

STIMULATION OF DEMAND FOR INNOVATION IN AGRICULTURE BASED ON NEW MODELS OF COLLABORATION OF VALUES

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Abstract

The need to increase the volume of domestic agricultural production and overcome the import dependence of high-tech intermediate products actualizes the task of creating mechanisms to support and stimulate demand for innovative products of the agro-industrial complex. The purpose of the article is to develop theoretical and methodological foundations for the formation of scientific and technological policy to stimulate demand for innovative products in the agro-industrial complex. The theoretical foundations of the institutional interaction between the state, universities, academic institutions, agribusiness based on marketing and co-creation of values have been developed, taking into account the needs for innovation in the context of industries and regions. The study analyzes the innovative activity of some European countries, reveals disproportions between the costs of innovation and the volume of shipped products in various countries. The calculation of the index of marketing potential on the basis of a database for 83 regions was carried out and a comparison was made of the index of the country as a whole and a typical region in order to develop targeted strategies for state support. The practical significance of the research results lies in the possibility of their use in the development of mechanisms for state support of demand for innovations and digital technologies in the agro-industrial complex.

Key words: agro-industrial complex, innovations demand, co-creation of values, multilateral platforms, marketing potential, demand stimulation mechanisms

INTRODUCTION

High scientific potential is one of the most important conditions for the mass introduction of domestic science-intensive products in agricultural production, as evidenced by the increase in exports of information and communication technologies and agricultural products. However, the dependence of Russian agricultural producers on the import of science-intensive intermediate products is quite large. The problem of effective development, transfer and promotion of innovations remains unresolved, which is explained by the insufficient susceptibility to innovations of partner organizations in the value chain. This situation is associated with the imperfection of the institutional innovation structure of the Russian agro-industrial complex, the insufficient degree of communication between science and production in the process of creation, implementation, distribution and application

of innovative solutions, imperfect mechanisms for stimulating demand in the implementation of domestic innovations, low efficiency in the use of innovative potential in the sectoral and regional context. In most cases, the main barrier to the promotion of innovative goods and technologies is the low demand of enterprises for innovation in the creation of both intermediate and final products [25]. The need to develop effective mechanisms for the interaction of organizations at all stages of the innovation cycle is explained by the low innovation culture, as well as the lack of necessary competencies in the field of innovative marketing and management, designed to intensify the process of dissemination of innovations in the agricultural sector. Close interaction of innovation centers and R&D departments with potential consumers of innovations in value chains is possible with the active use of fundamentally new innovative marketing tools [5]. The

elimination of disproportions between the existing innovation potential and the efficiency of its use will stimulate the introduction of innovations in agricultural production and the formation of a model of an export-oriented agrarian economy. The problem of activating and stimulating demand for innovations is reflected in the works of domestic and foreign scientists, among whom the concepts of co-creation of value, marketing of creating consumer experience based on the organization of multilateral platforms are widely used [20]. Sawhney, M., Gianmario, V. & Prandelli, E. explored the possibilities of developing products together with consumers of innovation at different stages and using appropriate Internet mechanisms. Different levels of customer involvement were also taken into account [21]. A significant number of authors paid attention to studying the problems of marketing high-tech products, focusing on the role of marketing in the innovation process, including in the production of high-tech products [14, 15, 22]. Bansod, A.V. has been developing effective marketing strategies to increase purchases of high-tech products in retail stores in the face of a short product life cycle [3]. Venkatesh V, Bala H. paid attention to the innovative behavior of buyers and their acceptance of innovations [28]. The active participation of consumers in the innovation process served as the basis for the emergence of a new category - "consumer innovations"[30]. Theoretical and methodological approaches to the consideration of the above forms are presented mainly in the works of foreign researchers [23]. The above authors explored the trends in the development of co-creation between corporations and startups based on a systematic literature review and the presentation of the First Build case. Theoretically substantiated and successfully proven in practice are such forms of cooperation in innovation as Co-working (joint workspaces), Co-Location (placement of equipment in a territorial business center), Co-creation (joint creativity), Collaboration (collaboration), Co-innovation (joint innovation).

In particular, such a form of cooperation as Co-working is recommended for small innovative enterprises and start-ups [4, 6, 9]. Some authors consider co-creation as a management initiative [7], others characterize this form of cooperation as certain structural elements [8]. The corresponding criteria of co-creation are substantiated in the works [16]. One of the options for the form of cooperation Co-Location is the interaction of Co-working. Sverker Alänge, Annika Steiber proposed to allocate such a type of Co-Location form as Corporate-Startup, based on the partnership of large corporations, small businesses and representatives of regional authorities using various business models [1, 11]. Network technologies and multilateral platforms form the basis of fundamentally new models of cooperation. A distinctive feature of such cooperation is to attract consumers to participate in the development and improvement of new products [18, 19]. In this way, consumers become co-creators of value. To achieve mutually beneficial cooperation, it is imperative to use fundamentally new mechanisms for cooperation between customers, partners and suppliers in the value chain, the value network, including the mechanism of co-competition. New mechanisms allow customers and end users to create specific value chain constellations that take into account needs, tastes and preferences. Researchers distinguish the following models of co-creation of values: seminars on co-creation; crowd sourcing; platform for open innovation; mass customization; content activated by the user; insight communities and forums.

Increasing demand for innovative products is one of the main conditions for increasing innovative activity. According to expert surveys, about 60% of agricultural specialists assessed its importance for innovative development [12].

However, at present, the demand for innovative products in the agricultural sector of the economy does not have sufficient sustainable growth, which is due to the need to develop new methods and mechanisms to stimulate it.

In this context, the purpose of the article is to develop theoretical and methodological foundations for the formation of scientific and technological policy to stimulate demand for innovative products in the agro-industrial complex.

MATERIALS AND METHODS

The methodological basis of the research is legal, legislative acts, works of foreign and Russian authors on the subject of innovative development of the agro-food complex. In the process of research, monographic, abstract-logical, analytical, research methods were

used. Regulatory and legislative acts, information from OECD, INSEAD, Global Innovation Index, Rosstat, National Research University Higher School of Economics were used as the information base of the study.

RESULTS AND DISCUSSIONS

The study analyzes and evaluates the level of innovative activity of some European countries, the level of shipped products in comparison with the level of costs for innovative activities.

Figure 1 shows the structure of innovation spending in some European countries.

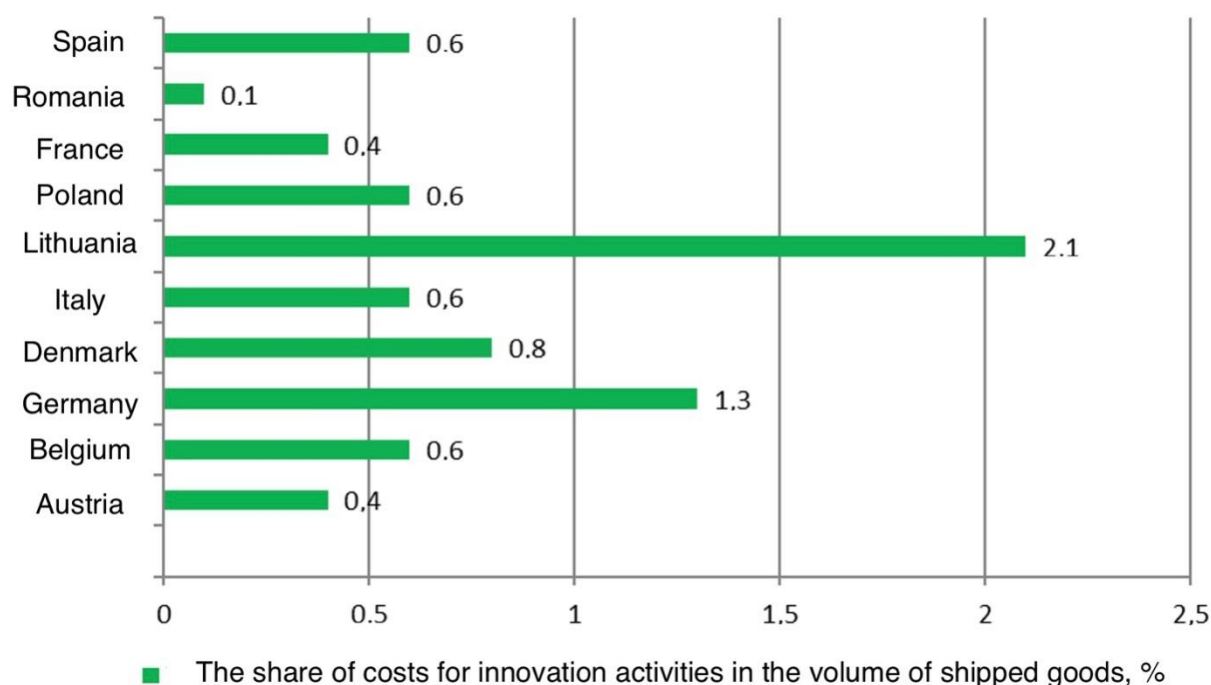


Fig. 1. The share of costs for innovation activities in the total volume of shipped goods, work performed, services, % (2021)

Source: Own calculations based on the data from [29].

From Figure 1, it can be seen that the highest values of innovation spending indicators are typical for Lithuania, Germany, and Denmark. A possible reason for the lower costs of innovation in some European countries is the fact that some countries have not sufficiently exploited the benefits of Internet innovation [2].

Figures 2-3 show indicators of the level of innovative activity and the share of innovative goods and works.

A study of the features of innovative development in individual EU countries also showed a significant cross-country differentiation in the level of innovative activity, the costs of innovative activities and the scale of production of innovative goods, works and services. In terms of innovative activity, the leaders are Belgium (71.3%); Germany (68.8%); Denmark (57.7%). Regarding the scale of the production of innovative products: the highest share of innovative goods, works and services in the

total volume of shipped goods, works and services in 2021 was achieved in Spain (21.7%),

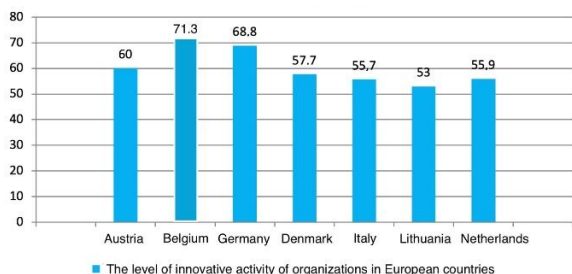


Fig. 2. The level of innovative activity of organizations in European countries, % (2021)
 Source: Own calculations based on the data from [29].

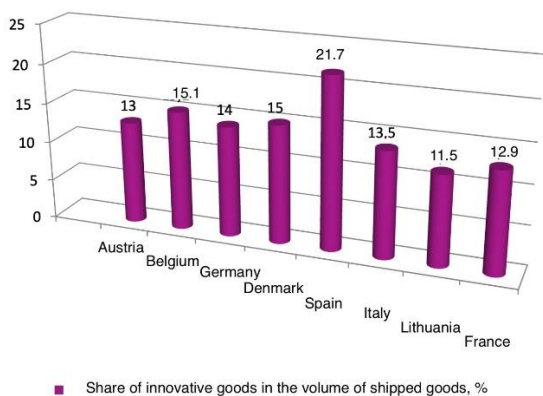


Fig. 3. The share of innovative goods, works, services in the total volume of shipped goods, works, implemented services (2021)
 Source: Own calculations based on the data from [29].

According to research by the National Research University Higher School of Economics, the indicator of the share of costs for innovation activity in Russia is 2%. In turn, despite the increase in costs, the level of innovative activity is only 11.9%, and the share of shipped innovative products is 5%, This circumstance can be explained by the need to solve the problems of digital transformation of economy, which requires additional investment in the development, production and sale of innovative products, as well as the development of mechanisms to stimulate innovative activity [17, 27].

Organizations of the agrarian sector of Russia are characterized by a lower level of innovation.

Despite the fact that the innovative activity of agricultural organizations increased from 4.6% in 2017 to 8.1% in 2021, this is

significantly lower than in industrial production (17.4%) and manufacturing industries (23.1%).

The intensity of spending on innovation in agriculture was only 1.1%; the volume of innovative goods, works and services as a percentage of the total volume of shipped goods, work performed, services in 2021 was equal to 2.3% (in high-tech industries - 18.4%).

Export of innovative agricultural products amounted to only slightly more than 2% of the total volume of innovative goods produced (16.5% in the economy as a whole, and 21.3% in high-tech industries).

A fairly high share of imports of science-intensive intermediate products for the livestock sector remains. .5% (generally in the economy - 23%) [29].

In order to monitor the demand for innovative products and technologies, both at the regional and sectoral levels of government, methodological approaches have been developed to assess the marketing potential of Russia and the regions-subjects of the Russian Federation.

The methodology for the formation of the system of indicators was based on the Oslo Guide, Rosstat data, the results of research by research teams and expert groups, and author's developments.

To calculate the marketing potential index, a database was compiled for 83 regions of Russia using the following indicators: the coefficient of inventive activity (the number of domestic patent applications for inventions filed in Russia per 10,000 people; the number of advanced production technologies developed per 1 million people of the labor force Number of advanced production technologies used per 1 million people of the labor force, units).

In the absence of indicators in the context of the relevant types of activity, the author's approach was applied to adjust in relation to agriculture using the appropriate coefficients as shown in Figure 4.

The analysis showed that the marketing potential of Russian agriculture is higher than in the Saratov region (5.26 units and 4.67 units).

The backlog of the Saratov region was traced in terms of inventive activity (0.2 units and 0.4 units) and the number of developed advanced production technologies (5 units and 6.8 units).

On the contrary, the level of use of advanced production technologies was higher in the Saratov region (13.5 units and 8.6 units, respectively).

Such a methodological approach makes it possible to assess the marketing potential at the interregional level in order to develop models of state support for the demand for innovation and substantiate the mechanisms and algorithms for the interaction of participants in innovative value chains.

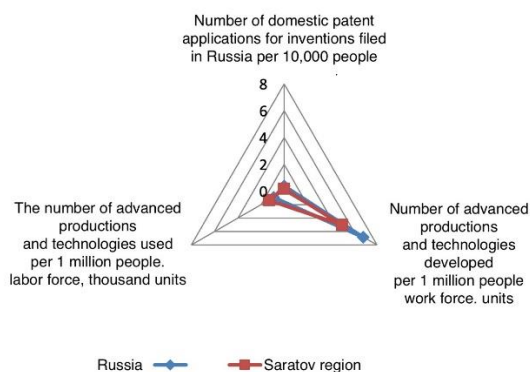


Fig. 4. Marketing potential of Russia and the Saratov region (2021) The level of innovative activity of organizations in European countries, % (2021)
 Source: Own calculations based on the data from [29].

In Russia, to support innovation activities, mechanisms are used to stimulate the increase in investments, the creation of technology parks and business incubators. increasing investment [26].

In a number of constituent entities of the Russian Federation, programs are in place to subsidize manufacturers of agricultural machinery and equipment, in accordance with which part of the costs of purchasing agricultural machinery and equipment is compensated. In 2017, such programs operated in 56 regions Russia.

Starting from 2022, manufacturers of agricultural machinery and equipment will receive subsidies from the federal budget in the amount of 60% of the costs for the development, production of new types of products, as well as for the modernization of

existing industries. Subsidies are also provided to compensate for the costs of research and development, production of prototypes, equipment rental. Priorities are given to the development and production of the most popular types of small-scale machinery and equipment (beet harvesters, potato harvesters and flax harvesters), which to a certain extent affect the interests of agricultural consumers. Subsidies are provided within the framework of the state program "Industrial Development and Increasing its Competitiveness" [24].

Preferential loans for the purchase of equipment are provided to small and medium-sized businesses that process agricultural products; at a rate of 2.5% -4%, and for agricultural enterprises for the same purposes - at a rate of 8.5%.

In 2023, 3 federal programs of concessional lending are available for agricultural producers [10].

The increase in demand for innovation is largely determined by the degree of interaction between actors in value chains. In the long-term forecast of scientific and technological development of the Russian Federation until 2030, one of the options is the creation of companies that integrate package solutions using advanced technologies, subject to the specifics of demand for scientific and technical products. Long-term forecast of scientific and technological development of the Russian Federation until 2030 [13].

CONCLUSIONS

The article proposes an approach to solving the problem of increasing the efficiency of mastering innovations based on the co-creation of values and the formation of multilateral platforms. The theoretical foundations of the institutional interaction between the state, universities, academic institutions, agribusiness based on marketing and co-creation of values have been developed. taking into account the needs for innovation in the context of industries and regions. The paper assesses the innovative activity of some European countries, reveals

disproportions between the costs of innovation and the volume of shipped products in various countries. To calculate the marketing potential index, a database was created for 83 regions of Russia. Methodological approaches have been developed to assess the marketing potential of Russia and the regions-subjects of the Russian Federation, which makes it possible to assess the marketing potential at the interregional level in order to develop models of state support for the demand for innovation and substantiate the mechanisms and algorithms for the interaction of participants in innovative value chains. It is concluded that the involvement of consumers in co-creation models can significantly increase the innovative activity of Russian enterprises and expand the scope of development and implementation of innovative technologies, which is in line with global trends in the development of the agro-industrial complex. The practical significance of the research results lies in the possibility of their use in the development of mechanisms for state support of demand for innovations and digital technologies in the agro-industrial complex.

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