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## Some aspects of the essence and legal regulation of agriculture digitalization as one of the priorities of modern state policy of agriculture development

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## Some aspects of the essence and legal regulation of agriculture digitalization as one of the priorities of modern state policy of agriculture development

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**Abstract.** The article examines the nature and problems of such a direction of modern state policy of the Russian Federation as digitization of agriculture in the context of the general course on digitization of the Russian economy and understanding of the regulation of agricultural development as part of modern state policy of Russia. Attention is drawn to the need for an integrated approach to the formation of the very concept of a policy on digitization of agriculture and to the mechanism for its implementation. The importance and significance of scientific support and human potential for the effective solution of the tasks assigned to the process of digitization of agriculture are noted.

**Introduction** The role of agriculture in the economies of states is essential, including it being taken into account when forming GDP (for example, in 2015, the indicator “agriculture, hunting and forestry” amounted to 4.2 percent in the amount of 3.67 trillion rubles, 2016 - 3.87 trillion rubles and 2017 - 3.69 trillion rubles); in 2016, 119.1 million tons of grain were harvested in Russia, in 2017 - 135.4 million tons of grain. Russia ranks first in the export of wheat - 36.4 million tons (March 2018). In terms of arable land, Russia ranks 3rd in the world (116 million hectares, the first is the United States, and the second is India). Possessing potential with the introduction of land into circulation, Russia is increasing grain yields, showing the highest growth since 2000: yields have increased by almost 60 percent. At the same time, in a number of indicators, Russia lags far behind the leading economies: grain yield is lower than that in the USA and Germany by 3-4 times, the cost of agricultural products per employee is 22 times lower than in the USA, while that there is a deterioration in the quality of grain [1].

In order for to enter the foreign market, especially with high value-added products, domestic agricultural producers have to fulfil a number of indicators and expectations that meet the high production requirements adopted in the markets of foreign countries. as such. Given the understanding of the need to comply with the global economic development trends, the Decree of the President of Russia “On the national goals and strategic objectives of the Russian Federation for the period up to 2024” of May 7, 2018 sets the task of transforming priority sectors of the economy and the social sphere, including agriculture digital technologies and platform solutions, in accordance with the governmental program “Digital economy of the Russian Federation” approved on July 28, 2017. As a result, it is expected that domestic spending on the development of the digital economy will increase at



the expense of all sources (by share in the gross domestic product of the country) by no less than three times as compared with 2017; It is planned to create a stable and secure information and telecommunications infrastructure for high-speed transmission, processing and storage of large amounts of data that is accessible to all organizations and households and the use of primarily domestic software by government agencies, local governments and organizations. However, to achieve these goals, one should take into account the specifics of different sectors of the economy, which predetermines the features of the mechanism for their implementation, in particular, agriculture.

Agriculture as an independent sector of the economy has a number of features that predetermine the need to take them into account in the process of implementing the state economic policy [2]; in particular, they include the fact that:

- means of production are biological objects (plants and animals), which are subject to the actions of biological laws.
- land is the main means of production, and not just a spatial basis, as, for example, is seen in industry; accordingly, agricultural production directly depends on the quality characteristics of the land on which it is produced.
- the serious impact that natural and climatic conditions have on the results of the production of agricultural enterprises creates increased risks for this activity.
- for farming, large areas are required, which, in turn, necessitates the solution of transport issues, such as ensuring the delivery of the machinery itself and its maintenance, transportation of agricultural products, etc. It is characteristic that, as a rule, the means of production (agricultural equipment) move, and the objects of labor (objects of the biological world, animals, plants) are in one place, which creates a great need for energy resources and in the amount of equipment.
- the organization of the agricultural process is influenced by seasonality of production, for example, it affects labour resources: often due to the temporary nature of labour relations, workers do not have a permanent job, perform various types of labour functions (planting, caring for animals, harvesting, etc.), as a result, they do not have a narrow specialization.

These and other features require an objective consideration and consideration in the formation of an approach to address logistical, managerial, organizational and other issues in the field of agriculture, including the issue of its digitalization. For example, the peculiarities of the application of information technologies in agriculture include the fact that:

- The results of the agricultural production process are influenced by various factors: climatic, biological, economic, technical, etc. Their diversity and quantity determine significant material and organizational costs.
- Economic entities are geographically dispersed, which leads to additional difficulties in making and implementing management decisions across the industry.
- Intensive and multilateral inter-sectoral relations of agriculture with various enterprises, as well as the presence of numerous partners of farms-suppliers of resources and product buyers necessitates an integrated approach to building interaction in certain areas, for example, in the development of food and processing industries, based on general constitutional principles and provisions [3].
- A comprehensive approach is needed to rethink the further development of agrarian science and scientific support for the industry, sustainable rural development with a view to introducing it into the educational process and taking into account modern expectations in the implementation of training of relevant specialists, while developing staffing for the rural economy as part of public policy [4]. Thus, the introduction of the digital economy is estimated to reduce costs by at least 23% when implementing an integrated approach. At the

same time, the cost of information and communication technologies (ICT) under the section “Agriculture, hunting and forestry”, according to Rosstat, in 2015 amounted to 4 billion rubles, which is 0.34% of all ICT investments in all sectors of the economy, in 2017, 0.85 billion rubles or 0.2 %.

This is the lowest indicator by industry, which indicates a low digitalization of domestic agriculture, but this figure emphasizes that the industry has the greatest potential for investment in ICT. The volume of the information technology market in agriculture is rapidly developing. For example, if in 2006, according to the All-Russian Agricultural Census of 2006, 12.9% of agricultural organizations had access to the Internet, then in 2016, as shown by the All-Russian Agricultural Census of 2016 (hereafter referred to as VSHP 2016) - 61.2%, those. for 10 years, the Internet coverage of agricultural enterprises increased 5 times. For comparison, the volume of production in agricultural organizations during this period increased 1.75 times. The uneven use of digital technologies by categories of farms remains. According to preliminary results of VSHP 2016, the share of small agricultural organizations for which the Internet is available was 55.4%, micro enterprises - 44.2%, peasant (farmer) farms and individual entrepreneurs - 24%, PFs - 21.8%, which requires a response from the state, including through the use of a targeted approach and the formation of an appropriate legal framework.

Taking into account the role of agriculture and the agro-industrial complex for the development of the economy as a whole, and proceeding from the general trend of digitization of the economy as a direction of the state policy of Russia (along with other relevant areas of digitalization of certain state and public sectors), issues related to the digitization of agriculture value.

At the same time, the current level of digitalization of domestic agriculture is of serious concern: the lack of scientific and practical knowledge of innovative modern agricultural technologies and methodologies, the lack of a global forecast for prices of agricultural products, a lack of an adequate number of information technology tools and equipment, as well as underdeveloped logistics, storage and delivery systems lead to high production costs, and only a small number of agricultural producers have finances opportunities for the purchase of new equipment, the use of IT equipment and platforms.

Nevertheless, the Ministry of Agriculture of the Russian Federation, in the framework of the preparation of the departmental project “Digitization of Agriculture” 2019-2021, determined the digital transformation of agriculture as a goal by introducing digital technologies and platform solutions to ensure a technological breakthrough in the agro-industrial sector and productivity growth by “digital” agricultural enterprises by 2 times by 2021.

**Figure 1.** KPI of the departmental project "Digital Agriculture".

KPI	2018	2019	2020	2021
Share of resources in BigData, (%):				
Land	75	100	100	100
Cattle	1	25	50	100
Equipment	50	75	100	100
Share of SMART contracts with recipients of subsidies, %	0	10	50	100
Cost reduction ratio, %	0	5	15	20
The share of material costs in the cost of agricultural products, %	65	60	55	50
Labour productivity growth, %	0	105	150	200
Share of investments in Digital Technologies (including made in Russia), %	0,5 (0,1)	1 (0,5)	3 (1,5)	7 (5)

And for domestic integrated digital agro solutions for the enterprises of the agro-industrial complex, the scaling will be organized:

- “Smart Farm”
- “Smart Field”
- “Smart flock”
- “Smart greenhouse”
- “Smart processing”
- “Smart warehouse”
- “Smart Agroofis”.

On a broader scale, the Government of the Russian Federation, when implementing, together with the state authorities of the constituent entities of the Russian Federation, the national program “Digital Economy of the Russian Federation”, should solve the tasks enshrined in the national program with a clear understanding of the specifics of the agricultural sector, namely:

- creation of legal regulation system of agriculture digitization on the basis of its essence;
- introduction of civilian turnover in agriculture on the basis of digital technologies;
- creation of a global competitive infrastructure for the transfer, processing and storage of data in the field of agriculture (moreover, taking into account the requirements of ensuring national security and the need to support a national information technology manufacturer, mainly based on domestic developments);
- ensuring the training of highly qualified personnel for digital agriculture;
- introduction of digital technologies and platform solutions in the areas of public administration and the provision of public services in the field of agriculture, including in the interests of the population and small and medium-sized businesses, including individual entrepreneurs, as well as in other areas, such as legal proceedings [5] but based on a systematic approach in this direction of state policy;
- the transformation of agriculture through the introduction of digital technologies and platform solutions;
- creation of an integrated system of financing projects for the development and (or) introduction of digital technologies and platform solutions, including venture financing and other development institutions;
- development and implementation of a national mechanism for implementing the agreed policy of the member states of the Eurasian Economic Union in the implementation of plans for the development of the digital economy in general and agriculture in particular.

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