Management of export activities of agricultural enterprises using digital technology

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Abstract. The article shows the problems of export activities of agricultural enterprises associated with the complexity of procedures for customs declaration, logistics, licensing, insurance, and financial settlements. Mechanisms for solving these problems based on the systematization and generalization of conceptual approaches and practice of formation and development of a digital platform are presented. The essence of this platform and its difference from the existing ones is in the centralized management of export activities using a public-private partnership model, which ensures the sustainable development of export activities of agricultural enterprises.

1. Introduction

One of the tasks of the departmental project titled ‘Digital Agriculture’ is the introduction of digital technology and platform solutions to ensure the development of agricultural production and doubling of agricultural exports by 2024 [1].

Many problems in the export activities of agricultural enterprises are caused by difficulties in the sale of agricultural products, including lack of organizational and economic resources and competencies for these actions, as well as inadequacy and inaccessibility of digital technology, which leads to the fact that there is still a need for the use of paper documentation and its multiple processing in various structures.

Because of these problems, the time losses for the implementation of procedures increase, which brings significant costs for agricultural enterprises. There is an opinion [2-3] that, thanks to the creation of an industry digital platform based on a public-private partnership model, it seems possible for agricultural enterprises to eliminate these obstacles and minimize transaction costs at the main stages of export activities.

The creation of a digital platform both in the corporate and public sector of management is an actual trend in the up-to-date economic development. This is confirmed by the studies of domestic and foreign scientists within the framework of the platform economy concept [4-5]. The platform method is based on the one stop-shop principle and has great potential for solving the problem of optimizing the management system for export activities of agricultural enterprises. It provides a comprehensive digital transformation of the interaction of agricultural enterprises with government authorities and commercial organizations, including customs brokers, logistics operators, financial and credit institutions, and insurance and leasing companies.
2. Materials and methods
The studies performed in this area were based on national regulatory legal acts on the development of export activities, statistical data and the results of Russian scientists’ research on the state and promising areas of development of these activities. Particular attention was paid to the organization of the industry digital platform and the relationship on its basis of all participants in export activities.

In the course of the study, general scientific methods of systems theory, special methods of systems management, coordination of economic interests, expert assessment, and microeconomic analysis were used.

3. Results
Based on the research and systematization of export management problems, a conceptual basis for their solution has been proposed [6], which uses: the concept of a platform economy and the platform as a service business model, in accordance with which agricultural enterprises outsource export activities; the concept of public-private partnership and the business model of concession implementation of investment projects, in which the government gets the opportunity to compensate for the lack of budget funds and gain access to competencies and technology, and entrepreneurial structures obtain preferences in terms of making investments with a fixed income under government guarantees; the concept of one stop-shop principle consisting in a one-time electronic provision by participants of export activities of structured standard documents for registration of export operations through a single access channel and a method of compactification of information interaction, the essence of which is the specification of the exchange of electronic documents between the parties without a detailed specification of the structural-functional and transport-technological architecture used for this automated information systems [7]. In this situation, the sectoral digital platform is shown as a structure for the interaction of agricultural enterprises with government agencies and private companies ensuring cost savings in the implementation of export activities. To form a digital platform, an integrated system of organizational and economic mechanisms is being developed, the essence of which boils down to the gradual formation of the composition of participants, the coordination of their interests, the development of export potential, and the activity of potential participants (table 1).

Table 1. Export management mechanisms based on the industry digital platform.

| Description                                                                 | Type         | Contain                                                                                                     |
|-----------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------|
| A mechanism for the formation of the composition of participants and the development of the organizational structure of the industry digital platform | Organizational | A set of impacts that ensure the development of the industry digital platform                                 |
| A mechanism for coordinating the economic interests of participants in the project to create an industry digital platform | Economical   | A set of methods, rules and procedures for the interaction of participants in the industry digital platform ensuring the mutually beneficial implementation of their interests |
| A mechanism for monitoring the export potential and performance of export activities of agricultural enterprises |              |                                                                                                             |

It is important to emphasize that the organization of a sectoral digital platform for managing the export activities of agricultural enterprises includes the main stages. At the stage of organizing the core, the basic automation of the digital platform is being developed, which guarantees the cooperation of agricultural enterprises with government agencies, executive authorities, and various funds and organizations that manage export activities. At the stage of ecosystem organization, the functions of
the industry digital platform are developed through the unification and certification of infrastructure organizations that provide assistance in export activities, including customs and logistics structures. The stage of comprehensive development of the industry digital platform plans to merge with credit institutions, insurance and leasing organizations, and representatives of foreign countries [8].

Studies have shown that export activities are performed by separate structures of agricultural enterprises, and often this activity turns out to be unprofitable for them. In this regard, it is advisable to outsource individual operations (the most economically unprofitable) to an industry digital platform, where government agencies and commercial structures perform export operations being problematic for agricultural enterprises.

The mechanism for coordinating the interest of the participants of the digital platform in the development of export activities has been developed using the concept of public-private partnership. One of the key points in the successful implementation of export activities based on public-private partnerships is attracting investors who would be interested in financing of export activities jointly with the government. In addition to investors, it also requires the participation of business representatives with the necessary competencies to create and operate an industry digital platform. In order to interest them, it is advisable to define economically beneficial conditions for business representatives, including receiving part of the income from the activities of the industry digital platform for the concession period. After the expiration of the concession period established, it is logical to assume that the government party will retain control over the platform.

Due to the complexity of such an organization of a digital platform for all participants in export activities, a simplified step-by-step procedure is required, the essence of which boils down to the preparation and signing of an agreement with all participants based on ‘objective distribution’ of the result of the activities. At the first stage, an agreement should be signed between government and commercial partners, at the second stage an agreement shall be signed between public-private providers of financial and infrastructure services and a company providing access services (connection, registration, web design, advertising, etc.) to the Internet [9].

In order to implement a strategic partnership of all participants in the digital platform, it is necessary to monitor the export potential and performance of export activities of agricultural enterprises based on the methods of multi-criteria assessment of the state of agricultural enterprises, the benchmarking method, and the method of paired comparisons, the implementation of which provides a comprehensive accounting of economic indicators that allow identifying problem situations in the organization of export activity processes of agricultural enterprises and substantiate the rational amount of their functional and organizational support, as well as optimal management decisions for the introduction of agricultural products to foreign markets and the necessary standard services of a digital platform for various categories of agricultural enterprises.

4. Discussion

As a result of the study, it was found that for the purposes of the practical implementation of the mechanisms for managing the export activities of agricultural enterprises, interactions are performed centrally and algorithmized by creating services of an industry digital platform, that is to say, digital service packages provided to agricultural enterprises for export activities.

It was determined that the industry digital platform in terms of the implementation of export operations of agricultural enterprises is developed directly step by step by cloud technology. The first step is to ensure a paperless exchange of documentation between agricultural enterprises and export authorities. Further, the problems of merging with structures that are involved in ensuring secure interagency interaction at various levels of management are solved.

The formed mechanism for managing the export activities of agricultural enterprises is implemented in practice using regulatory documents, one of which is a standard agreement with a provider company for performing export services. The model agreement establishes the main provisions and a two-tier system for using the digital platform. At the same time, two types of users should be distinguished, i.e. agricultural enterprises that already perform export processes (agricultural
exporter enterprises) and agricultural enterprises that plan to start export activities in the near future (export-oriented agricultural enterprises).

For agricultural exporting enterprises, at the beginning of work with a digital platform, it is advisable to assess the resources of export activities and, based on its results, form the required amount of support for export activities. With insignificant indicative indices, a contract should be drawn up with a provider for unlimited access to the industry digital platform. With significant indicators, an agreement should be concluded on access to only a part of the services that allow streamlining cooperation between an agricultural enterprise and government agencies.

In the case of export-oriented agricultural enterprises, it is advisable to assess their export potential and form the services of an industry digital platform necessary for their activities. Then, with the help of an outsourcing company, export-oriented agricultural enterprises should prepare documentation regulating transactions and begin export activities.

5. Conclusion
In conclusion, it should be noted that agricultural enterprises, while using the services of the industry digital platform and outsourcing models, are able to neutralize the risks associated with the lack of organizational and economic resources and competencies to perform export activities.

It is advisable to implement mechanisms for the formation and development of a digital platform in regional export support centers [10] in the form of platform solutions for insurance, credit, guarantee and other support for the export of agricultural products and the provision of non-financial support to agricultural enterprises.

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