Comparative analysis of digital customs technologies

Loginova Natalia Anatolievna

Doctor of Economic Sciences, Full Professor

St. V.B. Bobkov branch of the Russian Customs Academy

Abstract. The article presents the results of a comparative analysis of digital customs technologies in order to clarify the features of the development of customs authorities in terms of the transformation of their key processes. The application of methods of analysis and synthesis made it possible to identify and describe the problems of digitalization in the customs authorities of the Russian Federation. The results obtained can be used in the activities of customs authorities and enterprises participating in foreign economic activity in predicting the results of main and economic activities, as well as in conducting scientific research.

Keywords: technology, digital customs, digital economy, customs authorities

The term "digital customs" was introduced by the World Customs Organization in 2016. From now on, customs authorities should actively demonstrate the use of information and communication technologies in order to collect and ensure the payment of customs duties, control the movement of goods, people, vehicles and funds, as well as to ensure the security of cross-border trade. Russian customs authorities are introducing digital technologies that have been able to successfully prove themselves abroad, which have been recommended for use by the World Customs Organization [6]. Let us consider how the Russian experience in implementing digital customs technologies differs from the leading international experience on the example of electronic declaration, preliminary notification and auto-registration, and auto-release.

1.Electronic declaration. The world leader in the development and application of electronic declaration, as well as the development of the digital economy, is undoubtedly the United States of America (USA). Back in 1984, the United States began to implement the system of automation of customs clearance and control processes ACS (*Automated Commercial System*), which was basically completed by the mid-90s of the last century. It was during its creation that the basic principles of electronic declaration were formulated [3]. The following data show the size of the automation of US customs activities: the AGS system includes 200 subsystems, 800 different databases, 3200 programs. Over the year, 18 million import declarations are processed in electronic form, which is 98% of all completed declarations in the

country. The system's subscribers are customs brokers, carriers (sea, rail; air, road), banks, federal regulatory authorities, the Ministry of Commerce, etc. One of the main functions of ACS is to analyze received documents in order to select cargo, i.e. definition of goods that, for one reason or another, are subject to customs inspection. At first, the system was focused on the introduction of technologies for the electronic declaration of goods transported by sea, which is most important for the United States, then it began to develop in relation to other modes of transport. In the United States, there is a legal framework for the electronic declaration of goods, i.e. Legislatively resolved the issue of the same responsibility for declaring, in whatever form it is organized: in electronic or paper (1–2% of goods are drawn up on paper) [1].

In Russia, electronic declaration has been mandatory since 2014. Since then, almost absolute electronic declaration has been provided in the Russian Federation (fig. 1).
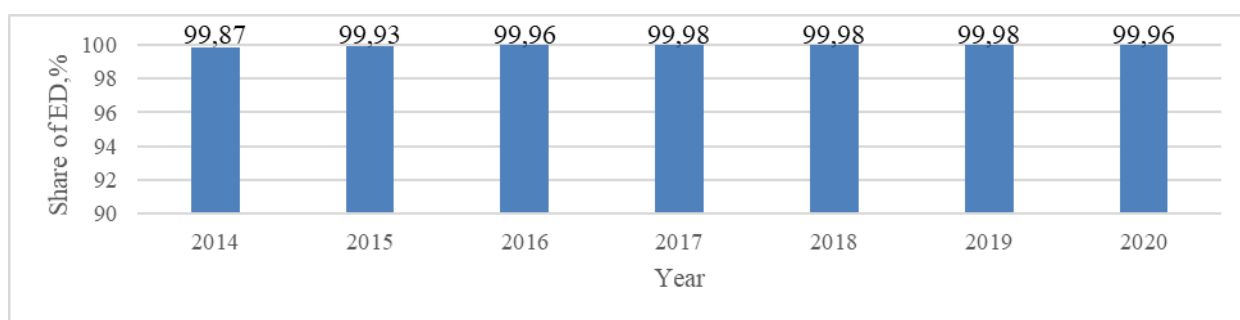

Fig. 1. Dynamics of the share of electronic declarations in their volume [4]

One of the significant problems is the imperfection of operations related to the issues of electronic declaration. Since all customs formalities can be performed only during working hours, in the morning there is an accumulation of a significant array of declarations on the servers, which certainly leads to a slowdown in the performance of the information systems involved. At remote checkpoints, most often there is only satellite communication, there is a lack of information infrastructure, despite the fact that the flow of information increases annually. That is, despite the positive effect of the introduction and operation of electronic declaration in the activities of customs authorities, there are a number of problems, which include the following:

1. Incomplete consistency of the Unified Automated Information System (UAIS) of customs authorities and other information resources to modern requirements.

2. Lack of sufficient financial investments aimed at the development of information technology infrastructure used in customs, automation of new tasks controlled by the Federal Customs Service of Russia.

3. A small indicator of the unification of software and hardware that make up the information infrastructure of the customs services.

4. Errors in the formats of forms of electronic documents, which entails distortion and incomplete provision of information [5]

5. Failures in the operation of software and communication channels associated with the uneven coverage of the territory of the Russian Federation by high-speed communication channels [7].

For an immediate search and elimination of the identified problem points, the customs authorities should interact with all bodies exercising control functions involved in the scheme of movement of goods across the border of the Russian Federation, and conduct a dialogue with participants in foreign trade activities.

2. Preliminary information. Preliminary information has been actively introduced into the process of state control since the beginning of the XX century: after September 11, 2001, the issue of ensuring the security of international contacts has become relevant for every country. The United States was the first to use such technology in 2001 after the creation of the Customs and Trade Partnership Against Terrorism (C-TPAT) program.

In 2003, the World Customs Organization (hereinafter - WCO) developed the "Framework Systems of Standards for Security and Facilitation of Global Trade" (SAFE), which formed a three-tier structure of customs operations (advance notification, declaration, payment of payments) based on the principle of a single window.

For example, in the European Union, since January 1, 2011, a mandatory PI was introduced throughout the European Union (hereinafter referred to as the European Union, EU) and at present all foreign sea lines operate in this standard in accordance with UN CEFACT International Recommendations as an integral part of a single window. The customs legislation of the European Union stipulates that PI on the arrival/departure of goods before their import / export from the EU is considered in conjunction with the Risk Management System (hereinafter - RMS), built on uniform criteria for selecting risk areas for control activities (based on computerized systems).

In European, American and Asian single window systems, manual data processing is minimized thanks to the PI system - the information provided by the carrier goes to the RMS of the central customs authority, where, based on the automatic comparison of information with risk profiles, a decision is made on the level of control of goods in the seaport. The decision is automatically communicated to the customs inspectors at specific posts. For example, in the Dutch customs 92% of cargoes are marked "green corridor", 3% - "red corridor" (check for IDK is required) and 5% - "orange" - spot check for IDK [8].

In Russia, preliminary notification has become mandatory since 2018. Prior to the establishment of a mandatory PI of customs authorities at the level of the EAEU law, the Federal

Customs Service of Russia presented an information system - KPS "Portal "Sea Port". At the same time, the trial operation showed that some refinement of the technology is necessary, since the solution of problems is important for the high-quality provision of public services [8]. Now the following problems are relevant for preliminary information in the Russian Federation: full-fledged interaction with the Rosselkhoznadzor authorities has not been established. Until now, other regulatory bodies do not actually work with the "Sea Port Portal"; there is no "connection" of the KPS of the "Portal Sea Port" with other KPS within the EAEU, that is, it works autonomously; there is no opportunity to manage risks, that is, the information received upon arrival of the goods cannot be analyzed by the customs authorities, on their basis no decisions are made to minimize risks; large time costs for entering information about imported goods, both from participants in foreign economic activity and from the side of customs authorities, the provision of information on prohibitions and restrictions in electronic form is not provided in response to information provided by the carrier about the arrival/departure of the vessel and cargo or the cargo owner about consignments from other regulatory authorities [2].

3. Auto registration / auto release. As an example, consider the experience of the United States. The system of customs clearance of goods in the United States is based on the principles of creating a complete electronic description of goods, i.e. computerization of information about the goods during their transportation from the point, loading overseas to the point of unloading and release in the United States. The whole point is that the electronic image of the goods is created in the Data Processing Center of the US Customs Service from data that is received from the carrier, broker, other government agencies, service services, banks, etc. and the declaration is also given there in electronic form, which is required in certain cases. It is there that a decision is made, which is brought to the attention of the checkpoints. It should be noted that the Data Processing Center is a kind of place for the formation of customs clearance of goods and, at the same time, for the main customs control [1].

In Russia, in recent years, the technology of automatic customs operations has been developing quite rapidly, as indicated by the data given in tab. 1.

Table1

Results of application of auto-registration/auto-release [4]

Indicator\year	2017	2018	2019	2020
The number of diesel fuel that were registered automatically, mln.	0.96	1.8	2.8	3.8
The number of DT automatically produced, mln.	0.084	0.32	0.64	1.08
Share of automatically issued electronic declarations filed by low-risk foreign trade participants for exported goods,%	28.2	46.9	75.9	93.7

Share of automatically issued electronic declarations filed by low-risk foreign trade participants for imported goods,%	7.3	26.6	57.3	86

The active use of information systems for auto-registration and auto-release creates additional risks. These systems can increase the risk of evading customs duties. The transition to the exchange of commercial information in electronic form, gaining automatic access to the information resources of state bodies requires an increase in the degree of protection of information resources, an increase in the range of measures to ensure information security. In order to counteract the violation of customs legislation, it is necessary to increase the efficiency of the application of the elements of the risk management system.

The results of the systematization of the key provisions of the comparative analysis of digital customs technologies are presented in tab. 2.

Table 2

Comparative analysis of digital customs technologies

Technology	Russian practice	Foreign experience
Electronic declaration	Electronic declaration is mandatory since 2014. Topical problems of the quality of information systems	Long-term experience of using electronic declaration systems
Advance informing	The "Single Window" mechanism is partially implemented	Implementation under the "Single Window" mechanism
Auto registration/auto release	Application of technologies to participants in foreign economic activity of a low risk category for two customs procedures	High level of automation of customs operations

Thus, based on a comparison of the leading international practice and Russian experience in matters of electronic declaration, preliminary notification and auto-registration/auto-release, it can be concluded that the Russian customs authorities, despite significant success in these areas, are in some way lagging behind their leading foreign colleagues. Bridging the gap between best practice and the current performance of Russian customs authorities is an urgent task at the present time.

In general, it is important to emphasize that today the customs authorities of the Russian Federation use various modern digital technologies. Among them, it is worth highlighting: automatic registration and release, preliminary notification, electronic declaration, remote release of goods, RMS. The Federal Customs Service of the Russian Federation in every possible way contributes to the increasing introduction of information technologies in its activities, as this helps to reduce the time for performing customs operations and the process of performing customs control. However, despite the complexity and a number of problems associated with the

introduction of promising information customs technologies, the FCS can be confidently called one of the most technologically advanced and technically equipped services in Russia.

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