

International Trade and Customs Operations in Digital Era

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Abstract—The article endorses the need for modern automated environment and substantial automation of Russian customs to meet growing requirements of international trade and transport operations. The authors examined international experience of leading countries in digital customs, in comparison with the timetable for enlargement of the of digital customs operations in Russian Federation and current status of electronic document flow and interaction between the customs authorities of member States of the Euro Asian Economic Union (EAEU). The conclusion was made that extensive use of integrated information technologies in customs offers effective interaction of customs authorities with both governmental organizations and international trade stakeholders. The balance is important between unimpeded passage for goods and passengers through the customs border and trade security requirements. Identifying high-risk goods and safety of the Russian Federation and its citizens is extremely important goal of the customs administration. Customs processes are intended to protect the international trade logistics and supply chain from threats posed by smugglers, commercial fraudsters, terrorists and potentially

dangerous goods for life and health and, at the same time, to streamline trade processing with low risk operations across all business capabilities. More automated customs system grants achieving this balance.

Keywords—*digital customs, automation of customs operations, electronic customs declarations, automated clearance, information and communication infrastructure*

I. INTRODUCTION

The mission of the Customs Authorities of the Russian Federation (RF) is to contribute to the security of the Russian economy, as well as to the protection of its citizens from forged and dangerous products, undeclared import of drugs, weapons and explosives. Customs procedures are rather complex, assuming interaction of specialists in international trade, customs officials and other participants involved [1]. Part of this mission is also to create a favorable business

climate and to protect the domestic production and markets. Upcoming digital technologies impose new format for applying customs procedures. The customs in digital age should possess a modern feature of artificial intelligence: being a system with internal and external environment effectively linked, an ally for international trade participants and an efficient governmental body. Therefore, the key task of the Russian Federal Customs Administration (FCA) is the digitizing of customs operations, followed by the introduction of the electronic document management systems (EDMS). In this respect, the purposes of the study are to examine the international experience in the area of digital customs procedures and to identify the status of digital customs methodology and operations in Russia.

II. METHODS

The theoretical basis of this research paper is the results of developments and implementation of national and external experts in the area of customs procedures, digital technologies, EDMS and international trade. The practical basis of the research is international experience in efforts to modernize and to streamline trade processing across all business capabilities.

III. BACKGROUND

Referring to the studies of other countries experience, it should be noted that the electronic form of declaration was initially developed in the United States of America (USA) and Japan, as well as in a number of European countries. At the same time, national electronic declaration systems still obtain their own numerous individual features, what makes international integration of document flow quite questionable. This issue has been addressed at the level of different international organizations, including the World Customs Organisation (WCO) [2].

In early 1990's the US customs started using the automated Commercial System (ACS) to file import data and to track, control, and process all imported goods. Later ACS became the basis of the Automated Commercial Environment (ACE), the system through which the trade community reports imports and exports. ACS gave the opportunity to reduce the number of required documents, as well as timing. To achieve this goal, international trade stakeholders submit information on their activities, in the form of electronic customs declarations, to relevant supervisory bodies, transport companies and owners of authorised temporary storage facilities. Then, information about the consignments is collected in the customs data processing center. ACS performs verification and evaluation of received information, in unified automatic mode, excluding human factor. As a result of information evaluation, based on 42 criteria, all incoming goods are divided into two main groups: not subject to control and those requiring additional verification. Then information is directed to local customs authorities. Based on the results of the verification, decisions are made, either on customs clearance of goods or on the conduct of document control, followed by the request for additional documents by customs authorities [3].

A key component of ACS was the Automated Broker Interface (ABI) system, which allows qualified stakeholders to electronically file required import data with Customs [4]. By the same principle, the Portal for Electronic Declaration of goods in Russian Federation is functioning (relevant information is published on the official website of the Federal Customs Administration of Russia).

In addition, the USA use the nationwide Automated Export System (AES) operational at all ports and for all methods of transportation. It was designed to assure compliance with and enforcement of laws relating to exporting, reduce duplicate reporting to multiple agencies, and improve stakeholders' customer service. AES is the central point through which information about exports passes. This system gives you the opportunity to interact with US Bureau of Industry and Security, the Directorate of Defense Trade Controls and other federal agencies involved in monitoring and verification of exports. Customs representatives, banking institutions, carriers of all transportation types, the Ministry of Commerce, federal control bodies and other services are also interlinked to this system. The system's data is also transmitted electronically to the US Customs and Border Protection [5]. Full commodity description is compiled by the exporter at the moment of shipment, followed by complement information from the carrier when the product is released in the USA [3]. Consequently, the US export control system operated on the "Single Window" principle.

There is an interesting practice in the European Union (EU) using the New Computerized Transit System (NCTS) as a system of electronic declaration and processing for electronic execution and control of transit customs procedures in the on-line mode. The system provides data exchange between customs institutions of all EU member states, as well as other state institutions involved in the goods customs clearance and control processes, regardless the transportation method. When entered a transit declaration into the NCTS an electronic message is sent to the customs office of departure. If your declaration is accepted the system will allocate a movement reference number. The Anticipated Arrival Record message is sent by the office of departure to the destination customs office. Goods moving under the transit procedure must be accompanied by a Transit Accompanying Document (TAD) for presentation at destination or in case of diverted goods or any incidents during transit. When the goods arrive at the destination country, it's important that the TAD is presented to customs at the office of destination, so they can inform the NCTS that the goods have arrived. NCTS operated at the following levels: between economic operators and customs authorities; between customs authorities of the same country; between EU national customs authorities and the EU Commission. It is for the first time, NCTS is allowed to be used by non-EU countries for transit operations that begin, end or transit a third (non-EU) country.

The "AREX" information system for customs administration used in Finland is also considered as a worldwide success. For example, residents from Russia may use as the "Web AREX" system, what is necessary for the preliminary Declaration of incoming and outgoing cargo, and the "Web Transit" system, which provides registration of

transit transportation. In particular, it means vehicles under the TIR Carnet, permitting sealed road transport shipments to traverse European TIR-members countries without undergoing customs inspection until reaching the destination country.

Since 01.01.2010 customs declarations in EU are submitted only in electronic form via the Internet, and subject to pre-registration of business entities (stakeholders) in the "Economic Operators Registration and Identification System" (EORI). An international trade participant could get an EORI number in any EU country, to be valid throughout the EU. For instance, the EORI number issued in Finland to a stakeholder from Russia has got the format FIRU1234567890123. A Russian carrier in Lithuania receives a different format number: LTRU1234567890. To get the main EORI number, you should fill out the application form and send it to the Finnish customs [3].

It is also possible for international trade stakeholders, to submit declarations by means of a KATSO identity card - electronic identification and authorisation system for companies. Therefore, stakeholders could get authorization in "AREX" system by using a free of charge KATSO certificate issued by the Finnish Tax Service.

It should be noted that information systems of some other customs administration also operate on a basis of similar "Single Window" principle, among them - customs of Sweden, Singapore and South Korea [3].

Chinese customs administration is also focused on automated clearance scheme. As a result, most customs declarations are now made on-line without manual review of each shipment by the Customs. The handling of electronic declarations in China is carried out as follows:- sending the declarations and other data to customs in electronic format;- their inspection and risk analysis by customs authorities ;processing of declaration by customs in selective mode, depending on the evaluated risk level . The system checks and releases automatically low-risk cargo, with no requirements for customs payments, taxation and submission of permits. As for high-risk commodities, their verification is performed manually. After the customs clearance of goods on the basis of an electronic permit, information is sent to the regulatory departments of the cargo recipient company or the sender company [6].

The experience of separate leading countries indicates that implemented by them systems of electronic document flow for customs operations and control provide, despite significant required investment, encouraging economic effect. Definitely, Russia has taken already significant steps in that direction, but, to achieve further enlargement in digital customs throughout the EEU, it is necessary to carry out more in-depth analysis of constructive practice achieved by foreign countries and our major trading partners.

IV. RESULTS

It is advisable to have customs procedures easy to spread over. But the balance is important between unimpeded passage for goods and passengers through the customs border and trade security requirements. Identifying high-risk

consignments/goods that could have serious implications for the security and safety of the RF and its citizens is extremely important goal of the customs administration. In other words, customs procedures are intended to protect the international trade logistics and supply chain from threats posed by smugglers, commercial fraudsters, terrorists and potentially dangerous goods for life and health and, at the same time, to streamline trade processing with low risk operations across all business capabilities. More automated customs system grants achieving this balance.

In 1990s the Russian customs authorities took major steps to revamp their efforts in digitizing of customs operations. Today, the result of these efforts is an integrated automated information system (EAIS) used by customs authorities around clock in real time. The system includes 69 information sources, 81 software tools, 2 thousand data transmission channels and allows to process 35 million digital messages daily [7]. Generally, payments are debited from a Single Personal Account within 6.5 seconds and consignments are examined for risk assessments within three seconds. Overall, a request is processed in the System of Interdepartmental Electronic Interaction (SIEI) within 30 seconds [8]. By the end of 2019, 2.8 million of Customs Declarations (CDs) were processed completely in automatic mode, the registration was taking about three minutes (among all CDs for imports-70%, for exports-88.4%). In 2020, the level of CD processing in automated mode should reach 99%.

CD automated mode processing indicators: more than 640 thousand declarations for consignments per year and the average time required for the release of goods - five minutes. The trend of reducing time required for the release of goods is shown in figure 1.

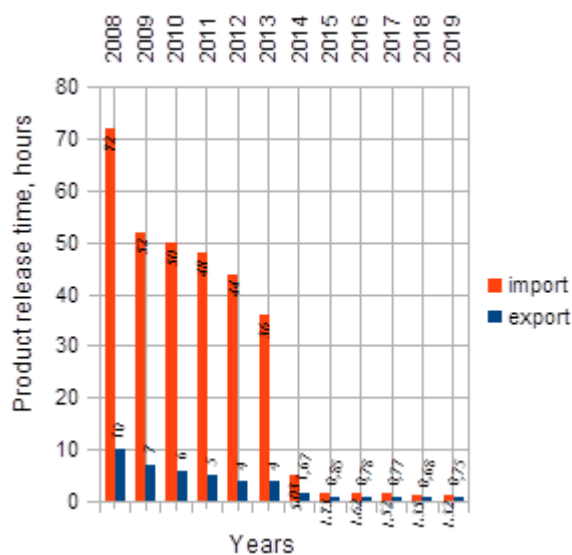


Fig. 1. Average time required for the release of goods in hours (for risk-free consignments)

Among all CDs, part of automatically released CDs, in case of low risk level organizations, was 60.6% (for imports) and 80.3% (for exports). For such organizations the value of Key Performance Indicators (KPI) for this year is 80%. It is known that, according to the WCO recommendations and

international customs practice, organizations are assessed as high, medium and low risk in terms of customs operations.

Part of electronically submitted transit declarations (ETD) is growing, now it is more than 99%. More than 43 thousand ETD have been registered automatically, and more than five thousand have been released (passed through customs clearance) automatically.

While evaluating the progress in developing an electronic document system in customs and other state control organizations, it is essential to assess the enormous path of disabling various obstacles in a short time. The timetable of the enlargement of digital customs procedures in Russia is presented in table 1 below.

TABLE I. TIMETABLE OF THE DEVELOPMENT OF DIGITAL CUSTOMS PROCEDURES IN RUSSIA

Stage	Content of the development stage
2008	initial level of electronic declaration of goods
2010	growth point of electronic declaration centers and primary remote release of goods
2012	the introduction of preliminary informing on the vehicles
2014	the share of electronic declaration is 99.9%, auto-registration of export declarations, preliminary information on railway transport
2015	auto release of exported goods, electronic transit, primary auto-registration of declarations for import
2016	auto release of goods on import
2017	start of creation of regional electronic customs offices, preliminary information on air transport, Unified personal account, Deposit of money in electronic form
2018-2019	<i>improvement of automatic decision-making technologies, implementation of the "Tax Free" system, automation of customs transit procedures, completion of work on the introduction of a pre-notification mechanism for all modes of transport.</i>

To implement information technologies for customs operations, the FCA of Russia created an Information and Communication Infrastructure (ICT), which is a combination of computer-based information systems, information security systems, facilities and tools for information control and transmission with integrated communication lines and data transmission channels, guaranteed and uninterrupted power supply systems, temperature and humidity monitoring systems, integrating fire protection and security systems. As a result, ICT gives the opportunity to streamline trade processing across all business capabilities and functions of customs authorities [10].

V. DISCUSSION

An analysis of international experience [11], [12] demonstrates that a high level of efficiency can only be achieved by establishing partnership between customs administration services and business. Table 2 shows

indicators that describe international trade carrying out in Russian Federation and other member states of the Eurasian Economic Union (EEU), in terms of "Ease of doing business" ranking according to the World Bank.

Analysis of table 2 data indicated that export-import operations cost in Russia is rather high, even among the EEU members. These data demonstrate negative trend in terms of customs operations impact on business expenditures. To align the negative trend, full-scale automation of customs activities is necessary, including digital transformation of customs operations through application of artificial intelligence tools for processing huge amounts of data [13].

TABLE II. VALUES OF INDICATORS THAT CHARACTERIZE THE COMPLEX INDICATOR "INTERNATIONAL TRADE" IN THE EEU COUNTRIES IN 2019 [14]

Indicator name	Measurement unit	Russia	Belarus	Kazakhstan	Armenia	Kyrgyzstan
Trading across borders	rank	99	25	102	46	70
Time to export: -border compliance -documentary compliance	Hrs	71	5	105	39	5
	Hrs	25	4	128	2	21
Cost to export: -border compliance -documentary compliance	US dollar	580	108	470	100	10
	US dollar	92	60	200	150	110
Time to import: -border compliance -documentary compliance	Hrs	30	0	2	3	72
	Hrs	43	4	6	2	36
Cost to imports: -border compliance -documentary compliance	US dollar	588	0	0	0	512
	US dollar	153	0	0	100	200

It is worth noting that the WCO recommendations are aimed at turning a customs system into a system of customs services in XXI century. Customs acts as a direct regulator of the processes associated with the movement of goods through customs border, and impact deeply on various components of national security, such as: being a significant source of revenue for the federal budget, protecting the population and public health, preventing customs offences, promoting economic growth, and what ultimately matters the most, consumer welfare and satisfaction.

Information technology has become a Russian FCA strategic resource. Although substantial steps taken in customs digital transformation, there is a need for addressing certain remaining issues related to the use of information technologies for customs purposes.

One of the issues is only partial compliance of the Unified Automated Information System (UAIS) used by customs authorities with new EEU requirements. More specifically, incompliance relates to the context of information interaction, integration of information and communications technologies (software and technical infrastructure solutions) of the EEU member states customs authorities. In authors opinion, the increase risks of unauthorized access to the UAIS from the global Internet domain obstructs the further development of electronic document flow between the customs bodies, both within Russia and within the EEU. It creates some confusion throughout interaction between customs authorities of different EEU member states [15]. Accordingly, the effectiveness of the System of Interagency Automated Interaction (SIAI) is reducing.

VI. CONCLUSION

Concluding: it is quite obvious, that only wide use of integrated information technologies in customs activities offers effective interaction of customs authorities with both governmental organizations and international trade stakeholders. However, further improvement of the customs information systems is not possible without thorough systematic work to study and prevent problems that arise when exploring information technologies. Continuous monitoring of software products compliance with customs activities will give the opportunity to customs authorities to keep them improving while solving their tasks in the future.

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