

# Digitalization of Administration of Foreign Economic Transactions of Industrial Enterprises

Tatiana V. Shutova <sup>1</sup>[ORCID 0000-0003-3846-9747],  
Aleksey A. Kostin <sup>2</sup>[ORCID 0000-0001-8671-5581],  
Dmitriy A. Kozlov <sup>3</sup>[ORCID 0000-0002-7460-075X]

<sup>1</sup> LEONOV Moscow Region University of Technology, Korolev, Russia

<sup>2</sup> Financial University under the Government of the Russian Federation, Moscow, Russia

<sup>3</sup> Yaroslav-the-Wise Novgorod State University, Veliky Novgorod, Russia  
shutova\_tv@mail.ru

## ABSTRACT

Expanding industrial production capabilities means gaining a competitive advantage not only for large corporations and small and medium-sized businesses, but also for leading economies to maintain, and in some cases improve their position in international trade. Undoubtedly, the Industrial Internet of Things is aimed primarily at developing the tertiary sector of the economy, but this development will take place in parallel with the transformation of manufacturing operations into open digital ecosystems that integrate various market players. The process of digitalization and the introduction of artificial intelligence into economic activity also have enormous potential for the administration of foreign economic transactions of industrial enterprises by customs authorities. Customs administration of foreign economic transactions of industrial enterprises should not be an exception in the process of universal digitalization and application of artificial intelligence. Customs administration tools need to be built on modern technology, given that they are of critical interest to the government in relation to foreign trade sustainability and national security. The large volumes of complex information submitted during customs procedures require the latest technologies, based on digitalization and the application of artificial intelligence, to be able to read texts at high speed, recognize relevant terms and images, exchange information between executive authorities as well as customs administrations, interpret the context and draw conclusions from it. These measures will assist customs in implementing strategic goals and objectives, i.e. finding a smarter way to ensure border security, protect society, ensure timely and full payment of customs duties and promote the economic competitiveness of industrial enterprises.

**Keywords:** digitalization, digital customs, artificial intelligence, neo-industrialization, foreign economic transactions

## 1. INTRODUCTION

Governments of the world's leading economies, particularly the US, Germany, China and others, are trying to implement digital platform projects where all the necessary transactions, obligations and responsibilities of market participants (B2B, B2C, B2G and, importantly, G2G) can be performed.

It is especially necessary in the sphere of economic activity, operations of which are administered by tax and customs services.

So how does the Internet of Things relate to the emerging prospect of government control? The answer is simple: governments need to independently (ideally, considering discussions and consultations with market participants) create digital platforms that allow for initial monitoring and, based on its results, post-monitoring of any transactions (commercial, foreign trade, currency, etc.) made by market participants. In this case, state control in the form of monitoring allows reducing the administrative burden on the taxpayers and participants of foreign economic activity (hereinafter – FEA).

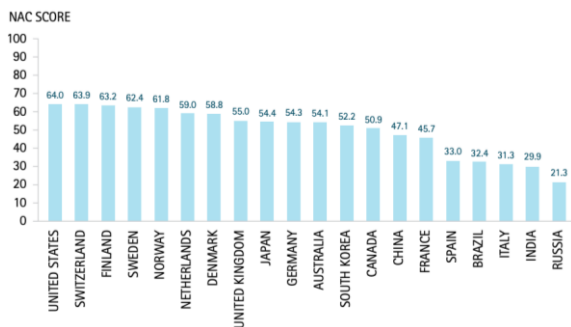
Several projects by the Russian federal executive authorities are already being implemented in trade and industrial interactions of economic operators, but they are scattered and have different degrees of effectiveness. In the sphere of state regulation of foreign economic activity much attention is paid to the issues of calculation and collection of customs duties. Most of the projects implemented by customs authorities that have common ground with the digitalization of customs operations are in one way or another oriented towards optimizing revenues for the state treasury.

**2. MATERIALS AND METHODS**

To provide a comprehensive approach to the study of digitalization in the administration of foreign economic transactions of industrial enterprises, an analysis of Russian foreign trade was carried out, which was based on international rankings as well as comparison of statistical information with foreign analytical materials.

A special role in the study was given to the analysis of Russian exports and imports.

Accenture's analysis of the NAC-index (National Economy Absorptive Capacity Index) of states with available conditions for the inclusion of the Industrial Internet of Things in the economic system has assigned Russia to a group with disadvantages, which is characterized by a lack of widespread innovation that can be converted by business into a certain multiplier effect through the ability to commercialize new ideas (Figure 1).



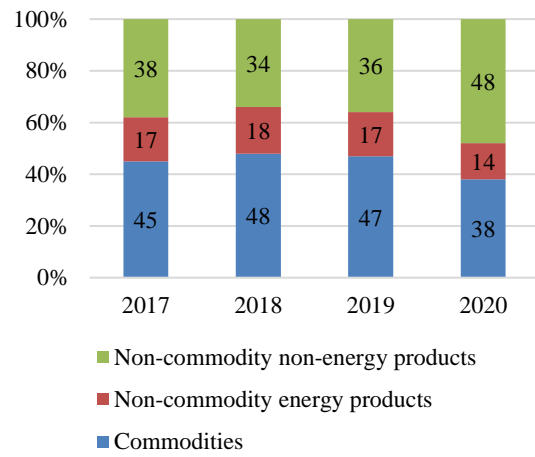
**Figure 1.** Ranking of countries in terms of enabling conditions for the Industrial Internet of Things

Source: [1]

In addition to the ability to commercialize new ideas, several indicators are assessed such as: reliability of the banking and financial services industry, the level of professional education, effective management and the integrity of counterparties. The main drivers of growth are

R&D, number of high-tech companies, level of technological skills and dynamic response to changes by government, business and consumers. For Russia, these indicators are not systematic, rather sporadic, although there are serious achievements and developments which often remain unrealized due to lack of funding.

Analyzing the structure of Russian exports, which in our opinion is an unquestionable indicator of the competitiveness of the Russian economy, one can see characteristic changes in the diversification of exported products in the last three years (Figure 2).



**Figure 2.** Structure of Russian exports by category, 2017-2020

Source: Compiled by the authors on the basis of [2]

During the study, the authors put forward the hypothesis that the digitalization of the administration of foreign economic transactions of industrial enterprises alone will not improve the performance indicators of Russian foreign trade. There is a need for a set of convenient services to facilitate foreign trade, including customs operations, and to increase the efficiency of customs control.

**3. RESULTS**

Evaluation of statistical and analytical materials leads to the following conclusions: firstly, Russian exports are declining rapidly, which is why fundamental changes in their structure are needed; secondly, currently exported raw materials and finished products are in most cases exempt from VAT, or they are subject to various exemptions; thirdly, the state government's desire to increase the volume of exports of highly processed products by applying various privileges and exemptions will inevitably lead to abusive taxation practices.

The analysis of the Russian Federation's position in various ratings leads to the following conclusion: it is characterized by low absorption capacity of the national economy. It is demonstrated by the low ability to recognize new information, assimilate it and apply it in practice for commercial purposes. This is especially noticeable in the study of foreign trade structure indicators. The increase in the NAC index is accompanied by the necessary transition to innovative growth and implementation of projects through the creation of institutions that ensure effective interaction between the state and economic actors, as well as an appropriate level of technological knowledge.

But, as C. Perez mentions in their study, it becomes clear that Russia and other developing countries are characterized by “imitation of the norms and institutions of the techno-economic paradigm”, which keeps them in the “catch-up development trap” [3].

It is worth noting the view that “as the economy approaches the global technological frontier, absorptive capacity falls and innovative capacity rises. There may be many reasons, for example, developed countries provide better protection of intellectual property rights, they have developed infrastructure and institutions that promote innovation, moreover, on average, they have better human potential, which has a greater impact on innovation capacity than on absorption capacity. At the same time, foreign direct investments both into and out of the country facilitate technology transfer through equipment imports as a result of intensified international relations” [4].

In general, the issues of import substitution have become particularly relevant at present with the introduction of economic sanctions against Russia by most developed countries. It should be noted that in the pre-sanctions period the maximum openness of Russian foreign trade contributed to the decrease in the NAC-index. The reasons were, first, the limited possibilities to use tariff and non-tariff measures to protect domestic producers. For example, the pursuit of accession and subsequent membership in the World Trade Organization (WTO) pointed to the need to abandon non-tariff regulatory measures (including indirect taxes) on imports in favour of tariff measures. However, the accession to the WTO took place at the same time with Russia's commitments to gradually reduce the level of tariff imposition of import customs duties on foreign goods. At that time, the issues of import substitution related to the formulation of a tariff

management policy to try to protect the developing high-tech industries and the establishment of a system of absorption of new technologies by granting preferential customs import duties on machinery and equipment. In the post-sanctions period, the situation has changed dramatically: now in the conditions of shortage of machinery, equipment, components and technology, Russian organizations and enterprises need to resort to the import substitution strategy.

The issues of import substitution, including the relationship with neo-industrial development, are studied by many scientists [5], and there are both positive assessments and negative forecasts. In fact, import substitution acts as a new economic reality for Russia, allowing to overcome the critical dependence on imports by developing high-tech production, thereby ensuring the saturation of the domestic market with domestic goods. This means only one thing: innovative products and services contributing to their promotion should appear on the national market. These products must be able to compete with the best foreign analogues. This barrier is being overcome precisely through Industry 4.0 with the Internet of Things technology. Let us agree with the authors who adhere to the position that the essence of modern import substitution is “patchwork or focal export-oriented import substitution”, and “the introduction of sanctions that worsen the situation in the Russian economy is not the root cause of its current state and the way out of this situation consists not only in mobilization but also in a market model, with the application of fiscal and monetary policy, mechanisms of partnership between state and private capital” [6].

The performance of the fiscal function by the customs authorities is not at all burdened by an understanding of the need to consider other functions of the tax system in the formation of customs taxation. We agree with A.G. Aganbegyan that the tax system currently does not perform its stimulating and distributive functions [7] and note the need to restructure customs taxation towards a number of areas that stimulate investment activity and the development of high-tech industries. From this point of view, the attempt of federal executive bodies to influence the development of industrial enterprises with an export orientation by granting various customs benefits through assigning the status of Authorized Economic Operator or Authorized Exporter deserves attention. However, these institutions have not been properly developed for a number of reasons, the main of which, in our

opinion, are the amount of financial guarantees and excessive bureaucracy in obtaining this status.

Again, following the international practice declared by the WTO, the system of customs taxation should be conditioned by the following criteria:

- customs tariff is the main instrument of protection and non-tariff restrictions are minimal;
- the clear majority of rates should be ad valorem;
- exceptions are limited to international conventions and agreements.

The two-tiered customs legislation (EAEU and Russia), despite numerous sources, has “grey areas” and differences in interpretation and enforcement. This tension can only be resolved through consultative interaction between customs and traders and their associations, which precludes full automation of processes and the introduction of “smart” technologies in the work of customs and participants of FEA.

Thus, customs legislation needs to adapt swiftly to far-reaching developments in technology, trends in international trade, and the economic environment in general. In turn, the strategic guidelines for the development of the Russian customs service should be as follows: establish a risk management system for commodity shipments, build smart border crossing points and introduce “tunnel technologies” with the release of goods at border crossing points.

Without synchronization and integration of customs processes with the information technologies of other agencies and services, administrative procedures for carriers, importers and exporters we can only reduce unnecessary costs, but not eliminate them completely. In addition, cooperation between customs and tax services is necessary for the administration of VAT and a fuller assessment of the risks associated with evasion of customs taxation. The use of non-formalized documents in customs operations, the duplication of information in their submission to various authorities, and repeated inspections and searches of goods are still today's realities, although their proportion is decreasing.

Further simplification of formalities related to the placement of goods under customs procedures reveals the problem of high levels of bureaucratic requirements, mainly in terms of reducing the number of documents submitted and simplifying the documentation itself. Of course, closely correlated to

this problem is the lack of ability to provide copies of commercial, transport, customs and other documents to government authorities. In these circumstances, the development of the Single Window mechanism, which in the EAEU is in the stage of active development, with the identification of strategies and responsible persons, is of particular importance.

Actually, the EAEU “single window” mechanism built from the national segments of EAEU member states acts as a factor in ensuring the development of foreign economic relations by accelerating transactions by regulatory authorities and the business community and, thus, simultaneously reducing the burden (on transaction time, financial costs, etc.) of FEA participants and state executive authorities. To date, according to studies, the average level of implementation of the mechanism in the EAEU member states is over 50%, which contributes, including through the development of information and technological capabilities, to the transition of customs authorities to the use of a cross-sectoral digital platform for traceability and regulation of goods movement.

The Russian segment of the Single Window mechanism in the EAEU is created on the basis of the relevant decisions and acts of the EAEU governing bodies.

It should be noted that the central part of the control and analytical work on the analysis, risk assessment of foreign trade and customs operations is seen as the “intelligent customs”.

Moreover, when we highlight the main target benchmarks for customs service development, we emphasize the harmonization of customs control and customs administration processes with the best international practices.

However, to build such a system of relations, the state should ensure improvement of efficiency of supervisory services organization together with growth of efficiency of control operations. Of particular importance in the course of state regulation is the interaction between customs and tax services based on the use of digital technologies, including through the construction of a Single Window mechanism, and transformed to improve information exchange and analysis.

#### **4. DISCUSSION**

The creation of “digital customs” itself has already happened in the world and in Russia: its

integral attributes are electronic declaration and dispatch of goods declarations, the implementation of customs control based on the application of risk management systems, interagency electronic interaction in customs control, etc.

The results of the analysis of foreign publications in international scientometric databases (Scopus, Web of Science) revealed a similar pattern in stating the transition from digitalization to the widespread introduction of artificial intelligence in the activities of customs administrations [8-11]. For example, “e-customs” and “digital customs” are most often synonymous. However, in more recent papers, the relationship between digitalization and the introduction of artificial intelligence into operations is prevalent among scholars.

It seems that the introduction of elements of digitalization and artificial intelligence into the process of customs administration of foreign economic transactions of industrial enterprises will be implemented differently in different states. Various factors are to blame: coordinated policies of the states on reforms, financing of such projects, training, creation of relevant legislative frameworks.

## 5. CONCLUSION

The results of the study confirm the hypothesis of the positive impact of the introduction of new technologies in the activities of customs authorities on the development of foreign economic transactions of industrial enterprises. In particular, the research carried out led to the following conclusions:

- 1) First, the Internet of Things is based on the exchange of data between objects-devices, including industrial-scale, connected to the Internet. This feature points to the need for global Internet access. However, at present, we have to state that the global network insufficiently covers Russian regions. Moreover, we noted the weak functionality of the available networks, which makes it impossible to implement projects related to the Internet of Things in every Russian region;
- 2) Secondly, the tax system in general and customs taxation in particular are oriented to perform only a fiscal function. Under these conditions, it is difficult to imagine the development of a set of measures-stimuli with the real purpose of stimulating the development of scientific and technological

potential and technological re-equipment of the domestic industry. There is no obvious interest in neo-industrial development either by business or federal executive authorities. Under such conditions, the development of concepts, strategies, and plans is meaningless, as it is unlikely to achieve any results;

- 3) Thirdly, the tax and customs systems are subject to changes related to respective changes in regulations, which in itself is a rather lengthy process. For example, in order to agree on changes to customs legislation, the approval of the five states that make up the EAEU is required, and such agreement can take years. This circumstance does not allow flexibility and responsiveness to changes in industry and trade. Systematic anticipation of change and the creation of more effective legal instruments are required;
- 4) Fourthly, “further progress is needed in reducing transaction costs, particularly in the aspect of information security, through the application of the latest digital technologies” [12]. In our view, one such solution for creating a transparent customs administration mechanism would be the Single Window mechanism currently being created in the EAEU. Already now, at the supranational level, regulations have been developed and adopted governing the establishment and operation of the Single Window both in the EAEU as a whole and in the national segments of each EAEU member state. The Single Window mechanism will be more operable if the FEA management ecosystem is complemented by a logical relationship with the tax system through the generation of invoices and other necessary documentation. But it should be noted that as a result of 10 years of active discussion of the mechanism there is no understanding either in Russia or in the EAEU on how the Single Window mechanism will be implemented and which executive authority is able to coordinate the functioning of the Single Window mechanism. At present the project is characterized by passive participation of some state bodies and authorized organizations, the lack of key elements, conditioning electronic information interaction (there is no unified data model, unified normative-reference information, classifiers), as well as difficulties with

financing. All this once again points to the complexities of both digitalization and neo-industrial development in Russia.

The results of the study have practical relevance in the context of prospective assessment of digitalization processes and the creation of conditions for the implementation of digital projects to address issues related to the acceleration of foreign economic transactions of industrial enterprises through the improvement of their administration.

### **AUTHORS' CONTRIBUTIONS**

Tatiana V. Shutova: overall management of the project, analysis and additions to the text. Aleksey A. Kostin, Dmitriy A. Kozlov: collection and processing of materials, preparation of the draft version of the paper.

### **REFERENCES**

- [1] "Winning with the Industrial Internet of Things", HBR: radiofrequency technologies, 2015. Retrieved from <https://halberdbastion.com/technology/iot/winning-industrial-internet-things>
- [2] "Russian Exports Analysis" [Analitika po eksportu Rossii], "My Export" Digital platform [Tsifrovaya platforma "Moy eksport"], 2021. (In Russ.). Retrieved from [https://www.exportcenter.ru/international\\_markets/russian\\_exports](https://www.exportcenter.ru/international_markets/russian_exports)
- [3] C. Perez, "Technological revolutions and financial capital: the dynamics of bubbles and golden ages", Cheltenham, UK; Northampton, MA, USA: E. Elgar Pub., 2002, 198 p.
- [4] V.I. Kuts "Absorption capacity of the national economy as a condition for the growth of competitiveness of national industries" [Absorbtsionnaya sposobnost' natsional'noy ekonomiki kak usloviye rosta konkurentosposobnosti natsional'noy promyshlennosti], *Economic and Law Issues*, 2011, vol. 8, pp. 95-100. (In Russ.).
- [5] S.A. Tolkachev, O.I. Dontsova, O.O. Komolov, "Russian industry: the impact of sanctions and import substitution prospects", *Journal of Economics, Entrepreneurship and Law*, 2019, vol. 9(4), pp. 271-288. (In Russ.). DOI: 10.18334/epp.9.4.41512
- [6] M. Klinova, E. Sidorova, "Economic sanctions and EU-Russia economic relations", *Voprosy Ekonomiki*, 2014, vol. 12, pp. 67-79. (In Russ.).
- [7] A.G. Aganbegyan, "On tax Reform", *Economic Policy*, 2017, vol. 12(1), pp. 114-133. (In Russ.). DOI: 10.18288/1994-5124-2017-1-05
- [8] A. Karampour, K. Sharifi, Sh. Safabakhsh, "A model for assessing the impact of resource-based approach based on cost leadership strategy on export performance in non-metallic minerals industry", *Business Administration (Management Faculty of Tehran University)*, 2012, vol. 4, pp. 113-128.
- [9] K.S. Pavlova, E.S. Smolina, "Digitalization of Tax and Customs Control of Foreign Trade Operations", in Ed. by S.I. Ashmarina, J. Horák, J. Vrbka, P.Šuleř, "Economic Systems in the New Era: Stable Systems in an Unstable World", *IES 2020, Lecture Notes in Networks and Systems*, Springer, Cham., 2020, vol. 160, pp. 684-691. DOI: 10.1007/978-3-030-60929-0\_88
- [10] D. Desiderio, "Data analysis techniques for enhancing the performance of Customs", *World Customs Journal*, 2019, vol. 13(2), pp. 17-22.
- [11] A.S. Hamidreza, S. Masumeh, "The effect of electronic customs administration on facilitating the export activities of export companies based in Gilan, Iran", *Intellectual Economics*, 2016, vol. 10(2), pp. 114-121. DOI: 10.1016/j.intele.2017.03.004
- [12] V.P. Vishnevsky, L.I. Goncharenko, I.V. Nikulkina, A.V. Gurnak, "Taxes and Technologies: Past, Present and Future of the Russian Tax System", *Terra Economicus*, 2020, vol. 18(4), pp. 6-31. (In Russ.). DOI: 10.18522/2073-6606-2020-18-4-6-31