

Current Trends in Customs Intelligence and Investigation

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Abstract

Customs intelligence and investigation is part of the technology of customs procedures and regimes. Its proper conduct is a prerequisite for effective action by the customs authorities in a particular customs proceeding. Risk management proves to be a key element for effective customs control, relying on the data provided by customs investigation and intelligence. This mediates the relationship between the two customs control tools, making the link between them crucial to the performance of the core functions of customs administrations. The aim of this research is to present the trends in customs intelligence. In the study have been used the descriptive - analytical approach, the methods of comparison, analysis and synthesis.

Keywords: customs intelligence and investigation, decision intelligence, artificial intelligence, customs risk management

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Introduction

The delicate balance between facilitating legitimate trade and combating illicit trade poses many challenges for customs administrations. Three of these, as Salsberg (2023) notes, appear to be common to all administrations:

- the disproportionate relationship between staff and workload. This has always been a serious problem, but now, with ever-increasing e-commerce in cross-border trade, customs officers have to track significantly larger numbers of shipments, as well as more documents and stakeholders;
- many administrations and customs investigators have to analyse huge amounts of data, which are often scattered across different sources, making effective detection of customs offences extremely difficult;
- the fact that even with a proportionate number of staff and efficient data processing, many customs administrations still fail to share meaningful insights and information with other administrations, allowing for distortions and inefficiencies.

To overcome all these problems, customs authorities need to work smarter and more efficiently. They can do this by shifting their focus from risk management to an intelligent decision-making approach. This approach consists of three layers: data fusion, advanced analytics, including machine learning-based models, and a decision support interface that enables review and collaboration using data viewed through a one-stop shop. Letting technology do the heavy lifting can alleviate the first two challenges and make it easier to solve the third. This will ultimately give customs organizations the ability to go beyond retrospective investigations, detect trends and patterns, and most importantly, make data-driven decisions at all levels of customs operations.

Customs administrations face an increasingly complex world of illegal cross-border activities. They are expected to have effective strategies in place to combat these growing threats. The WTO Secretary-General states in his foreword to the WTO Illicit Trade Report 2018: "Illicit trafficking in various goods continues to affect global peace and security, destabilizing economies and threatening the health and safety of populations. Disrupting illicit trade flows is a very complex multi-stakeholder process involving many law enforcement and other government agencies." To address these often competing priorities, customs administrations must develop ways to detect and

interdict illicit activities while ensuring effective customs clearance of legitimate goods and encouraging voluntary compliance (Nagy, 2022).

Halajov (2022) writes, that the use of customs intelligence and investigation contributes to achieving the main objective of customs control, i.e. facilitating legitimate international trade and limiting as much as possible the crimes and violations against the financial system carried out by economic operators. Customs intelligence and investigation plays an important role not only for the Bulgarian customs administration, but also for the entire customs system of the European Union through the Community risk management exercise. The latter involves the exchange of information on a range of risk indicators and the results of their analysis between the customs administrations of EU member states, nowadays based on established common risk criteria and standards, control measures and priority areas for control. What is the nature of customs investigation and intelligence and what is its place in risk management and in the context of current trends in the customs field, determines the relevance and interest in the problem.

The **aim** of this research is to present the trends in customs intelligence. In the study have been used the *descriptive - analytical approach, the methods of comparison, analysis and synthesis*.

1. Characteristics of Customs Intelligence

Savov (2014) writes that special intelligence means are highly reliable tools used throughout the technological process of operational, counter-intelligence and intelligence activities, as well as in the investigation of crimes in criminal proceedings.

According to the WCO, Intelligence is derived from the collection and processing of information. It is primarily used by decision makers who need it to support their decisions in the decision-making process. Intelligence is therefore defined as: *A product resulting from the collection and of relevant information that acts as a basis for decision making by users*. Within this general definition, there are different types of intelligence, each of which is associated with different levels of decision-making by Customs.

The three levels of decision making are supported by three types of intelligence.

At the *strategic level*, policymakers need intelligence about new and changing threats or opportunities to help them make decisions about the strategic positioning of customs within government. This is strategic intelligence, which is defined as: intelligence products that support policy in the formulation and implementation of Customs' high-level goals, objectives, policies, and plans.

At a *tactical level*, managers need information about new or changing compliance patterns to support decisions about how to target frontline employees with resources in the most effective way. This is tactical information, which is defined as: an intelligence product that assists national and local managers of frontline units in planning activities and deploying resources to achieve operational objectives.

At the *operational level*, frontline teams need intelligence on the activities, capabilities and intentions of specific individuals who are not complying with rules and enterprises. This is operational information which is defined as: an intelligence product that assists frontline units in acting on a specific case to achieve compliance or enforcement objectives (4.1. The WCO global information and intelligence strategy, 2023).

Halajov (2022) comes to the view that intelligence is a set of activities whose ultimate purpose is the acquisition, analysis and use of intelligence information about a specific object of surveillance in order to counter hostile and/or illegal actions that would threaten the security, integrity or achievement of the objectives of the state, society or organized system. The author explains that the investigation is a key tool as part of the criminal procedure under the Criminal Procedure Code, which has achieved significant success in the criminal policy of the state. The investigation of criminal cases is essentially a procedural activity in the pre-trial phase of the trial.

The purpose of this activity is the collection and verification of sufficient evidence and the preparation of the indictment in order to clarify the prerequisites for bringing charges before a judicial authority. Generalizations have also been made on the nature of investigation and intelligence - **customs intelligence is a set of activities within customs activity, which deals with the investigation of administrative offences and crimes within customs control.** Thus, customs investigation can be defined as an important activity that supports the performance of the basic functions of customs control and the achievement of its objectives. From a practical point of view, customs intelligence can be seen as a purposeful process with its own technology. This technology could best be represented by the stages of administrative criminal proceedings, considering the relevant specificity - initiation; proceedings for the imposition of an administrative penalty; appeal and implementation (Halajov, 2022).

Mladenov (2020) concludes that **customs investigation (intelligence) is a legitimately distinct, departmentally specialized intelligence infrastructure of a legal nature that is not part of the international intelligence community, but is a significant element of national and union security and the legal process.**

Mladenov (2011) explains that intelligence and investigation are specific professional given that arise with the emergence of certain human associations. An in-depth study of these social phenomena reveals their genesis conditioned by the emergence of particular states. Their emergence necessitates the need to preserve them from external invasion and to protect the internal legal order. Customs investigation and intelligence of specific activities carried out by the customs institution, distinguished by specific independence.

Halajov (2016) summarizes that in most modern customs administrations, customs investigation is divided into two main types:

- the so-called "administrative customs investigation", which concerns only offences relevant to the customs regime;
- investigations into customs offences under the conditions and in accordance with the procedure laid down in the Code of Criminal Procedure (CCP).

In their study, the authors (Tanjung, Rofii & Anriani, 2023) found that the customs intelligence activities carried out by the Intelligence Unit are carried out in the context of early detection of customs and excise offences. One of the threats faced by customs is the threat of smuggling, which can be detrimental to the state and society. The results of the first study show that the surveillance activities carried out by Customs Intelligence are in line with the intelligence cycle, which involves the collection, assessment, analysis, dissemination, evaluation and updating of data and/or information. Customs offences related to export and import activities can be categorised as smuggling offences. The results of the second study show that Customs Intelligence Analysts use external data serving applications, e.g.: Global Trade Atlas (GTA), Automatic Identification System (AIS), Marine Traffic, Sea Web, Panjiva, Questnet, Intelligence Media Analytics (IMA) and Intelligence Socio. Analytics (ISA) for targeting, profiling and document research. Surveillance by Customs Intelligence using external data service applications is used by intelligence analysts as an analytical tool to predict the threat of smuggling.

Kavoya (2020) concludes that intelligently managed customs will lead to a safe and secure society, facilitate legitimate trade, collect government revenue in an efficient manner that ensures optimal allocation of resources. According to the author, intelligence-led organizations analyze data to generate useful conclusions that guide decision making. Customs administrations generate a huge amount of unstructured data, but what percentage of it is analyzed? In his study, the author presents two frameworks that can be adapted by Customs to develop strategies for intelligence-led operations. Firstly, it is the SCALE framework, which defines the attributes of intelligence-driven organisations, and secondly, the data-value framework, which defines how organizations can transform data into value. These frameworks are enriched through an overview of three customs in the world.

Belle (2014) also presents the issue of geospatial intelligence (the ability to extract additional intelligence from location data to predict and solve problems) presents an opportunity to reduce fraud in the customs, global logistics and supply chain sectors while providing a significant return on investment through the reusability of data. In addition, it appears that the geospatial intelligence environment will not be adversely affected by the increase in the volume of information associated with increased trade and travel.

2. Decision intelligence in Customs

Modernization using decision intelligence provides Customs with a holistic view to uncover patterns and relationships. It prevents customs agents from focusing on individual items, and instead can highlight more significant smuggling or tax evasion. It can also change the mindset of customs officials - from feeling overwhelmed by big data to embracing all types and sources of data, thereby yielding more valuable insights that increase revenue, prevent fraud and facilitate more efficient legitimate trade.

What does it mean to move to decision intelligence? Instead of looking at one container or shipment at a time, customs can use a variety of exploration techniques to uncover hidden insights in big data. For example, they can use link analysis-sometimes called graph or network visualization-to uncover suspicious connections between shipments, shippers, brokers, or even goods and past events that have been captured by the administration. In this way, data fusion, modeling, analysis and visualization could help authorities extract useful information.

Decision-making information can also improve communication between back-office staff and customs agents within customs. Importantly, it can increase global collaboration with improved data processing, automatically reveal findings that are relevant to other customs administrations, and provide the ability to provide data and findings to those administrations (Saltsberg, 2023).

Decision intelligence is a relatively young field. Many of its early participants and proponents defined it in the context of technology. From this perspective, it is the application of new cognitive technologies such as artificial intelligence and machine learning to decision making.

While decision intelligence is an emerging discipline, it draws on the full range of the entire human decision-making experience, including philosophy, economics, behavioral economics, psychology, and sociology, as well as from science, technology, engineering, and mathematics. It is the intersection of the humanities and applied sciences aimed at improving the way people think. Authors (Roddy, Mallon & Solow, 2021) urge to pursue decision-making intelligence as an emerging organizational capability that can enable companies to make smarter and faster decisions at scale. Technology is one of many key enablers that also includes the knowledge, skills and beliefs of people and the support of business and functional leaders.

Decision intelligence is a field that also includes decision management and decision support, as well as methods such as descriptive, diagnostic and predictive analysis. Decision intelligence is the methodology that relies on **computer processing, Big data, data analytics, artificial intelligence (AI) and machine learning (ML)**.

Data analytics is the application of computer systems to analyze large data sets to facilitate decision making. It is an interdisciplinary field that incorporates aspects of other scientific disciplines, such as statistics, machine learning, pattern recognition, systems theory, operations and artificial intelligence. Although the interdisciplinary nature and application flexibility of this method offers numerous opportunities for use in customs, it is currently primarily used for risk assessment in risk management. Currently, methods such as fraudulent trade detection and HS code recommendation are mainly focused on revenue assurance through risk analysis. The adoption of a more holistic approach that incorporates data analysis in all aspects should be seen as a necessary next step towards data-driven customs and border management (WCO/WTO Study Report on Disruptive Technologies, 2022).

Other research (Anouche & Boumaaz, 2019) has shown that Big Data sets, combined with a structured forecasting approach, can reduce uncertainty and provide for better risk management while remaining flexible in a constantly dynamic environment.

According to the authors (Sevinov & Khamroev, 2023), the use of artificial intelligence in customs activities allows: to increase the speed of execution of the tasks set to customs authorities, increasing productivity, without attracting additional staff; to eliminate errors caused by the "human factor" (fatigue, negligence, etc.); to free employees from daily activities and transfer them to the solution of mainly analytical tasks; to ensure the multitasking of processes and their flexible restructuring in the current situation.

In addition, the use of AI with augmented or mixed reality glasses can be used by customs for training purposes, as well as to inspect shipments and detect counterfeit and contraband goods. Data will be available in real time, allowing officers to make faster decisions, thereby increasing the number of checks, accuracy and volume of goods that can be screened. Artificial intelligence will make more information and data available to customs, allowing faster decision-making in areas of risk management in the cross-border movement of people and goods. Through increased automation, some repetitive tasks can be automated by AI which will allow customs officials to focus on activities with greater added value. The ultimate goal of implementing various components of AI is to improve customs operations. Visual search and facial recognition technology, behavioural and predictive analytics, revenue collection models, product classification, customs audits, risk-based targeting, container image analysis from X-ray scanners, logistics monitoring, identification of high-risk passengers and vehicles, etc. can all be adapted for use in customs and border management. Data analytics and artificial intelligence/machine learning are considered to have potentially the greatest impact on customs operations in the future. The results of a survey (WCO/WTO Study Report on Disruptive Technologies, 2022) conducted show a high level of confidence by World Customs Organization (WCO) and World Trade Organization (WTO) Members in a technology that has been in use for some time and whose use is steadily increasing, in particular to improve the risk management capabilities of Customs. Moreover, many customs authorities provided information on their respective implementation projects and case studies on data analytics and artificial intelligence/machine learning in various areas, such as data mining for intelligence and risk management purposes.

Yurevich (2023) summarizes that the introduction of artificial intelligence in the activities of customs will help customs to function effectively. In order to effectively implement artificial intelligence in customs, significant changes are needed in the organisational and functional structure as well as modernisation and improvement of the material and technical base of customs and customs authorities.

Decision intelligence is related to risk management. Risk management is concerned with decision-making that contributes to the achievement of the organization's objectives, and is applied both at the level of individual activities and across functional areas. It supports decision-making such as the alignment of evidence-based and other factors; the costs with benefits and expectations when investing limited public resources; and the governance and control structures needed to support due diligence, responsible risk-taking, innovation and accountability (Berg, 2010).

3. Customs Intelligence and Risk Management

A comprehensive approach to customs risk management, according to the authors, should combine risk management with ***intelligence and operations***. Effective processes require *well-trained staff, appropriate systems, knowledge transfer between national agencies and international cooperation*. Risk management enhances trade security and facilitation by allowing customs administrations to focus on high-risk trade (Foley & Northway, 2010).

The in-depth research conducted (Haladjov, 2023) on customs investigation and intelligence summarizes that there is a bilateral relationship between customs intelligence and risk.

On the one hand, customs intelligence targets those goods or operators for which the Risk Analysis module indicates high levels of risk. The level of risk therefore determines the guidelines on which Customs Intelligence will work. In this sense, customs intelligence should be seen as a response to risk assessment. On the other hand, the objective of intelligence is to limit the magnitude of this risk, to reduce it to a tolerable level. From this point of view, it can be said that customs intelligence is a risk mitigation tool.

Risk management is key to the overall alignment of performance, security and facilitation requirements. Intelligence, in turn, is a key element of risk management. Intelligence is derived from the collection and processing of information and is primarily used by Customs decision makers at all levels to assist their decision making at the strategic, tactical and operational levels.

Standardised Risk Assessments (SRAs) are an important part of intelligence work. SRA produces risk indicator products for customs officers to target goods and vehicles in their day-to-day work, while helping customs work more effectively and efficiently. Although it is possible to define common risk indicators and profiles, it is not possible to define universal risk factors as risks and threats change depending on several variables, and laws, criminal organisations, importers and industries change. This means that the analysis and threats must be carried out independently, focusing on known and suspected threats and risks in the individual country or region (4.1. The WCO global information and intelligence strategy, 2023).

In the opinion of others (Thuy & Huong, 2018), the application of risk management (RM) is considered important in modern customs management. Risk management in customs can identify key areas of potentially high risk of smuggling, trade fraud, tax evasion and budget shortfalls so that customs administrations can take effective preventive measures. At the same time, it will create favorable conditions for businesses to comply with customs legislation.

Drones are now an integral part of the international commercial supply chain, forcing regulators to be comfortable with the technology and thus developing a legal framework that defines the conditions under which they will operate. Some customs administrations are already using drone surveillance and monitoring for surveillance and oversight. Some are increasingly using drones to monitor port areas and coastal areas. This includes surveillance not only to combat drug smuggling but also to provide aerial assistance. A remotely piloted high-resolution drone with an underwater surveillance camera is now available at depths of up to 50 metres to perform a detailed scan of a boat.

Customs must monitor, analyze, and make sense of emerging trends in drone use and related regulatory changes and propose an appropriate policy response, as well as possible adjustments to Customs procedures and requirements where necessary (WCO/WTO Study Report on Disruptive Technologies, 2022).

Today, intelligence and risk assessment are key activities in customs and border control operations and are a prerequisite for the successful functioning of customs and border control agencies. However, these activities are often carried out separately, although many of their functions overlap. Both areas deal with major threats and risks and use very similar analytical approaches.

Summarizing that intelligence collectors and analysts are often unfamiliar with theories of risk assessment and management, and conversely, analysts and risk experts typically have little or no intelligence competency, the authors (Ylönen & Aven, 2023) said that there are differences between intelligence and risk assessment in terms of tradition, education, science, and practice. However, the issues at hand require not only diversity in thinking and methods, but also coordination and effective use of resources, and these can only be achieved if intelligence and risk assessment are more strongly integrated than is currently seen. The authors outline a framework to facilitate such integration, arguing that combining these two areas in the way described will enhance risk and safety work in relation to customs and border control. The proposed framework

for integrating risk and intelligence management (IRIM), is based on risk science and intelligence knowledge, as well as organisational theories.

A study by the authors (Shubailata et al., 2024) reveals that customs intelligence, risk management and sustainable supply chain management play a key role in shaping the logistics of a customs department. The presence of positive beta coefficients and low p-values highlights the significance of these variables, emphasizing their importance in optimizing logistics operations within customs departments. Furthermore, the analysis delved deeper into the mediating effects, highlighting the nuances of the interaction between customs intelligence, risk management, and customs department logistics. These findings provide a deeper understanding of how these factors influence each other and ultimately impact logistics outcomes. However, one of the key contributions of this research is the identification of the sustainable supply chain as a key mediator in the relationship between customs intelligence, risk management and customs department logistics.

According to the authors (Heijmann et al., 2014), automated customs declaration processing systems are now able to verify many elements of declarations and accept declarations using business rules. When this verification reveals, for example, that an inward processing declaration has been lodged while the declarant does not have the necessary documents, a licence, the declaration is not accepted. The same applies to an illogical combination of country and certificate data. Customs systems also identify declarations that contain illogical information, such as an unlikely customs value. In the longer term, Customs will incorporate more of these automated checks into the acceptance procedure. Regarding the control elements that are checked by the business rules, Customs carries out 100 per cent control.

Specific declarations are selected for additional checks for other risks. This selection is based on intelligence: Customs collects information from various sources, refines it based on their knowledge of the goods and risks and then prepares selection profiles. The information in the declarations submitted to Customs is checked against these profiles. As a result, certain declarations may be flagged for verification. The number of sources and types of information used in these processes is constantly expanding. Soon, for example, customs will be able to find out online when an establishment was set up, the container's route from origin to destination and the establishment's regular flow of goods. In other words, customs will have much more information before inspecting shipments. Part of the detection process will be based on automated systems that will select risks. In the longer term, declarations will be checked by specialists who will perform their duties on the basis of workflow management systems.

According to the author team (Li, Ma, & Li, 2022), the multimodal name recognition model based on the optimal window mechanism is novel, reasonable and efficient. The model has high practical application value, and can provide an effective solution for intelligent customs declaration, improve information recognition accuracy, increase efficiency, reduce cost and optimize the process. At the same time, the model can also be used for named entity identification, rumor classification, mail classification and many other fields.

Kolesnik (2022) concludes that the improvement of customs enforcement is related to the need for:

- automating the processes of identifying potential risks of improper decision-making by customs officers in criminal and administrative cases, as well as informing officers of possible risk factors and, if there is a high level of risk, preventing decision-making actions by those individuals that are in any way related to the process of investigating administrative and criminal cases;
- digitalisation of operational and investigative workflows (it is necessary to introduce and disseminate an information file and templates for electronic files of operational documents);
- introduction of information and software tools (in order to increase the speed of proceedings in criminal and administrative cases, it is necessary to organize the formation of requests and

the receipt of information on them with the help of information and software tools of both customs authorities and other departments) The program is aimed at improving the speed of processing criminal and administrative cases).

Security concerns related to international trade and the role that customs can play in addressing these issues have added a new dimension to the role of customs. Balancing the need to control and preserve trade flows requires a reassessment of priorities. It is accepted that no administration has, for example, the manpower to open and inspect every container that moves in international trade.

While increased availability and use of technical resources may provide part of the answer, there is a clear need to ensure that **customs staff** are used effectively and efficiently. Improving the quantity, quality and reliability of intelligence available to customs administrations is an essential requirement to achieve the objectives of customs administrations and target potentially high-risk shipments (4.1. The WCO global information and intelligence strategy, 2023).

Conclusion

Customs modernisation is a continuous process. The effectiveness and efficiency of customs administrations is determined by the correct application of available technologies, considering global trends and changes in the legislative policies of activities concerning the subject and object of customs control and supervision.

Customs intelligence and investigation is part of the technology of customs procedures and regimes. Its proper conduct is a prerequisite for effective action by the customs authorities in a particular customs proceeding. The current conditions of operation in the modern economic development trends put the customs in the position of a balancer, which requires the use of various techniques for identification, prevention and control of emerging risks in conditions of work with a huge database and information about the objects and subjects of control. Risk management thus proves to be a key element for effective customs control, relying on the data provided by customs investigation and intelligence. **This mediates the relationship between the two customs control tools, making the link between them crucial to the performance of the core functions of customs administrations.** The relationship between the two customs control techniques is also determined by the application of the risk analysis method, which in turn requires reliable and well-trained staff.

The methodology of customs activity, predetermined by the trends of development in the field of customs - risk management and digitalization of customs information, places emphasis on human management for efficient application of risk analysis methods with the capabilities provided by new (disruptive) technologies as part of *Decision Intelligence* for the purpose of collecting sufficiently reliable in quantity and quality intelligence information.

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