is made on the use of land for certain types of crops. Moreover, one field, depending on the characteristics of the soil in different areas, can be used for different compatible crops on the basis of isolines entered into the geographic information system.

The creation or implementation of digital innovations in agriculture already used abroad may not be possible due to the lack of the necessary legal regulation. This problem is resolved through the application of the experimental legal regime by the subject of digital innovation. The creators of an innovation must give a legal assessment of the compliance of digital technology with the norms of law, as well as take into account possible legal risks that may arise during its implementation. In other words, digital innovation

requires the creation of an adequate legal model, which would represent the rights and obligations of the parties, mechanisms to protect the violated right, etc.

7. Conclusion

Summarizing the above, the following main conclusions can be drawn.

First, the development of digital technologies can be restrained by the existing legal system (legal institutional "vacuum"). Digital innovations can generate legal risk due to the uncertainty of the social relationships that they generate.

Second, in order to overcome the legal institutional "vacuum", experimental legal regimes can be created, which are also called "regulatory sandboxes". As part of the pilot project, "experimental" legal norms are being created to regulate public relations arising from the implementation of specific digital innovations. These norms are a detail of the civil rights and obligations of persons taking part in the implementation of the pilot project.

Third, "regulatory sandboxes" act as a driver of innovative development and a qualitative renewal of social relations. Thanks to them, the development of rules of law will take place, which should be adequate for new technological realities. The mechanism of "regulatory sandboxes" can be used not only in the field of digital innovation, but also in the construction of other social relations on the basis of an experiment on a limited scale.

References

- Basova, A. G., & Ogloblina, E. V. (2020). Modern regulatory innovations in the global financial market [Sovremennyye regulativnyye innovatsii na mirovom finansovom rynke]. *Scientific notes of the Crimean Federal University named after V. I. Vernadsky. Economics and Management*, 6-2, 14-31. [in Rus].
- Cornelli, G., Doerr, S., Gambacorta, L., & Merrouche, O. (2020). Inside the Regulatory Sandbox: Effects on Fintech Funding. *BIS Working Papers*, 901, 9. <https://www.bis.org/publ/work901.htm>
- Dostov, V., Shoust, P., & Ryabkova, E. (2017a). Regulatory sandboxes as a support tool for financial innovations. *Journal of Digital Banking*, 2(2), 179-188.
- Dostov, V. L., Shoust, P. M., & Leonova, A. V. (2017b). Implementation of "regulatory sandboxes" in the UK financial market - the first experience [Vnedrenie «regulativnykh pesochnic» na finansovom rynke Velikobritanii – pervyj opyt]. *Scientists note to The International Banking Institute*, 22, 103-114. [in Rus].
- Efremov, A. A. (2019). Experimental Legal Regimes for Digital Innovation: Foreign Experience and Russian Prospects [Eksperimental'nyye pravovyye rezhimy dlya tsifrovyykh innovatsiy: zarubezhnyy opyt i rossiyskiye perspektivy]. *Information Law*, 3, 21-23. [in Rus].
- Gromova, E., & Ivanc, T. (2020). Regulatory sandboxes (Experimental legal regimes) for digital innovations in BRICS. *BRICS Law Journal*, 7-2, 10-36.
- Kuklina, E. A. (2019). On the issue of special legal regimes in the digital economy ("regulatory sandboxes") [K voprosu ob osobykh pravovykh rezhimakh v usloviyakh cifrovoj ekonomiki («regulatorynykh pesochnicah»)]. *Management advice*, 7(127), 39-49. [in Rus].
- Martynov, A. V., & Bundin, M. V. (2020). Experimental legal regime for the use of digital technologies: concept, elements, content and features [Eksperimental'nyy pravovoy rezhim primeneniya tsifrovyykh tekhnologiy: ponyatiye, elementy, sodержaniye i osobennosti]. *Information law*, 3, 16-22. [in Rus].

- Popkova, A. (2020). Regulatory sandboxes as an effective mechanism for introducing financial innovations [Regulyativnyye pesochnitsy kak effektivnyy mekhanizm vnedreniya finansovykh innovatsi]. *Banking Bulletin*, 8(685), 39-45. [in Rus].
- Ringe, W.-G., & Ruof, C. (2020). Regulating Fintech in the EU: the Case for a Guided Sandbox. *European Journal of Risk Regulation*, 11, 604-629.
- Salikhov, D. R. (2020). «Regulatory sandboxes» in Russia: new horizons and challenges. *Digital Law Journal*, 1-2, 17-27.
- Zavyalova, E. B., Krykanov, D. D., & Patrulina, K. A. (2019). Mekhanizm regulyatornyh «pesochnic» dlya vnedreniya cifrovyyh innovatsiy: opyt vnedreniya eksperimentalnyh pravovyh rezhimov na nacionalnom i nadnacionalnom urovne [The Mechanism of Regulatory Sandboxes for the Implementation of Digital Innovation: Experience in the Implementation of Experimental Legal Regimes at the National and Supranational Level]. *Law and management. XXI century*, 15-4(53), 130-138. [in Rus.].
- Zetzsche, D., Buckley, R., Barberis, Ja., & Arner, D. (2017). Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation. *Fordham Journal of Corporate & Financial Law*, 23-1. <https://ir.lawnet.fordham.edu/jcfl/vol23/iss1/2/>
- Zhupley, I. V., & Potenko, T. A. (2020). Challenges to agriculture in the Russian Far East: lessons from crises. *IOP Conf. Ser.: Earth Environmental. Sciences*, 547, 012048.
- Zhupley, I., Potenko, T., Gubarkov, S., Tretyak, N., & Grafov, R. (2018). Structural Shifts and Reform of the Agrarian Sector of the Russian Economy under the Conditions of the Import Substitution Policy. *Space and Culture, India*, 6(4), 25-35.