

Perkhurovich Maria Aleksandrovna

Belarusian National Technical University

The research Advisor: Veremeychik Olga Valereyvna, PhD in Pedagogics, Associate Professor

**INNOVATIVE INFORMATION TECHNOLOGIES IN CUSTOMS
AFFAIRS***Research Field:**Modern technical means as a basis of the effective border management*

In recent years, the use of modern equipment, software and new information technologies has underpinned economic activities. International trade and its accompanying activities are no exception, as a result of which customs control bodies embark on automating most of their processes. This trend gives rise to the emergence of a new type of communication between the parties involved in the international commodity exchange¹.

Currently, information technology and digitalization are used in all spheres of human life, as well as in customs. The need for the use of information technology is an obvious factor. They contribute to: control over the participants of foreign economic activity, speed up process of customs clearance and control, increase in trade turnover and economic growth of the country.

The world is turning digital, faster than we could have imagined, and public administrations are also moving online just as fast. Information and Communications Technology is everywhere in today's Customs workplace: in office automation, publication and dissemination of information, making declarations with the help of automated clearance systems, risk management, undertaking validation and processing, and issuing approvals. ICT has transformed the way that Customs and governments operate. Digitalization in customs facilitates international trade, helps achieve high quality customs administration².

The main information technologies in customs are:

- Navigation seals
- Electronic nose
- Electronic digital signature
- Robotics
- Application of RFID technologies
- Muon tomography in customs control

¹ 1.Momchil, Antov The role of information technologies in the development of customs control in the Republic of Bulgaria / Antov Momchil // World Customs Journal. – . – T. Volume 11, № Number 2. – C. 103

² Digital Customs, the opportunities of the Information Age [Electronic resource]. – Mode of access: <https://mag.wcoomd.org/magazine/wco-news-79/digital-customs-the-opportunities-of-the-information-age/>. – Date of access: 12.04.2023.

- Computer tomography

Navigation device (seal) is a device that provides the identification of goods and gives a remote control over the objects' movement. The transmission with the help of the tracking system presents the information related to the transportation of goods which are under customs control. Navigation seals are designed to control the movement of goods and vehicles. In addition, seals guarantee the safety of the cargo, since it is impossible to open the vehicle body without damaging the seal. The advantages of using navigation seals are: total control of cargo movement, reusable, detailed information about all manipulations with the container.

An electronic nose (E-nose) is an instrument which comprises an array of electronic chemical sensors with partial specificity and an appropriate pattern-recognition system, capable of recognising simple or complex odors. It is specifically used to sense odorant molecules in analogy to the human nose.¹ The electronic nose can be used to detect explosive devices in airports. Customs officers can also use the device to find smuggled drugs and concealments.

Electronic signatures provide a quick and easy way to sign electronic documents without having to print paper or sign with wet ink. It is a process in which computers are used to certify the integrity of a document and authenticate the person signing the document (the signer).² Now the vast majority of signatures are based on flash drives with a key that certifies the data in special reporting programs. In this respect electronic signatures help optimize the work of customs authorities and save time.

In nearest future artificial intelligence and robotics will be widely used in customs affairs. Now it is clear that such technologies must be used by customs and they are already used in some countries. The application of robotics can improve the capacity of customs clearance points. For example, the widespread use of drones significantly increases the efficiency of customs control both at the checkpoint (control of vehicles in the neutral lane on the way to the border) and during customs escorting of cargo.

RFID tags are used to identify a variety of objects contactless by means of a radio signal. When crossing the customs border, a vehicle simply passes through a scanner that reads the information from RFID tags in seconds. The information obtained will be sent to the customs authorities and compared with the information that was provided in the advance notification.

¹ Electronic Nose Feature Extraction Methods: A Review [Electronic resource]. – Mode of access: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4701255/#:~:text=An%20electronic%20nose%20\(E%2Dnose,analogy%20to%20the%20human%20nose..](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4701255/#:~:text=An%20electronic%20nose%20(E%2Dnose,analogy%20to%20the%20human%20nose..) – Date of access: 04.04.2023.

² What is an e-signature (electronic signature)? [Electronic resource]. – Mode of access: [https://www.techtarget.com/searchcontentmanagement/definition/e-signature#:~:text=An%20e%2Dsignature%20provides%20a,signing%20the%20document%20\(signer\)..](https://www.techtarget.com/searchcontentmanagement/definition/e-signature#:~:text=An%20e%2Dsignature%20provides%20a,signing%20the%20document%20(signer)..) – Date of access : 04.04.2023.

Advantages of muon tomography are high penetration ability, no additional radiation exposure of stuff and detailed control of goods and vehicles. The possibility of creating a three-dimensional image of the object under control makes it a promising method of introscopy in customs control of large-sized cargo.

Computerized customs scanning has also found application in the customs affairs. Scanning helps to quickly carry out a detailed inspection of shipments. During the scanning process, images of the cargo in two projections are displayed on a monitor. A customs officer analyzes the images. If suspicious content is found, goods are scanned for a detailed inspection. If the customs officer finds no suspicious content, the vehicle is released.

The rapid introduction and usage of the above mentioned technical devices increases the efficiency of customs affairs on the customs border of the EAEU, reduces the time for customs control, and promptly detects illegal movements of goods. The implementation and modernization of technical means of customs control allows customs authorities to perform their functions efficiently, accurately, and promptly. At the same time it should be noted that technologies based on artificial intelligence are able to perform human-like actions but it is still not possible for AI to replace human intelligence. Technical means greatly simplify the work of a customs officer, but the key role is played by people.

Polianina Anastasiya Sergeevna

Euphrosyne Polotskaya State University of Polotsk

Scientific supervisor: Grikis Vasily Petrovich, senior lecturer at the department of Constitutional Law and Public Administration

CUSTOMS: FROM PAST TO PRESENT

Research Field:

The History of Customs and its Present Times – lessons from the past for the present and future

Customs has a long history full of events. It goes thousand years back when ancient civilizations imposed various duties on goods. Customs has played an important role in collecting revenues and in implementing trade policy.

Customs activities and customs relations originated in ancient times – at an early stage of the economy commodity and trade exchange – and are inseparably linked with the emergence, development, and regulation of trade. Representing a complex network of mutual obligations and dependencies, trade relations which ensure the security of the population and government, required a well-thought-out organization of social relations and logical thinking. The first