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# Formation of a model of information technology platform for the development of foreign trade potential as the basis for the technological development of engineering enterprises

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**Abstract.** The research focused on formation of the model of information technology platform for development foreign trade potential among machine builders as the basis for the technological development of engineering enterprises, and the studding tasks and main components of an information technology platform. Formed model should take into account not only the trends and socio-economic level of development of states with different living and economic conditions, but also the specifics of machine-building enterprises and the features of their products. It is necessary to form a model of special information technology platform for in machine-building enterprises, taking into account integration features and transformational modernization of industry enterprises.

During the period of transformational changes in the development of the global economy, the sanctions imposed on Russian producers; there has been a steady demand for increasing the foreign trade potential of high-tech engineering enterprises. Engineering products competitive in the world market are able to act as a locomotive for other national sectors of the economy. The basis for the modernization of economic sectors is machine-building enterprises, which are elements of the production systems of all other industries. The main task in the modernization of enterprises as elements of the production system is to achieve results in the production of products of appropriate quality with high added value, with a high level of foreign trade potential.

The development of the foreign trade potential engineering enterprises is a necessary basis for the diversification of economies and the expansion of domestic and international trade. The processes associated with increasing the foreign trade potential of machine-building enterprises are complex and



involve the implementation of joint high-tech projects with high integration effects and wide participation of economic entities. The complexity and multisubjectivity of these processes can be organized with information technology platform of engineering enterprises.

The concept of an information technology (IT) platform is broad and covers phenomena ranging, platforms are of increasing importance to innovation and value creation across many facets of industry and daily life. The research on the definition of IT platforms is devoted to scientific work Sun, Gregor & Keating (2015) [1]. There is, however, a lack of common understanding what is meant by the term platform when related to development foreign trade potential of engineering enterprises. Thus, the aims of this study are to form a model of IT-platform for engineering enterprises by identifying its distinguishing dimensions and identify important current research directions for the IT-platform concept.

Our study employed a systematic review method to investigate the development of the foreign trade potential of engineering enterprises on the base of the theory of competitiveness is described in the writings of K. R. McConnell, S. L. Brue, J. Schumpeter, F. A. Hayek, M. Porter, M. Best, I. Kirchner, D Prescott, S. Miller, and others. The works of E. Volkodavova, T. Mirolyubova, N. Nevskaya and others are devoted to the problems of developing the foreign trade potential of machine-building enterprises.

The creation of information technology platforms as the basis for the technological development of engineering enterprises is proposed in the research of Gennady Belyakov and ets. (2018) as one of the instruments for managing the development of engineering enterprises foreign trade potential [2].

There are a lot of different kinds of digital platforms, but there is not agreed definition or any universal consensus for them. Kenny and Zysman (2016) call a “platform economy” or “digital platform economy” a more neutral term. They say it encompasses the growing number of digital activities in business, politics, and social media. For them, “platform” is simply a set of online digital arrangements with algorithms organizing and structuring economic and social activity [3].

Information technology platforms, being one of the modern forms of organizing international trade and the interaction of manufacturers of high-tech products [4], have the following common features:

- Platforms help to organize member interaction to maximize utility of the external network effects;
- Platforms are architects of economic systems, forming competitive dynamics on different levels of global value chains.
- Platforms allow you to use new instruments of creating added value through the introduction of advanced digital technologies.

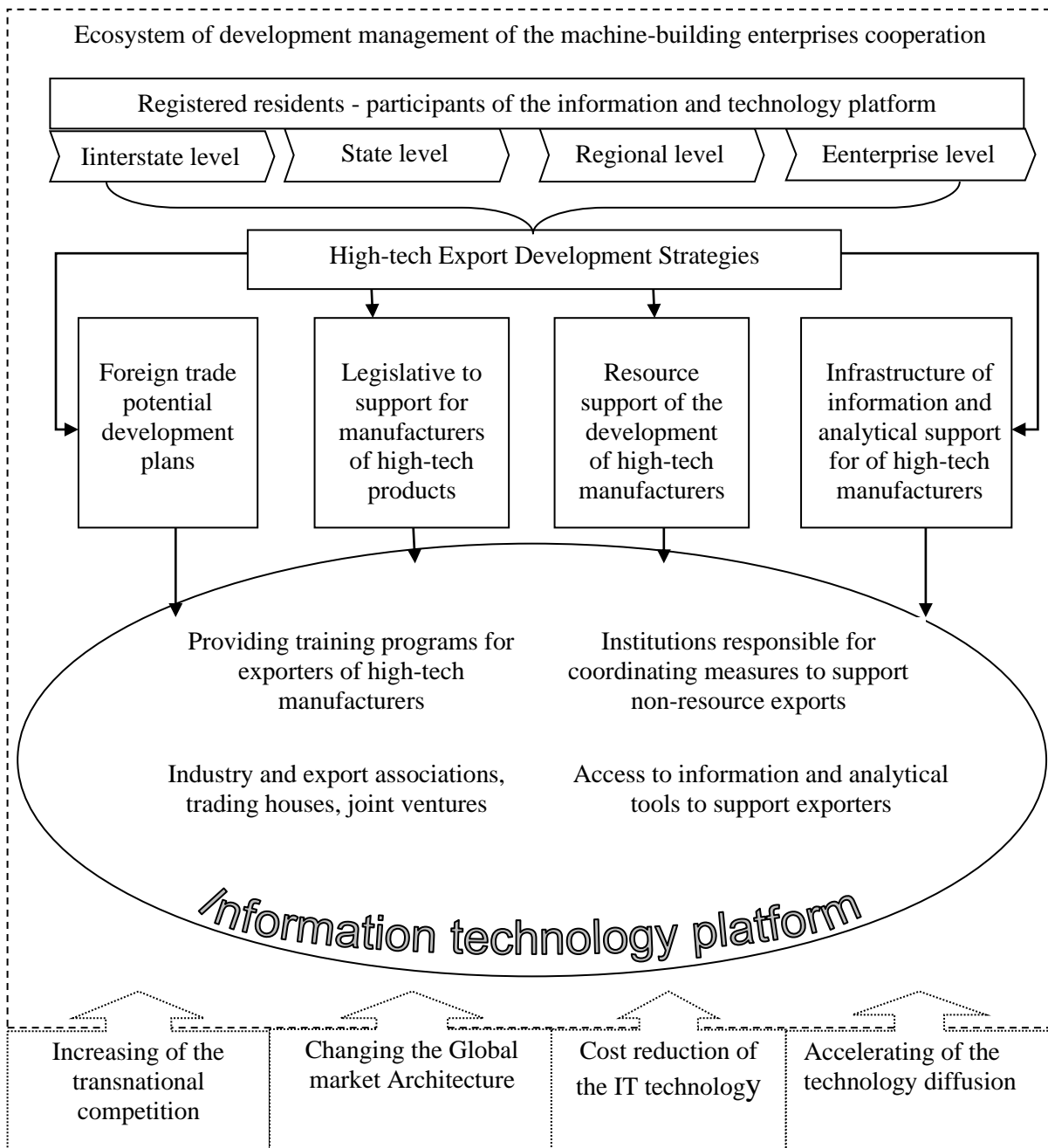
The creation an information technology platform that ensures the formation of an ecosystem of the engineering industry includes necessary components:

Resources and instruments for doing business in a digital economy;

A single digital management space for the creation and operation of industrial ecosystems in a single economic space.

The information technology platform is a communicative information and analytical instrument. This instrument is aimed at developing the foreign trade potential of machine-building enterprises by creating advanced technologies, new products, attracting additional resources for research and development based on the participation of all interested parties (business, science, the state, society), and to improving the regulatory framework in IT sector - technologies and related fields in the interests of innovative economic development.

The forming and implementation of the information technology platform of machine-building enterprises will allow enterprises to receive in electronic form and in real time any information on existing tools for increasing foreign trade potential, as well as logistics services, foreign economic activity, organization of transportation of manufactured products, insurance, customs operations , financial support of foreign trade transactions, obtaining permits, interaction with state reporting bodies.



**Figure 1.** Model of information technology platform for technological development of engineering enterprises.

A distinctive feature of the platform is the ability for third-party organizations interested in providing information, as well as any service providers (including foreign ones) to post and promote their services using the standards of the platform itself [5].

The placement on the platform new residents and modern digital instruments are the creation of new services for engineering enterprises. The platform will allow switching to the exchange of participants' data between themselves and state institutes. The development of standards will attract service providers from different countries to promote innovative services, including in the field of foreign trade.

Necessary elements of an information technology platform for managing the development of foreign trade potential of engineering enterprises (see Figure 1) they are:

- Organizations providing training programs for exporters of high-tech manufacturers
- Industry and export associations, trading houses, joint ventures
- Institutions responsible for coordinating measures to support non-resource exports
- Access to information and analytical tools to support exporters

Due to the platform approach, it is possible to quickly reach and fill the digital platform with modern services, with the compatibility of all components, seamless data transmission, faster processing and analysis of data, improving the quality of services and services, reducing their cost.

Given the above, it is necessary to develop an architecture, standards and rules for electronic interaction, design and implementation instruments for a platform in the development of industrial cooperation of machine-building enterprises, as well as the development of foreign trade and economic activity [6].

Based on the application of the concepts of the platform approach, the development of capabilities and the introduction of modern services on a digital platform are provided. While maintaining the compatibility of all platform components, it is possible to provide seamless data transfer, speeding up data processing and analysis, improving the quality of services and services, reducing their cost. Given the above, it is necessary to develop an architecture, standards and rules for electronic interaction, design and implementation tools for an open platform in the development of industrial cooperation of machine-building enterprises, as well as the development of foreign economic activity.

Areas of economic cooperation with which it is planned to establish cooperation on the information technology platform:

- Technical regulation,
- State and municipal procurements,
- Foreign trade policy,
- Customs regulation,
- Export control
- Logistics, transport and transportation,
- Intellectual property protection,
- Digitalization and information technology,
- Information security of data of residents of the platform.

Key areas of activity of the information technology platform of machine-building enterprises:

- Development and creation of innovative cooperative production systems.
- Development of joint projects for the training and retraining of personnel for machine-building enterprises.
- Scientific and technological forecasting of the production of engineering products based on an analysis of the development of promising markets.
- Among the competitive advantages of the information technology platform of machine-building enterprises, it is necessary to highlight:
- Opportunities for registering on the platform all interested enterprises and organizations and solving problems regardless of industry focus;

- The choice of strategic scientific directions in solving the problems of the information technology platform through the consensus of experts representing government, science, education, business, industry;
- Development of mechanisms for cross-platform interaction between enterprises of residents of the information technology platform of machine builders.

The information technology platform of machine-building enterprises assumes the availability of opportunities for developing the foreign trade potential of machine-building enterprises, among which it should be noted:

- Development and creation of a new generation of protected resource-saving import-substituting products for technical and special purposes;
- Identification of areas in which residents of the platform are interested in coordinating their actions and cooperating with each other at a pre-competitive stage;
- Development of short, medium and long-term development priorities in the areas of ITP in the cooperation of platform participants in the field of research and development;
- Improving legal regulation in the field of scientific, scientific, technical and innovative development;
- Formation of a list of priority projects of the engineering industry, proposals for innovative developments in promising areas of platform development;
- Implementation of project reviews in the interests of the platform, residents and external customers;
- Preparation of proposals to the authorities on measures necessary to bring promising developments to the market received as part of the platform.

On the proposed information-technology platform, complex projects of several participants can be implemented. So, to protect intangible assets and other intellectual property, as well as the intangible rights of machine-building enterprises using the platform, the development of obligations regarding the protection of data turnover is required. This issue can be resolved through the conclusion of non-disclosure agreements related to trade secrets and other intellectual property, as well as agreements to limit the free circulation of data.

The creation and functioning of information technology platforms complies with international law, and the same does not require amendments to the EAEU Treaty, the EAEU Customs Code, acts of the Eurasian Economic Commission [7].

The initiative to develop an information-technology platform for cross-industry cooperation of machine-building enterprises corresponds to the development of the digital agenda within the EAEU, in accordance with the following supranational programs: “Digital transformation of economic sectors and cross-industry transformation”, “Digital transformation of goods, services, capital markets and labor force”, “Digital transformation of integration process management processes”, “Development of digital infrastructure and securing digital processes.”

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