

# WCO news

Issue 3 / 2022, No. 99

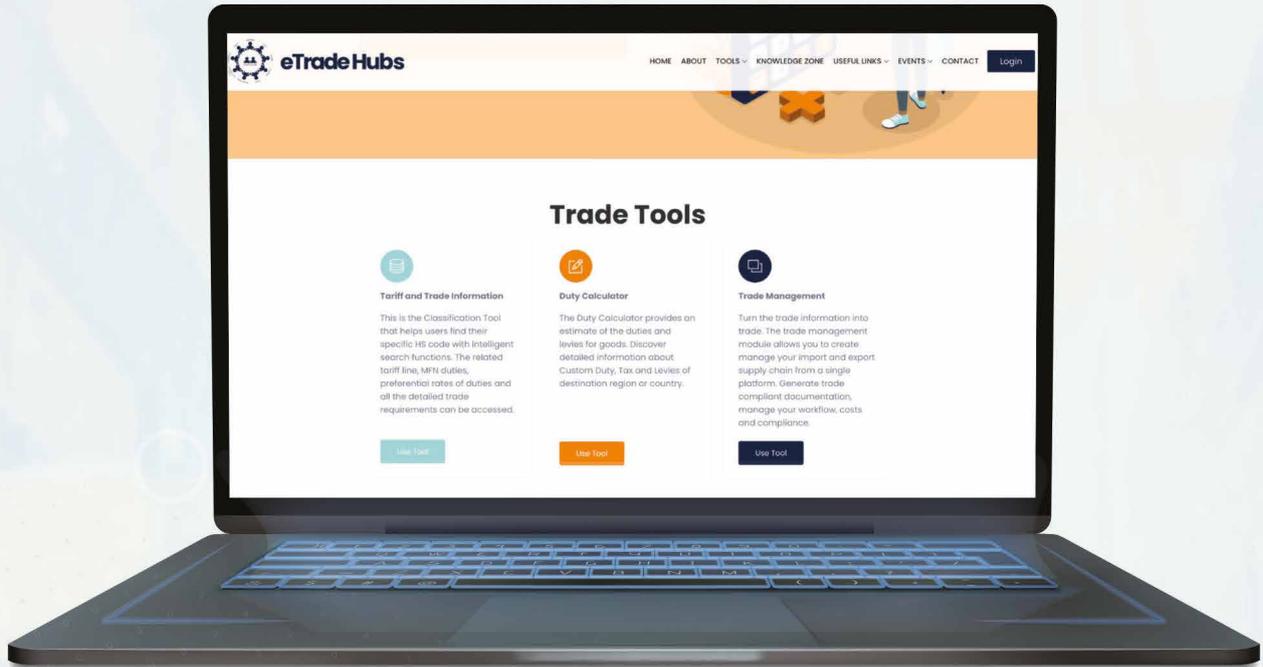
## Disruptive Technologies





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### Knowledge Zone

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### 23 DOSSIER Bahamas Customs takes huge leap forward on recouping lost and evaded revenue



### 27 DOSSIER Automated detection: Dutch Customs shares its experience



### 36 DOSSIER Egypt adopts innovative trade document exchange system



### 42 PANORAMA Digital transformation: Swiss Customs presents its mid-term review



### 53 FOCUS Enhancing data collection - A call to action!



## 5 FLASH INFO

- 5 Programme Global Shield: a look into new activities planned for the next three years
- 6 A new tool for IP rights holders
- 7 A new tool to assess capacities in the enforcement area
- 9 A symposia series on greening the HS
- 10 WCO launches an exploratory Study Project on a possible strategic review of the HS
- 12 New e-learning course on AEO validation available to Customs and trade professionals

## 14 DOSSIER: DISRUPTIVE TECHNOLOGIES

- 16 A brief look at what is in the Dossier
- 18 The WCO Data Model: guidance for efficient implementation
- 23 Bahamas Customs takes huge leap forward on recouping lost and evaded revenue
- 27 Automated detection: Dutch Customs shares its experience
- 30 The AI revolution is underway, and this is good news for Customs
- 32 The Future of Trade Lies in Artificial Intelligence
- 34 Customer service: the next wave
- 36 Egypt adopts innovative trade document exchange system

## 42 PANORAMA

- 42 Digital transformation: SwissCustoms presents its mid-term review
- 47 The interconnectivity of transit systems is becoming a reality in West Africa
- 49 Disposing of counterfeit goods through recycling: Dubai Customs' new measure is a game-changer

## 52 FOCUS: COLLECTING ENFORCEMENT-RELATED DATA

- 53 Enhancing data collection – A call to action!
- 57 nCEN: a look into user practice and upcoming upgrades
- 60 Indian Customs enhances its Customs Offence Management System

## 65 EVENTS

- 65 WCO marks its 70<sup>th</sup> Anniversary in the margins of the Council Sessions
- 69 Highlights from the Green Customs Global Conference

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# Programme Global Shield: a look into new activities planned for the next three years

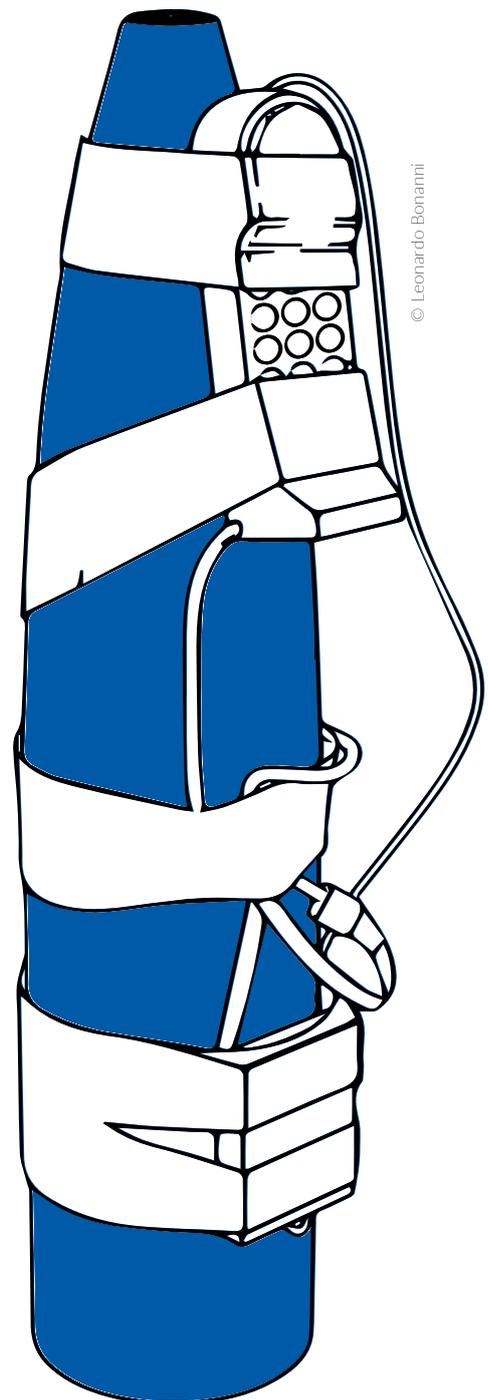
Following the signature of two new grant agreements with the European Union and the US Department of State, new activities have been scheduled under Programme Global Shield (PGS) for the next three years (mid-2022 to mid-2025) for the benefit of all WCO Members.

Launched in 2010, PGS is an initiative aimed at building Customs capacity to monitor the licit movement and counter the illicit trafficking and diversion of explosive precursor chemicals and other components of improvised explosive devices (IEDs). The threat posed by IEDs is a global problem. Although not a recent phenomenon, the use of IEDs in modern warfare and by terrorist groups has grown exponentially in the 21<sup>st</sup> century. Part of the reason that IEDs are so prevalent is that they are cheap and relatively easy to manufacture. They can be made from a range of materials, including commercially available chemicals such as ammonium nitrate and potassium chlorate – two chemicals used in the production of fertilizers. PGS ultimate objective is therefore to eliminate the threat of IEDs and save lives.

The team in charge of the Programme at the WCO Secretariat supports Customs administrations by undertaking an assessment of their enforcement capacities, promotes cooperation among Customs and Police, engages with private industry, trains Customs officers in detecting and handling precursor chemicals, and facilitate investigations and organizes enforcement operations. They do so while partnering with INTERPOL and the US Defence Threat Reduction Agency (DTRA), as well as many experts from Customs and other enforcement agencies.

Depending on funds available, certain countries are provided with presumptive test kits for frontline officers, as well as electronic chemical detection devices. Experts have been accredited and Customs officers have been trained to conduct training in their home administration. In addition, PGS training curricula have been integrated into the programmes of some Customs academies. PGS is also aimed at increasing information exchange between Customs administrations and the WCO secretariat to enable comprehensive analysis of illicit trade. To reach this objective, Customs administrations have been called upon to appoint PGS National Contact Points (NCP).

Finally, Customs administrations are encouraged to reach out to private stakeholders in the chemical industry in order to increase awareness of the dual-use capability of the precursor chemicals they manufacture, distribute or retail.



Whereas, in the past, support used to be provided to specific countries and regions based on grant agreements, the activities to be rolled out up to mid-2025 are now open to all WCO Members. They include:

- workshops on safety and security in handling, transporting and storage of dangerous goods;
- workshops on detection methods for precursor chemicals, and the use of detection devices;
- a global conference;
- regional and global enforcement operations;
- the procurement and provision of detection devices (Raman Spectrometers, PGS detection kits)
- the delivery of quarterly analysis reports compiled by the PGS Team and shared with the Programme partners, key stakeholders and Customs administrations participating in the programme in order to support their national risk assessment.

Currently (October 2022), around 100 Customs administrations are participating in the Programme and exchanging information, through their respective National Contact Points (NCPs), on the licit and illicit movement of precursor chemicals and IED components. Customs administrations who have not yet advised the WCO Secretariat of their interest in participating in the Programme are invited to do so. All WCO Members will be invited to participate in the workshops and planned PGS Global Conference, and to join the global enforcement operation.

The Conference will be held from 2 to 4 November 2022 at WCO Headquarters in a hybrid mode. It will bring together Customs officials, PGS NCPs and experts to discuss recent IED attacks, trends in the illicit trade of chemicals, data collection and information exchange, the analysis to be undertaken by the PGS team as well as cooperation mechanisms. The WCO Secretariat has already sent out invitations to its Members, partners and key stakeholders. If you have received an invitation, kindly confirm your participation as soon as possible. If you are interested in the Conference but have not received an invitation, please contact the PGS Team using the email address below.

### **More information**

[globalshield@wcoomd.org](mailto:globalshield@wcoomd.org)

## A new tool for IP rights holders

A Rights Holders' Corner has been added to the Intellectual Property Rights (IPR) CENcomm Group, the secure communication tool developed by the WCO Secretariat to enable law enforcement officers to exchange information on goods infringing IPR or posing a danger to people's health and safety.

Such groups, all based on, and part of, the CENcomm web-based communication system, were initially created to facilitate data exchange during high impact enforcement operations but some are also used on a long-term basis. This is the case of the IPR CENcomm Group which was used during Operations STOP, Ludus, Balkan Gate and Seascape, but remains open on a permanent basis.

The Rights Holders' Corner enables private-sector representatives to share information with enforcement officers and to contact them when needed. So far, 23 rights holders have registered. The new functionality has been introduced as a trial. If it is found to be effective, it will be permanently adopted. Rights holders interested in accessing the tool should contact the Secretariat at the email below.

### **More information**

[IPRTeam@wcoomd.org](mailto:IPRTeam@wcoomd.org)



# A new tool to assess capacities in the enforcement area



The WCO COPES Programme aims to initiate a dialogue reflecting on the working methods used to combat fraud, from the identification of an offence to the storage of seized assets, including reporting, collecting and preserving evidence. It does not advocate a particular means of enforcing legislation or managing seizures, but presents a range of methods and practices currently used for investigations and prosecutions that is flexible enough to fit all existing administrative or legislative arrangements.

The name of the programme is the acronym of the first tool developed by the WCO in this area: the *Compendium of Customs Operational Practices for Enforcement and Seizures*. Training modules were later developed, COPES Expert Trainers were accredited and seminars organized to provide participants not only with practical tools for immediate use, but also with an appropriate platform for discussion in order to identify methods commensurate with specific local conditions.

## Assessment tool

The Compendium included a *Checklist for Capacity Building Diagnostic Assessment*, designed to assist Customs administrations and COPES experts to better understand the potential areas of further review and improvement. However, it soon became apparent that a more rigorous and comprehensive methodology was needed, whereby the beneficiary Customs administration would be fully engaged throughout the assessment and validate all findings. The new tool which was developed was named the *Maturity Institutional Assessment tool and methodology in the area of Customs Enforcement*.

It looks at five areas:

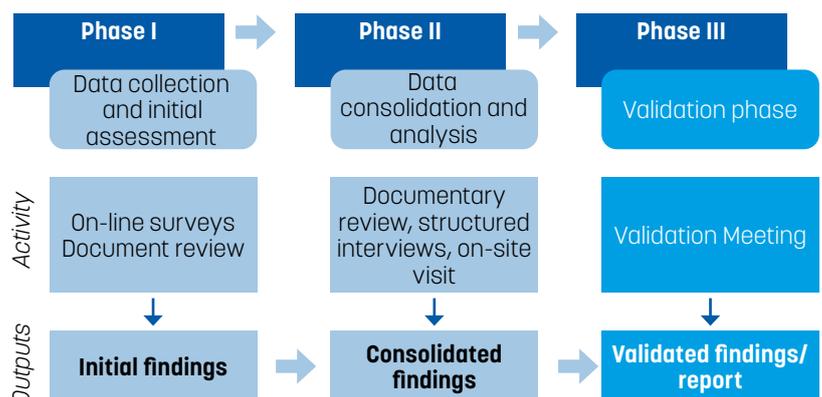
1. Compliance management
2. Intelligence
3. Risk management
4. Enforcement operations
5. Investigations

Under each of these areas, the following dimensions are examined:

- Legal framework
- Procedural framework
- Cooperation and data sharing framework
- Organizational framework
- Human capital
- Infrastructure, equipment and technology

The tool is accessible to Customs representatives only and is to be used within the framework of a specific project that involves the beneficiary, COPES accredited experts and a donor. The said experts provide detailed and practical instructions to facilitate its use and maximize its impact.

Figure 1 - The three phases of the Maturity Institutional Assessment



**Pakistan assessment exercise**

In 2021, Pakistan Customs used the tool to carry out an assessment exercise with the help of the WCO Secretariat. It enabled it to identify strengths and areas of improvement in the area of enforcement, and to develop a Maturity Growth Plan to address the identified gaps.

It is worth mentioning that, since November 2010, the collection of taxes and excise has been brought within the remit of the Inland Revenue Service and the role of Pakistan Customs in combating fraud and crime has been considerably strengthened, with many powers once held by other services working at the borders transferred to the Administration. This change of focus in the scope of its tasks required Pakistan Customs to rethink the way it was structured and to ensure its staff had the right skills and know-how.

Since 2018, Pakistan Customs has benefited from the support of the Bureau of International Narcotics and Law Enforcement Affairs (INL) of the United States State Department to enhance its capacities. The INL

has been funding the activities carried out with the WCO Secretariat under the COPES Programme, including the maturity level assessment.

**Support requirements and procedures**

To receive the support of the WCO Secretariat, Customs administrations should submit a written request. The Institutional Assessment Project can either be funded by the beneficiary administration itself or by a donor. Once funding is secured, the beneficiary will be asked to create a working group composed of experts in the relevant five areas mentioned above. Finally, this working group will work in partnership with designated COPES accredited experts. At the end of the assessment exercise, a comprehensive report will be provided to the beneficiary country. It will include recommendations and eventually a working plan, with targets to be reached and indicators.

**More information**

[Copes@wcoomd.org](mailto:Copes@wcoomd.org)





## A symposia series on greening the HS

Greening the HS is on the agenda, but how best to do it? To find answers to this question, the WCO is organizing a series of five symposia from October 2021 to January 2023. You may join the events either in-person, at the WCO headquarters in Brussels, or online via zoom. Participation will be free and interpretation offered in English, French and Spanish.

The key tool for the identification and classification of goods at the global level is the Harmonized System (HS). The pandemic, the climate crisis, other environmental issues such as the accumulation of plastics in the environment, the fragility of food security, the circular economy model – these are all examples of critical, urgent or emerging topics that have been occupying many minds in governments, international organizations and academia, and have also been behind enquiries to the WCO about current classifications and how to increase the available data and specificity of classification in the HS for critical goods.

The 2022 edition of the HS, which entered into force on 1 January 2022, takes account of environmental issues and certain goods which are subject to specific controls under various multilateral environmental agreements. The 7<sup>th</sup> HS Review Cycle, which is under discussion in the bodies responsible for managing the HS, constitutes a historic opportunity to make the 2027 edition of the HS increasingly green.

To enable private and public stakeholders share their ideas and HS amendment proposals, the WCO Secretariat is organizing a series of symposia which will each look at a different area of the HS (see box). There are principles governing the creation or amendment of a provision in the

HS, and how to submit a sound proposal for this. Shall you wish to participate in the symposia, we encourage you to read the article we published in the 98<sup>th</sup> edition of the magazine entitled *Some common questions about the HS, and how to change it to meet needs*.

### More information

<http://www.wcoomd.org/en/events>



### The five areas covered by the symposia

- **Expanding food horizons - recognizing agricultural diversity for sustainable global food security**  
*Wednesday 5 October 2022 (13:00 - 16:00 CET)*
- **Chemicals - reflecting the good, the bad and the revolutionary**  
*Tuesday 25 October 2022 (13:00 - 16:00 CET)*
- **The textile industry: the interaction between textiles and the environment**  
*Tuesday 8 November 2022 (12:00 - 15:00 CET)*
- **Reflecting the lifecycle of the basic materials - plastics, metals, wood and other sustainable alternatives**  
*Thursday 1 December 2022 (12:00 - 15:00 CET)*
- **The environmental credentials of technology - can we identify the green status of equipment?**  
*Monday 23 January 2023 (12:00 - 15:00 CET)*

# WCO launches an exploratory Study Project on a possible strategic review of the HS

The WCO Secretariat has set up a team to study the possibilities for potential improvements to the HS and its tools. The team will collect views and suggestions from stakeholders. Details of how you can get involved in the HS Study can be found at the end of this article.



The Harmonized System Convention, and the Harmonized System it governs, came into force in 1988 with the intent to provide greater uniformity for the classification of globally traded commodity groups. Since the introduction of the HS, its use has spread globally. As of 1 October 2022 the Convention has 160 Contracting Parties, and the HS is currently incorporated in the tariff classification schedules of 212 economies (countries, territories, or Customs or economic unions). It not only determines the classification of goods and applicable Customs duties, but is also used to identify goods for a variety of trade facilitation measures, statistical information, Customs controls and other trade-related purposes.

Since its inception, the HS has been amended to produce seven new editions to reflect changes in technology and the patterns of international trade. However, these amendments have generally involved changing various provisions for specific types of goods. This periodic review is in itself a very time and resource intensive process, and provides only a limited opportunity to look more holistically at the HS, its tool set (Explanatory Notes, Compendium of Classification Opinions and Alphabetical Index) and the processes and procedures around its international management in order to assess the overall health of the system.

The system as a whole is largely unchanged from when it came into force in 1988, i.e., 34 years ago. The core elements of the HS, namely the General Interpretative Rules and the four-digit heading structure, are older still as they were taken over, with a few changes, from the predecessor of the HS – the Brussels Nomenclature which came into force in 1959. Given the changes which have taken place in the global trade environment over this long period, it is not surprising there is some concern that it is time for a health-check of the system and a look at how to keep it future-fit.

## How much work by our Members goes into maintaining and revising the HS?

The Harmonized System Committee, the Harmonized System Review Sub-Committee and the Scientific Sub-Committee all work on HS classification, maintenance and review. In financial year 2021/2022, these three bodies spent a total of 78 days, in hybrid meeting format, discussing a total of 307 agenda items. This work involved reading 3,800 pages of documents and reports.

For this purpose, the WCO Secretariat has been given a mandate to establish a small project team for a two-year period. The team is tasked with collecting views and suggestions from stakeholders, studying the health of the system, and reporting to the WCO's Members on the possibilities for potential improvements to the HS and its tools.

As the HS is a fundamental tool for Customs and trade, its stability is essential. Hence, no mandate was sought for the HS Study to draft amendments or make changes itself; it is purely exploratory. During the HS Study, the Members – through their work in the Harmonized System Committee – will be able to take up any useful and practical interim findings if they so wish. However the primary goal is for the HS Study to conclude with a report on the findings, complete with preliminary assessments of the feasibility of the options or strategies identified, where applicable, to give the Members a basis for determining whether they wish to proceed to a full strategic review.

Our top priority is engagement with, and the participation of, stakeholders, including Member administrations, international organizations, industry and sector associations, and the trade community.

Do you want to tell us what you think? Then check our website for details of how you can get involved in the HS Study or contact the project team using the email indicated below.

#### **More information**

[www.wcoomd.org/en/topics/nomenclature/activities-and-programmes.aspx](http://www.wcoomd.org/en/topics/nomenclature/activities-and-programmes.aspx)  
[project.hsstudy@wcoomd.org](mailto:project.hsstudy@wcoomd.org)

### **Where did the HS come from?**

In 1931, the *League of Nations Subcommittee of Experts for the Unification of Customs Tariff Nomenclature* completed the 'grandparent' of the HS, a Customs tariff nomenclature commonly known as the *Geneva Nomenclature*. Unfortunately, the outbreak of the Second World War halted work on its adoption.

In 1947, the European Economic Council set up the European Customs Union Study Group to prepare a common Customs tariff based on the Geneva Nomenclature. The *Convention on Nomenclature for the Classification of Goods in Customs Tariffs* came into force on 11 September 1959.

It was initially known as the "*Brussels (Tariff) Nomenclature*" (BTN), and renamed the "*Customs Cooperation Council Nomenclature*" (CCCN) in 1974. It was supported by the "Brussels Explanatory Notes", an Alphabetical Index and, from 1974, a Compendium of Classification Opinions.

However, eventually it was considered that the BTN/CCCN was no longer sufficient to meet the needs of international trade, and in September 1970 it was decided to set up a study group to explore the possibility of establishing a BTN-based Universal Commodity Code. The study was completed in 1973, and the WCO established a Technical Team to draw up the "*Harmonized Commodity Description and Coding System*" (the Harmonized System). This expanded the code from the BTN's four compulsory digits to a six-digit system, but kept the BTN core.

After 15 years of hard, but rewarding, negotiations, the Harmonized Commodity Description and Coding System, (which quickly became known as the Harmonized System, or HS in common usage) came into force on 1 January 1988.

### **Do you know how many HS Editions there have been?**

The HS is on its seventh edition. With each edition a number of headings or subheadings have been removed, changed or added. The various editions, and the final number of six-digit subheadings in each case, were: 1988 (5,019), 1996 (5,113), 2002 (5,224), 2007 (5,052), 2012 (5,205), 2017 (5,387) and 2022 (5,609).



## New e-learning course on AEO validation available to Customs and trade professionals

To help meet the growing demand from Customs administrations for support in developing Authorized Economic Operator (AEO) programmes and, more specifically, in setting up an AEO validation procedure, the WCO Secretariat has devised a new e-learning course which is available to Customs on the WCO CLiK! platform and to trade professionals on the WCO Academy platform.

The course takes approximately three hours to complete and has been designed to be interactive. It includes six modules which provide learners with a clear understanding of the objectives of an AEO programme and of how AEOs are validated, giving an insight into topics such as Self-Assessment Questionnaire reviews, on-site validation and post-validation.

The e-learning course is expected to be of significant benefit to administrations that are currently embarking on AEO programme implementation or wishing to ensure that their validation procedures are aligned with recommended practices, as this will facilitate the negotiation of Mutual Recognition Arrangements/Agreements (MRAs).

Trade professionals taking the course will enhance their knowledge of the AEO concept and their understanding of what becoming an AEO would entail in practice for their respective companies.

The course development was funded by HM Revenue & Customs (United Kingdom) through the WCO Accelerate Trade Facilitation Programme.

### More information

<https://clikc.wcoomd.org>

<https://academy.wcoomd.org>



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# A brief look at what is in the Dossier

By Kunio Mikuriya, Secretary General, World Customs Organization

There is nothing new in saying that leveraging technology is key to effectively managing the flow of goods, people and means of transport. This magazine contains a wealth of articles explaining how Customs administrations are using technology to fulfil their missions. In fact, given the impact of technologies on border management, we believe it is essential to gather as much knowledge and experience as possible so that Customs administrations are well informed on the opportunities offered to them to enhance – and sometimes totally transform – the way they work, measure and collaborate.

With this in mind, we recently published a paper entitled *The role of advanced technologies in cross-border trade: A customs perspective*, which was co-developed with the World Trade Organization. The paper presents the findings of the 2021 WCO survey on the use of the latest technologies by Customs administrations. It shows that a large number of WCO Members are either looking into, or already using, blockchains, the Internet of Things, data analytics and artificial intelligence (AI), and brings together examples of the use of those technologies, while highlighting their benefits and the challenges faced by Customs when deploying them. In this Dossier, we are continuing along the same lines and touch upon some of these disruptive technologies again.

The first article deals with the type of technology used to implement one critical WCO standard enabling information to flow seamlessly across different IT systems: the WCO Data Model. It argues for the implementation of the Model, using a service-oriented architecture (SOA), an approach that facilitates the building of robust IT solutions by enabling specific and specialized solutions to be developed separately to respond to the needs and constraints of processes and procedures. It also explains the critical role played by the Model as the universal language between SOA platform components, and how it could be turned into an SOA services specification for cross-border regulatory purposes.

According to the WCO/WTO paper, around half of Customs administrations use some combination of big data, data analytics, artificial intelligence and machine learning. Those which do not currently use them have plans to do so in the future.

The majority of Customs administrations see clear benefits from advanced technologies, in particular with regard to risk management and profiling, fraud detection and ensuring greater compliance. The second article of the Dossier looks at the implementation of AI analytics in the Bahamas and explains how it has enabled the Administration to take a huge leap forward on recouping lost and evaded revenue, while simultaneously modernizing its revenue collection management capabilities.

The subsequent articles examine the implementation of AI, a term which refers to systems that are able to change behaviours without being explicitly programmed, based upon data which is observed, collected and then analysed. It is a broad term that includes machine learning, deep learning, computer vision and natural language processing.

First, Dutch Customs shares its experience of developing an automated support system for image analysts which would enable the Administration to carry out more X-ray inspections overall. One of its main messages is that a lot more could be achieved in this field if Customs administrations were to join forces and if standards and harmonized working methods were created for developing and deploying machine learning models. From a technical point of view, administrations can share scanned images using the WCO unified X-ray file format for non-intrusive inspection (NII) devices, codenamed the “Unified File Format” (UFF). However, there are no international standards on the way automated target recognition (ATR) algorithms are to be developed and deployed.

Another article, by a technology provider, deals with a similar issue and highlights how AI is finding its way into many critical aspects of Customs control, with automated detection tools now able not only to identify some items, but also to extract useful data within a matter of seconds, such as the number of items in cargo, or their size and weight.

From a more global perspective, another service provider explains how AI is being integrated across the digitalization of the trade ecosystem, with IT systems now able to capture data from scanned documents, apply HS classification codes from commercial descriptions, assess risks, flag discrepancies, facilitate payments, apply not only national requirements, but also regional and international agreements, and react and pivot to dynamic changes, such as a nation exiting a trade agreement, a rise in prices, or port or border closures.

The last article in this series on AI is by Finnish Customs, which has enhanced its capacity to help its customers by creating a chatbot and a contact management system. The Administration had anticipated an increase in the number of individuals it would be interacting with for the first time, following the increase in cross-border e-commerce and the removal, on 1 July 2021, of the VAT exemption for the importation into the European Union of goods with a value under €22. The new tools have enabled it to manage this change efficiently and to better understand customers' preferences and needs.

The last article of the Dossier deals with blockchain technology. According to our survey, it has captured the attention of the majority of Customs authorities: 19% of the respondents said they were exploring its potential through a proof of concept; 14% that they were testing solutions through pilot projects; and 24% that they were planning to do so within the next few years. The article describes Egypt Single Window and its various components, which include a blockchain



document transfer platform. The companies which developed the solution list some lessons learned which will be useful to Customs administrations and service providers alike.

To conclude, I would like to announce the launch of the WCO Data Innovation Hub. The Hub will bring together representatives of Customs, the private sector and academia to support the development of proofs of concept. In practice, the Hub could take the form of two meetings a year. We will communicate more information on this initiative shortly.

My sincere thanks to all the contributors to this Dossier. It is critical to share information on the development and implementation of technologies as their adoption is fast changing the role of Customs officers and the way that they perform their duties. We must ensure that leaders and Customs officers understand the impact of technology on their organization. I therefore strongly encourage you to share your ideas, plans and achievements through this magazine. My thanks go also, of course, to the other contributors to the magazine who took the time to share their experience with us.

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*The WCO Data Innovation Hub will bring together representatives of Customs, the private sector and academia to support the development of proofs of concept. In practice, the Hub could take the form of two meetings a year.*

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# The WCO Data Model: guidance for efficient implementation

By Alejandro Rinaldi, CEO, Customs-hub.com

A fundamental requirement for information to flow seamlessly across different IT systems is that they all speak the same language. Cross-border regulatory agencies retaining the right to determine the data they require should all use a similar language and have harmonized the way in which the required data is submitted. This is also critical for enabling economic operators to use the same system to comply with the requirements of different administrations and countries.

Such a common language exists: the WCO Data Model (DM). Developed and maintained through the WCO Data Model Projects Team (DMPT), the Model is a compilation of clearly structured, harmonized, standardized and reusable sets of data definitions and electronic messages, to meet the operational and legal requirements of cross-border regulatory agencies, including Customs<sup>1</sup>.

## The WCO Data Model and service-oriented architecture

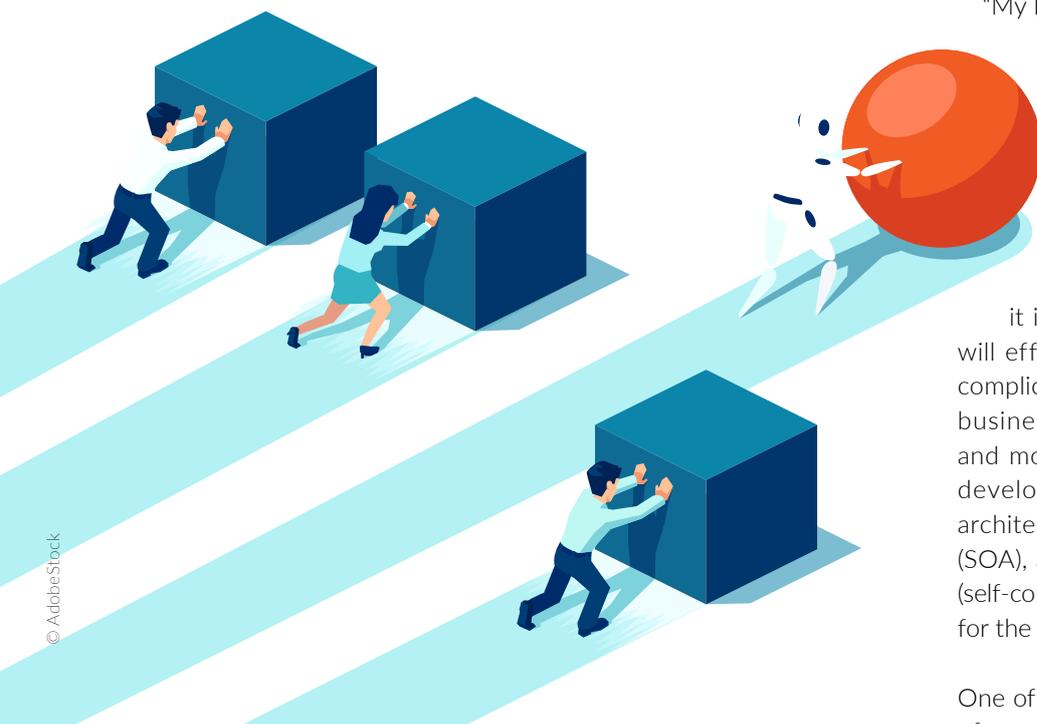
The steps to be taken by Customs administrations which are considering the adoption of the WCO DM have been described in an article published in March 2022 in this magazine<sup>2</sup>.

The article explains that they should:

- identify the areas for implementation (e.g. Imports, Exports, Transit, Cargo report, Manifest, Authorized Economic Operators, Origin, Phytosanitary, Food safety, Animal health, Endangered species, Environment, Cultural goods);
- identify the data requirements of the selected process and harmonize them;
- map the list of national (or regional) data requirements to the WCO DM and develop a “My Information Package” (MyIP); and
- implement the MyIP in the IT system to ensure that the system can receive and/or produce data that complies with the WCO DM technical specifications.

Customs processes are complex and it is very unlikely that a single IT solution will efficiently deal with all their aspects and complications. This is also the case with many business processes. For this reason, more and more administrations and companies are developing IT systems based on a service architecture, or service-oriented architecture (SOA), an approach that uses existing services (self-contained units of software) and applications for the development of computer components.

One of the great advantages of an architecture of services is that it is possible to use modules



<sup>1</sup> See article in WCO News <https://mag.wcoomd.org/magazine/wco-news-97-issue-1-2022/making-digital-collaboration-possible-the-wco-data-model-latest-developments-and-implementation-guidance/>

<sup>2</sup> Idem

while building technological solutions, which allows developers to solve problems step by step, considering a system part by part, and component by component. Other advantages include the capability to adapt the system easily to increased workload or market demands (high scalability), the capacity to make adjustments easily, and lower implementation costs compared with other IT system development methods.

SOA facilitates the building of robust solutions by enabling specific and specialized solutions to be developed separately to respond to the needs and constraints of processes and procedures. Components related to risk management, Single Window, the AEO programme, tariff classification or inspections, for example, can be designed and built individually and separately, using the best technology and the best service provider.

But this brings with it the great challenge of ensuring compatibility and interoperability between so many components and providers. Adoption of the WCO Data Model is therefore fundamental here too, and this is why the upcoming Version 4.0 of the Model will provide for the use of standards and syntaxes used in systems based on SOA.

We advise anyone implementing the WCO Data Model to use SOA and the standards supporting it, such as OpenAPI and JSON, which are described in the following paragraphs.

### **API and Version 4.0**

Another trend to have emerged with SOA is the use of application programming interfaces (APIs) as an alternative to EDI for document exchange. Both methods allow data to be exchanged quickly and securely from system to system.

With EDI, computer systems are able to understand the information that is exchanged because each party uses the standard EDI document format. EDI data is stored then transmitted. As a result, there may be some limitations to real-time access and responsiveness. Moreover, EDI documents do not transmit updated information, but a sequential version of the same document, and it is up to the receiver to parse the document, compare it to the prior version and pass to the database any changes detected.

API is a set of programming instructions and standards for accessing web-based software

applications that allows software platforms to communicate with each other. Unlike EDI, there are no predefined standard business document formats for API-based data exchange transactions. API transactions use JSON, XML, YAML and other data-serialization formats for information exchange. These data-serialization formats are generic and not specific like EDI business document formats. Moreover, unlike EDI, APIs enable real-time data exchange. APIs are able to transfer data in less than a second.

The DMPT is well aware of such technological changes, and Version 4.0 of the WCO Data Model will include guidelines for the use of OpenAPI and JSON syntaxes, which are considered the basic pillars of a modern SOA. OpenAPI is the name given to an initiative which aims to provide a new way to describe electronic services in an agnostic form of the programming language or of the technology supporting such services. It has become the lingua franca for everything API, offering the possibility to build services which are technologically independent from one another but which remain compatible and interoperable. JSON, in turn, provides a light data interchange format that is easily readable by machines, as well as by humans. Its main feature is that it has been devised to support very large volumes of information.

By adopting SOA, OpenAPI and JSON syntaxes, Customs and other regulatory agencies will be able to build their platforms component by component, with the WCO Data Model as the universal language between those components.

It is already possible to implement the Data Model using such syntaxes as part of an SOA. By way of example, Brazil's Single Window implemented the WCO DM using OpenAPI and JSON, currently supporting 2 million Export Declarations and 2.4 million Import Declarations per year. When combined and included as syntax in the WCO DM, OpenAPI and JSON ensure its technological validity and maintain technological agnosticism.

The electronic message templates of the WCO Data Model currently use UN/EDIFACT data formats (GOVCBR), as well as XML, a language used to create and exchange structured data. The use of OpenAPI and JSON does not turn the use of XML into something obsolete. Both standards supplement XML and XML schemas, and offer new options for the implementation of XML

specifications. Electronic messages built in XML are fully compatible with any system that uses OpenAPI/JSON, and vice versa as well.

### Conformity framework

The WCO Data Model is a universal language, agnostic of technology and providers. When developing a system using the Model, each entity involved and each provider must be able to confirm that the components of the system speak this universal language perfectly.

To facilitate this work, a key tool, the “Conformity Framework”, has been developed. It clearly defines the WCO Data Model’s technical specifications, removing any ambiguities in order to ensure that solutions are compliant with the Model. This tool enables Customs authorities, government agencies, financial entities and donors lacking expertise in the WCO Data Model to request compliance with the “Conformity Framework” as a basic criterion for accepting proposals and granting contracts.

The WCO Data Model is a toolbox containing interrelated components: information models, codes for international standards, harmonized data sets, and business process models. Many systems in use around the world have been in place for many years. This means it would be almost impossible, in the majority of instances, for a party deciding to adopt the WCO Data Model to be fully compliant with all its elements without building from the ground up. On top of this, many implementers will also have challenges due to the need to integrate with legacy applications and business processes, as these need to continue to be supported.

Consequently, the Conformity Framework is a graduated system which provides for four degrees of conformity with the Model:

- Level 1: each data element in the message uses the WCO data element name and format representation.
- Level 2: each data element in the message meets the level 1 criteria, and its structure conforms with the structure of the WCO Data Model UML Class diagram.
- Level 3: meets the level 2 criteria and uses WCO-recommended code lists.

- Level 4: meets the level 3 criteria, and is based on a message format supported by the WCO Data Model, e.g. EDIFACT GOVCBR, XML, OpenAPI/JSON.

The “Conformity Framework” should be considered as a quality assurance certificate which guarantees long-term sustainability of the system being built. The investment required in the construction of Customs IT solutions is significant, and the notion of sustainability is key.

### “My Information Package”: two options for effective mapping

When developing a “My Information Package”, Customs administrations must map the list of national or regional data requirements against the WCO Data Model data sets. There are two ways to do this.

The first option is to do so process by process, focusing on each piece of data to find its correspondence in the Model. When building its Single Window for Foreign Trade (VUCE), Costa Rica applied this method to define the information that the importer must provide to enable the government agencies involved in the clearance process to carry out their duties. Costa Rica’s MyIP is estimated to cover 129 processes and includes 250 data elements of the WCO Data Model.

The second option is to create two interfaces: one to encapsulate the data components which currently exist in a Customs system, and another to translate that data into WCO Data Model data. This allows Customs administrations to implement the Data Model while giving them more time to decide on adjustments or reconstruction of their IT system, or to decide if there is no need to rebuild an IT system, but only to make it compliant with the WCO standard. Such an option was used in Uruguay, including by private sector companies wishing to align their management systems with the WCO Data Model and especially with the regional MyIP titled “MODDA”, developed by Mercosur (a Customs union between Argentina, Brazil, Paraguay, Uruguay and Venezuela).

### Perspectives

In a service-oriented architecture, software components are called services. Each service provides a business capability, and services can also communicate with each other across

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*The WCO Data Model is a universal language, agnostic of technology and providers. When developing a system using the Model, each entity involved and each provider must be able to confirm that the components of the system speak this universal language perfectly. To facilitate this work, a key tool, the “Conformity Framework”, has been developed.*

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platforms and languages by using syntax and standardization of the data structures.

In this article, we argued for the implementation of the WCO Data Model using an SOA as well as OpenAPI and JSON. In such a configuration, the different components in an IT solution may ultimately be considered as services. So far, the WCO Data Model has focused on defining a harmonized data dictionary to be used by border regulatory agencies. In the future, it could include services as a sort of extension to the Model. The possible services applicable to the data represented by the WCO Data Model are endless. They include services for receiving declarations from the private sector, as well as for offering the possibility to amend and correct them.

Going one step further, the various business rules applicable to a procedure or process could become services. Business rules are directives that define (or constrain) business activities and provide the foundation for automation systems by taking documented or undocumented information and translating it into various conditional

statements. Regulatory authorities define not only the data required, but also a set of business rules applicable to that data. The rules range from controls regarding information, to verification of valid codifications of data, and pattern rules, such as the pattern for a text to be compliant as a valid e-mail. A risk assessment module could be seen as a service that will return a risk value for a transaction.

These rules could supplement the MyIP or even be part of it, enabling anyone who must submit a declaration to be aware of the required data and the corresponding rules. Making the rules part of the WCO Data Model would bring harmonization to a new level and enable further cooperation between regulatory agencies. This would turn the WCO Data Model into an SOA services specification for cross-border regulatory purposes. We strongly believe that this is where the future of the Model lies.

#### More information

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# Customs-hub

## Need help in the adoption of the WCO Data Model?

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# Bahamas Customs takes huge leap forward on recouping lost and evaded revenue

By Chris Thibedeau, Mike Squirrel, Nabil Almouslli, with Simon Wilson, Financial Secretary, Bahamas Ministry of Finance, and Cloretta Gomez, Assistant Comptroller, Bahamas Customs

Through the use of AI analytics, Bahamas has identified over 115 million USD in evaded revenue since 2020, while simultaneously modernizing its revenue collection management capabilities.

In 2020, Bahamas Customs began seeking solutions to help identify and recoup lost and evaded revenue at the border. While significant modernization efforts have already been made towards deploying an Electronic Single Window System to promote coordination and interoperability between Customs and Other Government Agencies for the cross-border movement of controlled and regulated goods, the government Financial Secretary realized that Customs revenue management needed to be enhanced and strengthened. That year, the Bahamas Government sought out the expertise of a firm to deploy Artificial Intelligence (AI) technologies to identify suspect shipments. In the first phase, a diagnostic was conducted of Bahamas Customs' ability to identify, and recoup lost or evaded revenue at the border.

## Enhanced Capacities and Assessable Results

Using AI-based analytics, and a small snapshot of historical import declarations, the firm initially identified over 28 million USD in evaded revenue likely owed to the government. Most of these suspect historical importations were flagged for attempts at undervaluation, misclassification, and misdeclaration of origin. The suspect importations were then referred for a more in-depth Post

Clearance Audit (PCA) to confirm or negate the findings. The process also highlighted the potential misuse of permits and concessions.

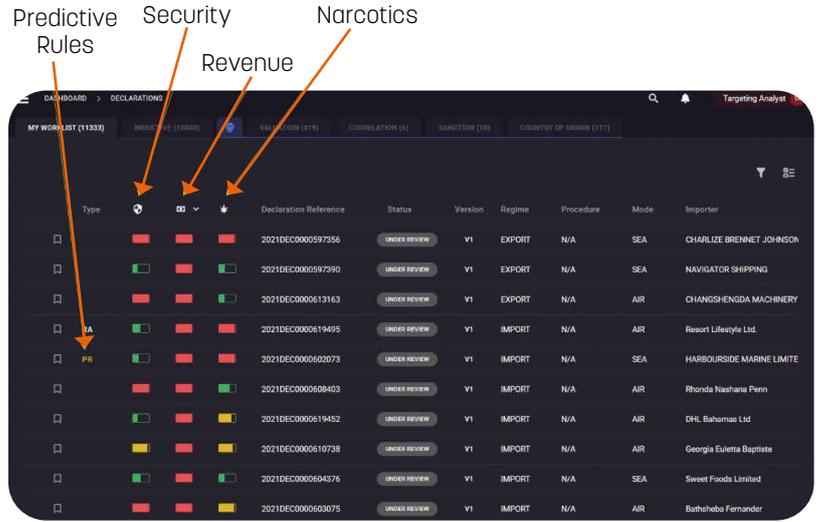
The diagnostic highlighted the need to modernize the PCA programme by creating a single Revenue Enhancement Unit (REU) that would merge both Customs PCA and the Inland Taxation Audit Unit into one cohesive programme and a sound operational set-up. As both entities fall under the Ministry of Finance, the merge was a natural and logical decision as it would further enhance the "ease of doing business" in the Bahamas.

With the REU now in operation, and the deployment of new technology in place, the results continue to be impressive in terms of revenue collection. Analyzing a small data set from 2 August 2018 to 19 October 2021, and focusing only on a few HS codes to start with, Bahamas has already identified over 115 million USD in evaded revenue, representing 5% of the revenue collected during this period. As audits and collections are underway, the Administration is aware of the need to strengthen the REU and to hire and train new officers. As more fraud is identified, it is also clear that more resources are required for auditing, investigation and collection.

### How the Solution Works

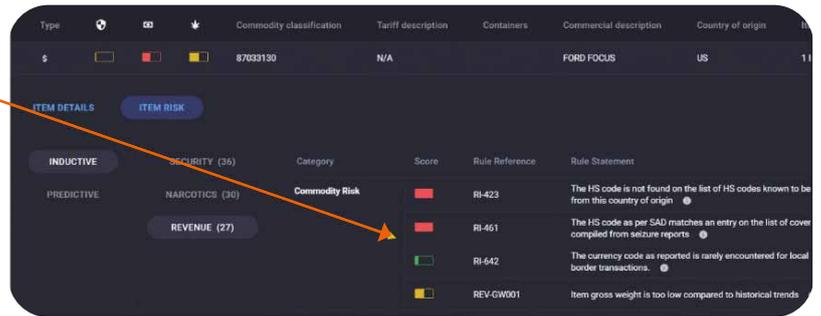
The technology selected by Bahamas is deployed as a service under a subscription license. Called the “Risk Assessment Screening Service (RASS)”, the solution uses a combination of deductive (vetting of watch lists and commodity targets) and inductive (identifies known risk indicators found within the trading data) analytics. It also applies predictive modelling, using proprietary algorithms to identify suspect shipments and importations. These models draw upon all available historical data and establish relationships in the data to identify normal behaviours and anomalous or suspicious transactions. Customs can then use the outcomes to support decisions with scenario-based targets to identify and select suspect shipments for both fiscal and non-fiscal threats. The algorithms modify themselves or create new algorithms in response to learned inputs and new data, in an automated model.

### Incoming transaction worklist - Highlighting the most risky declarations



### Detailed view of each transaction includes details of the risk indicators identified

Risk Indicators are identified and collated as they are found within the transactional data



Declared item details



Each transaction receives a risk score, with an appended scorecard summarizing the inherent risk and an indication of whether the shipment is High (red), Medium (yellow), or Low (green) risk. The objective is to provide a better understanding of risk by assigning numerical values to factors representing different types of threats and the danger they pose.

The service uses a rules engine of 1.5 million rules and risk indicators to establish threats of evading

revenue owed, including undervaluation attempts, misclassification attempts, and misdeclarations of country of origin. This risk indicator library is the largest and most extensive of its kind available on the market. It also includes the risk indicators listed by the WCO in its *Risk Management Compendium*. Risk patterns are extracted in the form of risk profiles. Risk profiles provide an objective and quantitative analysis of the factors that might cause threats to the clearance process.

## RASS Algorithms

The Artificial Intelligence within the RASS uses machine learning to establish high confidence predictive rules. The proprietary algorithms highlight anomalies in a transaction that cannot normally be quantified by a human (Customs officer).

**COR-001** One or more rule(s) with multiple correlation criteria exist in this segment of the transaction including rare and uncorrelated rule(s).

| Rule Reference | Rule Statement  | Category       | Frequency | Hits in current dec | Rareness of rule (%) | Extent of ran |
|----------------|---|----------------|-----------|---------------------|----------------------|---------------|
| REV-GW001      | Item gross weight is too low compared to h...<br>Item gross weight is too low compared to historical trends | Commodity Risk | 1         | 6                   | 64.47                | 5.87          |



Full visibility of predictive valuation and classification rules; including calculation of revenue loss

## Benefits

The major benefits obtained by Bahamas thus far include the following:

- Bahamas can now obtain a full risk assessment on trade transactions in real time, allowing Customs officers to take any necessary action at the first point of operational intervention.
- Methodologies used are leading edge and are more advanced than those used by the most advanced administrations.
- Risk indicators are continually updated (AI), ensuring that the process is tailored exclusively for Bahamas trade and always pulsing to identify the latest smuggling threats and trends.
- Predictive models and algorithms for valuation, classification, country of origin, and sanctions lists are updated dynamically and in real time.

As for the benefits offered by the tool in terms of implementation, they are as follows:

- The service paid for itself in just a few weeks of operation.
- It was implemented in phases, and benefits were proven to be fully realised at each step of the implementation.

- It used a secure cloud-ready environment and was deployed and operational in just a few days.

## Way forward

For the time being, the solution focuses on identifying fiscal threats for improved targeting and selectivity by the PCA unit. However, the RASS includes additional modules and may be expanded to enable Bahamas Customs to identify non-fiscal threats (narcotics, weapons, prohibited items, etc.) before cargos enter the country, for inspection on arrival.

With about 1.5 million rules and risk indicators continually updated and expanded, the RASS can therefore provide a full risk assessment and inspection lifecycle management system. It also provides for the collection and use of field results for inspections, seizures, and other enforcement actions.

The RASS also includes proprietary rules and risk indicators for the identification of non-fiscal threats including narcotics smuggling, security threats, weapons and ammunition, prohibited items, agricultural threats, endangered species, chemical weapons precursors, dangerous goods and hazardous materials, pandemic threats, illegal migration, and more. While the system can identify potential threats, the Customs

*As audits and collections are underway, the Administration is aware of the need to strengthen the REU (Revenue Enhancement Unit) and to hire and train new officers. As more fraud is identified, it is also clear that more resources are required for auditing, investigation and collection.*

Administration has full configurability to prioritize the threats deemed most significant or likely to cause damage to the country's sovereign interests. Steps can then be taken to address and negate the potential threat, collect inspection or audit results, and use this outcome data for machine learning to complete the AI lifecycle within the RASS technology framework.

The solution can also support coordinated border management by including risk indicators developed with or for Other Government Agencies (OGAs), as well as inspection workflows to enable operational coordination between various teams.

By investing in technologies, Bahamas is on pace to recoup significant revenue loss it would never

have realized otherwise. This additional revenue will help bolster government programmes to the benefit of all Bahamas citizens.

**More information**

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# Automated detection: Dutch Customs shares its experience

By the Customs Administration of the Netherlands

In our “Pushing Boundaries” vision, we described our “dot” on the horizon, a helpful focal point when dealing with challenges we are, and will be, confronted with. The most prominent one is how to cope with a rising number of declarations and, consequently, a growing need for inspections. At any given time, we need to find the right balance between Customs supervision and trade facilitation; our aim is to implement robust controls, but with as little administrative hassle and regulatory pressure on business as possible, and with minimal delays to the logistic flow.

First and foremost, a solution is sought for subdividing trade and trade flows into those of trusted actors and those of unknown actors. In our vision, we are able to verify – for all forms of transport entering or leaving the European Union (EU) Customs territory – whether the required reports and declarations have been submitted, thereby enabling Customs to obtain a solid overview of each incoming or outgoing container and pallet. Obviously, we only have so many officers, and simply scaling up activities endlessly is not a solution. Achieving this is based on processing information from declarations and

other sources, and relies on the use of state-of-the-art information technology (IT).

Second, a solution is sought to enable the Administration to carry out more X-ray inspections overall by enhancing scanned image processing capacity. With this in mind, we participated in the Automated Comparison of X-ray Images for cargo Scanning (ACXIS) project. This was a research project funded by the EU under the 7<sup>th</sup> Framework Programme, which ran from 2013 to 2017. Besides us, ACXIS brought together the Swiss Federal Laboratories for Materials Science and Technology (EMPA), the French Alternative Energies and Atomic Energy Commission (CEA), the Fraunhofer-Gesellschaft research organization, Smiths Detection, APSS Software & Services and Switzerland Customs.

## ACXIS

One objective was to develop an automated support system for image analysts. Participants worked in their respective areas of competence to deliver the various components required to create such a system. Some worked on the data gathering aspect, others on the annotation

of the images, others on building automated target recognition (ATR) algorithms and training them with data to create models, and others on infrastructure development and deployment.

ACXIS resulted in the development of the first machine learning model that could successfully detect threats and anomalies in large maritime containers. The model was then deployed in a test environment. Unfortunately, once the project was over, the project partners did not manage to maintain ties, and this resulted in a situation where every partner was left with the components it had been working on.

### **Return to the starting point**

Since the ACXIS project came to an end, we have been working to create a comparable development process resembling the one established under the project. This has included collecting and storing X-ray images and related data, setting up a data science unit capable of building machine learning models, altering our information technology infrastructure, cooperating with suppliers to deploy the models in an experimental environment to allow for testing by image analysts and, last but not least, keeping the staff using X-ray technology abreast of all developments. We soon realized that the Administration did not produce enough images of cargo also displaying a threat in order to develop models. Thankfully, we were able to cooperate with our Australian, Belgian and Brazilian colleagues on the exchange of X-ray images and related data and this cooperation is going on.

Images were also collected by the officers operating X-ray scanners. In the future, these officers will also have to annotate the images (in other words, describe what is in the image); however, during the experimental phase this job was carried out by the Customs laboratory staff. The Data Science Unit then built detection and classification models using pre-trained models (a pre-trained model is a model that was trained on a large benchmark dataset to solve a problem similar to the one we want to solve). Guided by the Business Operations Directorate, the scanner suppliers deployed the models on the machines used by the Administration. In parallel, the Information Management Directorate worked on developing the information technology

infrastructure which will make it possible to move from the experimental to the operational stage.

The experimental phase is intended to enable every directorate in our Administration and each of the suppliers to identify requirements. Aware that individuals possess specific knowledge and that nobody knows everything, we have set up cooperation mechanisms between Customs units which are new to each other, with suppliers and with Customs administrations to allow, for example, for the exchange of X-ray images or of expertise in developing models.

At the WCO Technology Conference and Exhibition, due to take place in October 2022, we intend to demonstrate, together with our suppliers, how the models we have developed enable a machine to detect the presence of pills in envelopes and packages. Two possible outputs are produced: a rectangle around the items, which appears on the analyst's screen on top of the image (detection model), or a probability score for the presence of pills in the image, which may be reported to the risk engine (classification model).

### **Progressing through international cooperation**

A lot more could be achieved with the involvement of other Customs administrations. Let's imagine two more administrations join the project. We will call those administrations B and C, and our administration A. All three administrations, A, B and C, could work on the collection and annotation of X-ray images. A could use the images to develop models which would be deployed in A, B and C with the support of their respective suppliers. The same goes for B and C. Each administration could choose to work on specific items which they consider a priority or which are challenging in terms of detection.

For such cooperation to take place, some requirements have to be met. First, scanned images and associated metadata must be provided in the WCO unified X-ray file format for non-intrusive inspection (NII) devices, codenamed the Unified File Format (UFF).<sup>1</sup> Moreover, the X-ray images should be annotated in a unified way.

Secondly, there is a need to harmonize the way ATR algorithms are deployed with suppliers,

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*We encourage Customs administrations to discuss potential collaboration. There is only so much a single Customs administration can accomplish on its own, given that resources are scarce. We also need to come together to develop standards and harmonized working methods when it comes to the development and deployment of machine learning models.*

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1 <https://mag.wcoomd.org/magazine/wco-news-89/customs-and-industry-collaborate-to-develop-a-unified-file-format-for-non-intrusive-inspection-devices>

for example when it comes to defining model containerization and preparing software environments to allow for plug and play of containerized models.<sup>2</sup> As was the case for the UFF, such work could be steered by the WCO Technical Experts Group on NII (TEG-NII), which is open to all WCO Members and NII industry players.

Thirdly, we must agree on unified methods for setting up a dossier on the source data, the training and the algorithms. Such information will soon be mandatory under, for example, EU legislation. It will also facilitate the use of machine learning models on a wider scale.

### Get involved

We encourage Customs administrations to make available their plans in terms of innovative use

of technology, and to use existing platforms to discuss potential collaboration. Even if we do not share the exact same strategy, we believe that cooperation will prove essential to reach our respective goals. There is only so much a single Customs administration can accomplish on its own, given that resources are scarce. We also need to come together to develop standards and harmonized working methods when it comes to the development and deployment of machine learning models. Such work is crucial to facilitate the sharing and the wide implementation of such tools. We therefore also call on other Customs administrations to support our proposal to carry out this work through the TEG-NII.

### More information

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<sup>2</sup> "Containerization is the packaging of software code with just the operating system (OS) libraries and dependencies required to run the code to create a single lightweight executable - called a container - that runs consistently on any infrastructure", see <https://www.ibm.com/cloud/learn/containerization>.

## Achieving Compliance in the Complex World of Customs Tariffs and Export Control Classifications

**The most fundamental task in international trade** is determining the correct customs tariff and export control classification for a product. It's essential that products are correctly classified e.g. in order to identify what duties, rules of origin or controls apply when moving them to and from a country.

It's a fact that people in different divisions of a company can make different decisions about customs tariff and export control classifications, often resulting in duplicative effort and inconsistent results for the same product – an offence which is easily and quickly proven by the authority and often entails costly warnings. To avoid this, a central and standardized product classification is required.

**MIC's Central Classification System CCS helps companies precisely classify parts** utilizing artificial intelligence and machine learning (AI/ML). It increases the level of automation and ensures that multinational customs tariff schedules and export control lists are adhered to, while costs and workload are reduced. Our software permits clear and easy control of the entire product classification process e.g. via a full workflow management with the ability to manage multiple teams on a global basis.

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# The AI revolution is underway, and this is good news for Customs

An NII system mounted on an automated guided vehicle

By Zhiqiang Chen, Chairman and President of NUCTECH

Customs authorities are showing a growing interest in adopting artificial intelligence (AI), the broad category of science that entails simulating human thinking capability and behaviour. As stated in a joint paper published by the World Customs Organization, (WCO) and the World Trade Organization (WTO) entitled *The role of advanced technologies in cross-border trade: A Customs perspective*, “around half of Customs authorities use some combination of big data analytics, AI and machine learning, while the other half plans to do so in the future.”

AI has become one of the most transformative technologies for Customs, acting as a force multiplier to help it navigate challenges such as strained human resources and supply chain vulnerabilities, as well as security and revenue risks posed by the flow of goods generated by online sales.

## Automated detection tools

AI holds the key to ushering Customs into a new era of automation and efficiency. Among other things, AI has become an integrated

part of non-intrusive inspection technology and helps Customs officers identify specific objects, abnormalities, radioactive materials, and goods such as tobacco or liquor bottles, within seconds. The list of items which can be identified automatically with threat recognition technology is ever expanding, and the technology can be tailor-made to address specific commodities and smuggling trends.

During tests under real operating conditions conducted by China Customs, Tsinghua University and NUCTECH, a total of 1,182 types of goods were effectively identified by non-intrusive inspection (NII) systems equipped with AI. Among them, 49 were restricted and prohibited items.

## Streamlining en-route processes

For seaborne containers, such automatic detection offers opportunities in transforming Customs inspection into a streamlined en-route process, significantly increasing inspection rates without disrupting travel or trade. Take the Port of Qingdao in China, for example, where a sky rail is used to transport containers. A modular

high-energy inspection system scans every container transported along the rail route. In a field where time is money, the solution not only enables significant time savings and comprehensive security vetting, but also slashes the cost of container dispatching by 100 US dollars per container.

En-route screening can also be applied to breakbulk cargo provided the vehicle transporting the cargo passes through a scanning device along its way. This will be the case in one automated port terminal expected to be operational soon, where NII systems are being mounted on automated guided vehicles (AGVs), the name given to material handling systems or load carriers that travel autonomously throughout a warehouse, manufacturing facility or port without an onboard operator or driver.

Automatic threat detection systems also make 100% screening of inbound baggage a reality. They enhance security and improve travel experiences. Customs in China and Thailand, for instance, have integrated AI solutions, scanners, radio frequency identification (RFID) seals and closed-circuit television (CCTV) altogether to drive informed decision-making in a highly efficient manner. All checked baggage is screened, scanned and monitored before being conveyed to carousels at airport baggage reclaim areas. Suspicious baggage is automatically labelled with an RFID seal which triggers an alarm when the passenger goes through Customs. Those particular passengers are stopped for further scrutiny, while those with baggage deemed as low risk can breeze through exits without any interruption to their free movement.

## Empowering staff

Image analysis can be a repetitive and tedious task. During a trial contest organized between humans and machines, the latter outmatched human operators in terms of positive detection rates. Only seasoned experts with over 10 years' experience were able to perform a little bit better than the machines. On average, it took human operators 45 times longer to analyse an image.

AI could offer efficient support to image analysts, especially those with little experience, and reduce the time required for such analysis. With AI as an assistant, operators could work without feeling the usual fatigue that the job entails, and focus on critical decision-making. In short, the image analysis process would be improved, shorter and less labour-intensive.

Apart from identifying items, AI can also help Customs obtain useful data such as the number of items in a cargo consignment, as well as their size and weight, within seconds.

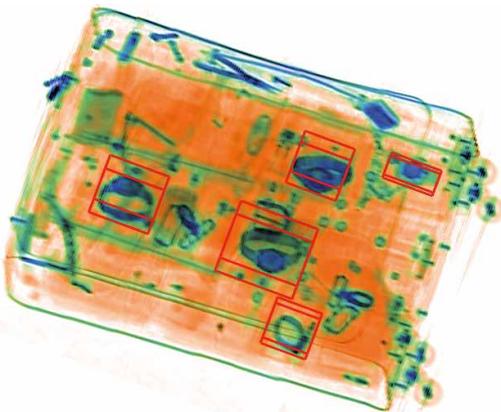
With expertise derived from 1,000-plus AI-powered deployments, we believe that AI is finding its way into all the critical aspects of Customs control, thereby making the latter more effective, efficient and robust.

## More information

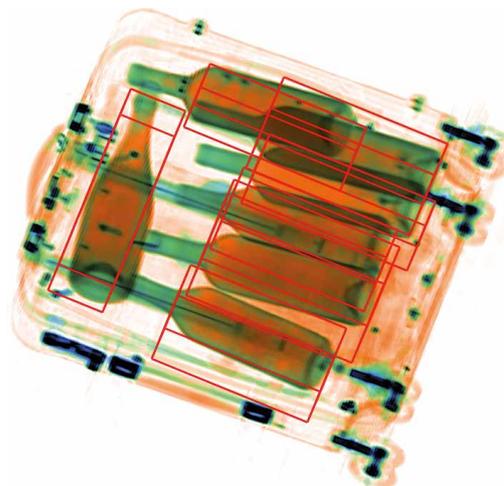
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## About the author

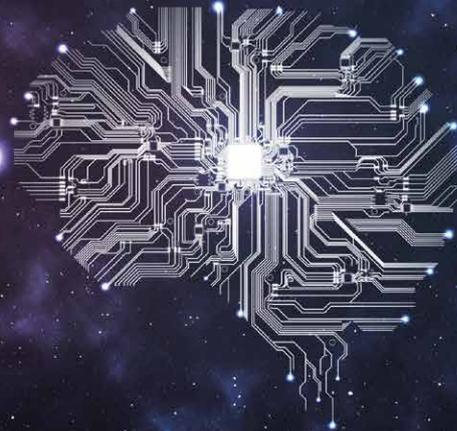
Professor Zhiqiang Chen is a researcher working on radiation imaging at Tsinghua University (Beijing), while also serving as the Chairman and President of NUCTECH. With the aim of bringing technology to life, he has steered the NUCTECH team towards rolling out cutting-edge inspection technology in various fields, including Customs controls and airport security. Under his leadership, NUCTECH has evolved from a small company into a global business with over 50,000 scanners and solutions deployed in more than 170 countries.



AI can be used to identify objects: this image shows five watches



AI can be used to identify objects and measure their volume: this image shows 5.2 litres of bottled wine



# The Future of Trade Lies in Artificial Intelligence

By Ara Shamirzayan, Chief Technology Officer at Webb Fontaine

World trade is the lifeblood of the global economy. It not only is a vital component in the ongoing operations of businesses (large and small), governments and NGOs around the world, it has the power to grow economies, increase productivity and transform the quality of life for citizens in the nations who are open to international trade.

This year, the value of global trade is steadily on the rise, with the export/import industry moving past the numerous challenges posed by the COVID-19 pandemic in 2020, which are still being felt today.<sup>1</sup> Trade value stood at US\$7.7 trillion in Q1 2022, an increase of about US\$1 trillion relative to Q1 2021, according to UNCTAD's Global Trade Update.<sup>2</sup>

For this positive trajectory to continue, the import/export industry needs to be able to mitigate any factors that may disrupt the stability of global supply chains. These can range from transportation failures, price increases, geopolitical turmoil, and more. The key to sustaining the value of international trade – as well as the massive benefits that come with it – is the free and easy flow of goods, products, and services between nations, and how easy they can enter or exit countries.

Technological advancements and automation processes have had a profoundly positive impact on the import/export sector.<sup>3</sup> Where once documentation and classification, manual checks and risk assessment were time-consuming processes, they are now streamlined by trade administration portals.<sup>4</sup> This automation technology not only helps Customs officials and governments allow for the importing and exporting easily, quickly, and efficiently, but they are also an advantage for businesses who depend on moving goods and services for their operations and consumers. This trade facilitation means government officials can process compliant traders faster and more securely.

The industry is starting to see the benefits of AI integration across the digitalisation of the trade ecosystem. An example is the Single Window system that uses Artificial Intelligence (AI) taking automation to the next level. Beyond targeting and managing all areas of import/export processes that used to rely on human interaction - such as capturing data from scanned documents, applying HS Classification codes from commercial descriptions, assessing risks, flagging discrepancies, facilitating payments and more – the Single Window AI applies machine learning to

1 <https://www.oecd.org/coronavirus/policy-responses/international-trade-during-the-covid-19-pandemic-big-shifts-and-uncertainty-d1131663/>

2 <https://unctad.org/webflyer/global-trade-update-july-2022>

3 <https://www.applexus.com/blogs/import-export-foreign-trade-automation>

4 <https://guardian.ng/apo-press-releases/webb-fontaine-announces-official-launch-of-far-reaching-nepal-national-single-window-trade-and-customs-project/>

deal with outside factors that may affect supply chains above and beyond administration.

Using the standardised processes (SAFE Framework of Standards provided by the World Customs Organisation – WCO) which most trading nations follow as a baseline, AI is then able to apply localised and geographical legislation into its processes and configurable parameters for the country where the system is being used. This includes national requirements, but also regional and international agreements – such as international trade treaties.

The AI can also react and pivot to dynamic changes – such as a nation exiting a trade agreement, a rise in goods taxation or geopolitical unrest. In such instances, its acquired knowledge can help customs navigate rises in prices, reroute goods through new avenues (due to port or border closures) or apply new risk assessments

based on the goods' point of origin or destination. In extreme instances, data and margins can be manually applied, which then becomes part of the AI's machine learning's data bank from which it can draw.

The AI development process is a dynamic activity working in the background to provide all the resources needed to produce solutions.

AI is already powering trade today and will undoubtedly continue to drive growth and efficiency in global value chains through the optimization and automation of existing operating models. The evolution of AI-based trade will continue to support countries and firms engaged in trade as they reduce the time, cost, and complexities on trade opportunities.

**More information**

<https://webbfontaine.com>

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# Customer service: the next wave

By Mikael Hyövälti, innovation expert, and Marko Kunnari, contact center manager, Finnish Customs

Since 2016, when the Finnish Government decided to digitalize all public services, Finnish Customs has been working on the development of digital services to improve its customer service. In 2017 the Administration explained, in the pages of this magazine<sup>1</sup>, how it tested the innovation potential of a hackathon to identify solutions that would make it easier to access information about Customs regulations and procedures. In this article, we take a look at the latest tools implemented by Finnish Customs to enhance its capacity to help its customers - namely a chatbot and a contact management system.

The increase in cross-border e-commerce and the removal, on 1 July 2021, of the VAT exemption for the importation into the European Union of goods with a value under €22, have led many individuals to interact with Customs administrations for the first time. At Finnish Customs we anticipated this major change and asked a data analyst working in another public agency to help us gain insights into the number of new customers to expect. It was obvious that our current customer service resources were not enough; it was time to explore new ways of doing business.

The good news was that customer service had evolved, with an increasing number of "intelligent solutions" becoming available. There is no single way to define "intelligent" here, but we could say that such solutions: operate in an environment with other solutions; possesses cognitive abilities such as perception, action control, deliberative reasoning or language use; and have the capacity to adapt through learning.

## Chatbot

A strong driving force behind the advances is artificial intelligence (AI), and especially natural language processing (NLP), the branch of AI concerned with giving computers the ability to understand text and spoken words in much the same way human beings can. NLP is an area where much has happened. One manifestation of this technology is the chatbot, a software that simulates human-like conversations with users

via text messages on chat. Chatbot can provide information to customers 24/7. It does so by pairing questions and answers, so that questions do not have to be precisely formulated in order for the chatbot to provide the right answer. Even though it is less than perfect, it is a great tool to have in a customer service palette.

There were a couple of commercial solutions to choose from, and we opted for an off-the-shelf solution developed by a Finnish company; this meant we only had to add Customs-related information to the tool and then train it to pair questions to answers, using about 60 interaction scenarios. The chatbot we chose was easy to connect to our contact management system. This allowed us to transfer customers to our chat service if the chatbot could not answer the question or the customer wanted to interact with a person.

We named our chatbot "Hippu", which means "Nugget" in Finnish, in honour of one of our drug sniffer dogs who retired. We piloted Hippu at the end of 2020 and deployed it at the beginning of 2021. Hippu was developed primarily to help individuals who are viewing the information on our website related to the clearance of parcels. After 1 July 2021 there was a spike in the number of individuals interacting with Hippu. We reached 6000 connections per month. Since then, the number has evened out as everyone has grown accustomed to the new legislation. Hippu served

<sup>1</sup> <https://mag.wcoomd.org/magazine/wco-news-83/hackathon-innovation-potential-tested-by-finnish-customs/>



nearly 32,000 customers in the first year of its deployment. 75 % of the conversations were successful, with customers reporting that the chatbot provided an answer to their question. Only 8 % of them had to be transferred to our chat service to interact with one of our staff.

Hippu processes information in Finnish and Swedish, but for NLP solutions the best is yet to come, especially in terms of language management. Large language models, or “LLMs” for short, are algorithms that learn statistical associations between billions of words and phrases in order to perform tasks such as generating summaries, translating, answering questions and classifying text. But historically they have been costly to create, keeping them in the hands of large IT corporations. This may change following the publication, on 6 July 2022, of an open source language model called BLOOM. According to its developers, “BLOOM is able to generate text in 46 natural languages and 13 programming languages<sup>2</sup>”. It is not a chatbot but a text completion model. You can start a sentence as if you were writing a text, and BLOOM will generate a coherent follow-up. It is really difficult to imagine and predict all the uses of this new language model, but it will undoubtedly have a positive impact on the development of NLP solutions.

### Contact Management System

Commercial solutions used to manage customer service operations have also evolved to enable employees to address customer needs quickly through user-friendly tools. Contact centers usually handle queries across multiple channels, from digital and social media to the more

traditional phone support. We realized that we needed a contact management system which would enable us to manage all our contacts, view conversation histories, and filter customers’ data into contact lists by title and a range of other attributes.

The new system we have acquired is very informative. It shows a customer’s past interactions with the customer service across multiple channels in a single database. We can also add notes about a customer’s needs and issues. This information enables us to serve customers better if they contact us again.

The system also provides for multichannel customer support, which enables us to switch easily from one communication channel to another which is more suitable for the issue at hand. For example, a customer with a simple question can use a “live chat” option rather than calling and having to wait for an agent to respond. A customer who wants detailed answers, or has a query which is major and too difficult to articulate through typed text, may be invited to call and speak to an agent directly. Last but not least, we have built a list of common questions and answers to help our staff deliver a high-quality service.

This is no longer simply about providing a service to customers – it’s about understanding their preferences and their overall experience with customer service. Ultimately, the objective is to ensure they are satisfied and to improve compliance with regulations.

### More information

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*The new system we have acquired is very informative. It shows a customer’s past interactions with the Customs administration across all channels in a single database. We can also add notes about a customer’s needs and issues. This information enables us to serve customers better if they contact us again.*

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2 <https://huggingface.co/blog/bloom>

# Egypt adopts innovative trade document exchange system

By Gamal Kotb, General Manager at MTS, and Igor Jakomin, Deputy CEO at CargoX

In 2019, the Arab Republic of Egypt decided to move away from a slow and burdensome paper-based way of processing cross-border transactions to one based on automation and digitization. As part of this transformation, the country required economic operators and government entities to begin exchanging all required documents for import and export through digital channels. The gateway to such data exchanges is the NAFEZA single window.

Before the deployment of NAFEZA, the data submission process was mostly paper-based and distributed across multiple agencies. Traders had to go through numerous and occasionally

redundant steps when submitting a Customs declaration, complying with border agency regulatory requirements, completing payment, and arranging for the release of their cargo.

NAFEZA introduced a unified data submission process which significantly reduced the number of steps required to comply with such formalities. It does so by integrating a set of applications which automate and orchestrate import, export and transit cargo clearance activities. Logistic Services Centres were also established at maritime ports to oversee control operations. The various components of the single window are described in Table 1.

Table 1: NAFEZA components

|   | COMPONENT                                  | KEY FUNCTIONS  | BENEFITS   |
|---|--|--|--|
|  | Service Centres                            | <ul style="list-style-type: none"> <li>Quality assurance, scanning, workflow assessment, inspection scheduling, etc.</li> <li>Work with Other Government Agencies for efficient handover of cases for analysis and inspection</li> </ul> | <ul style="list-style-type: none"> <li>Increased accuracy of trade documentation</li> <li>Reduced submission time through automated submission and tracking</li> <li>Improved efficiency of document processing</li> <li>Reduced corruption</li> </ul> |
|  | Electronic Document Submission             | Direct submission of declarations and supporting documents from traders' desks   | <ul style="list-style-type: none"> <li>Eliminates the need for physical submission</li> <li>Reduces data capture errors</li> <li>Saves time and cost</li> </ul>  |
|  | E-Payments                                 | Elimination of cash payments   | <ul style="list-style-type: none"> <li>Improves efficiency</li> <li>Reduces corruption</li> </ul>  |
|  | Goods Release Coordination                 | Collaboration between government and trade stakeholders to reduce end-to-end trade transaction time  | Reduces time required for the release of cargo   |
|  | Trusted Trader ("VIP") Services            | Establishment of a dedicated channel for large traders to minimize critical supply chain disruptions   | Improves efficiency of supply chains   |
|  | <i>Risk Management (under development)</i> | Development of a risk management application leveraging technologies such as Artificial Intelligence   | <ul style="list-style-type: none"> <li>Increases capacity to collect revenue</li> <li>Increases capacity to enforce regulations</li> </ul>   |
|  | Advance Cargo Information (ACI)            | <ul style="list-style-type: none"> <li>Electronic and secure submission of trade documents</li> <li>Document sharing among key stakeholders</li> <li>Immutable record</li> </ul>   | <ul style="list-style-type: none"> <li>Improved accuracy of documentation</li> <li>Pre-clearance &amp; reduction in port dwell times</li> <li>Improved compliance &amp; enforcement</li> </ul>   |

A blockchain document transfer platform was added to this arsenal to enable the Customs Administration to receive and process Advance Cargo Information (ACI) filings and control the compliance of the importation process prior to the loading of the shipments from the countries of export. We described the technology in the 97<sup>th</sup> issue of the magazine<sup>1</sup>, which was published at the beginning of 2022. To summarize, NAFEZA helps Egypt control the importation process from its very early stage to its end. Border agencies can better plan their activities, conduct documentation controls before the cargo reaches the port, optimize the use of their resources and minimize port congestion.

NAFEZA was built by the Egyptian company MTS, majority-owned by the Egyptian Finance Ministry and other government entities, with CargoX providing the blockchain document transfer services. Both took into account existing norms and practices for developing single windows, as laid out in the WCO Single Window Compendium. As for the Advance Cargo Information process,

it is compliant with the provisions of the SAFE Framework of Standards to Secure and Facilitate Global Trade, the International Convention on the simplification and harmonization of Customs procedures, the WCO Data Model and many other WCO instruments and items of guidance.

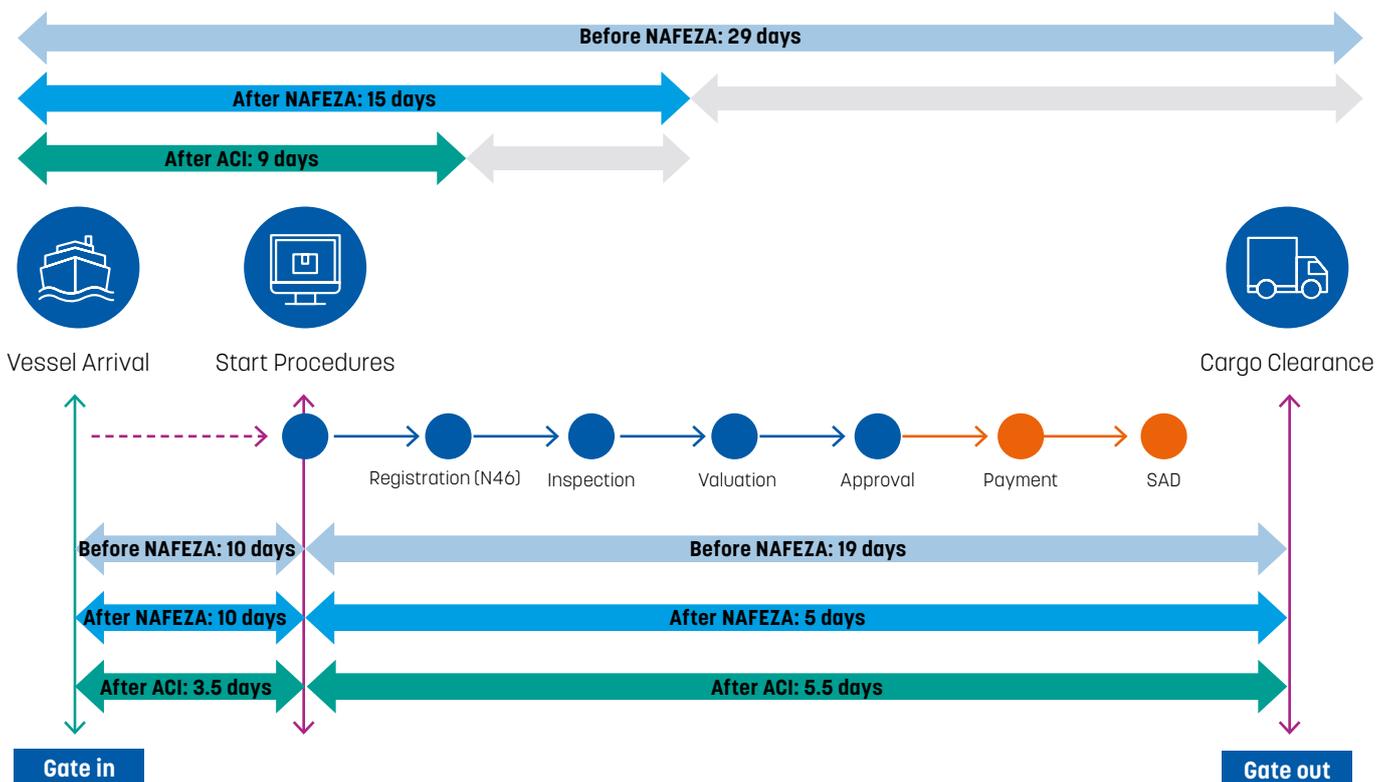
The blockchain document transfer platform was first used for sea-freight cargo. It is currently being extended to cover air freight and might be used in the future for the exchange of information on trade finance between monetary authorities and financial institutions at the national and international levels.

Documentation on almost 4.5 million import transactions has been already processed through the platform in the first year of operation, with no document loss and with participants reporting major benefits in terms of cost and time savings, as well as revenue collection. It takes between 3 to 9 days to release cargo, whereas it took 16 to 29 days before (see Figure 1). Revenue collection has increased by 13 % since 2019 (see Figure 2).

*NAFEZA is used by more than 95,000 companies and entities worldwide involved in the movement of cargo by sea from and to Egypt. We continue building on this momentum by adding air cargo documentation processing to the Blockchain Document Transfer Platform.*

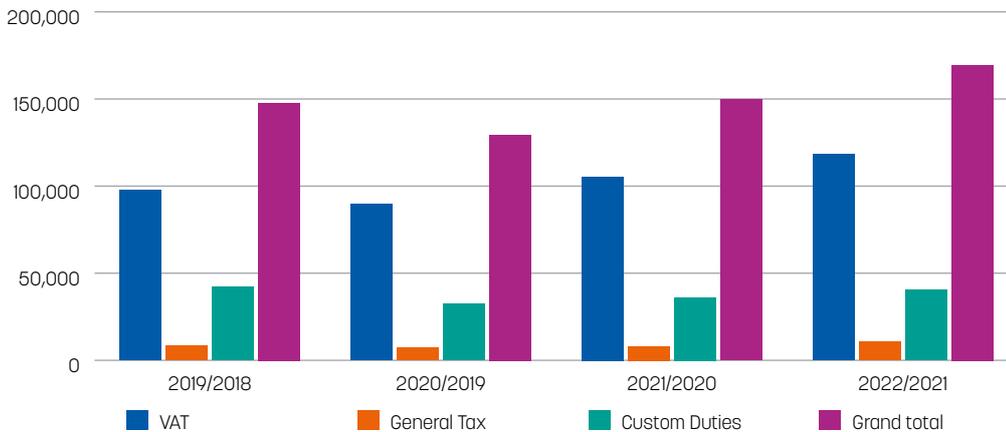
Captain Ossama Al Sharif, MTS Chairman & CEO

Figure 1 - Results of the Time Release Studies conducted before and after the implementation of NAFEZA



1 <https://mag.wcoomd.org/magazine/wco-news-97-issue-1-2022/blockchain-document-transfer/>

Figure 2 – Revenue collected per year since 2019



Value Added Tax (VAT) and Customs Fees Collected (Millions)

| Fiscal year | VAT     | General Tax | Custom Duties | Grand total | % of Change |
|-------------|---------|-------------|---------------|-------------|-------------|
| 2019/2018   | 97,432  | 8,234       | 42,020        | 147,686     |             |
| 2020/2019   | 89,758  | 7,119       | 32,528        | 129,405     | -12%        |
| 2021/2020   | 105,370 | 8,077       | 36,130        | 149,577     | 16%         |
| 2022/2021   | 118,459 | 10,706      | 40,342        | 169,507     | 13%         |

Source: Egyptian Customs Authority - Statistics Department (July 2022)

### Changing processes and business models

NAFEZA introduced a new mode of working for the various government agencies involved. They therefore had to restructure their mode of operations. This included doing away with front-end services to add more resources to back-end data processing, reallocating officers to value-adding tasks, such as data analysis, reviewing KPIs, and developing real-time reporting tools to enable managers to oversee operations and intervene in the most appropriate manner.

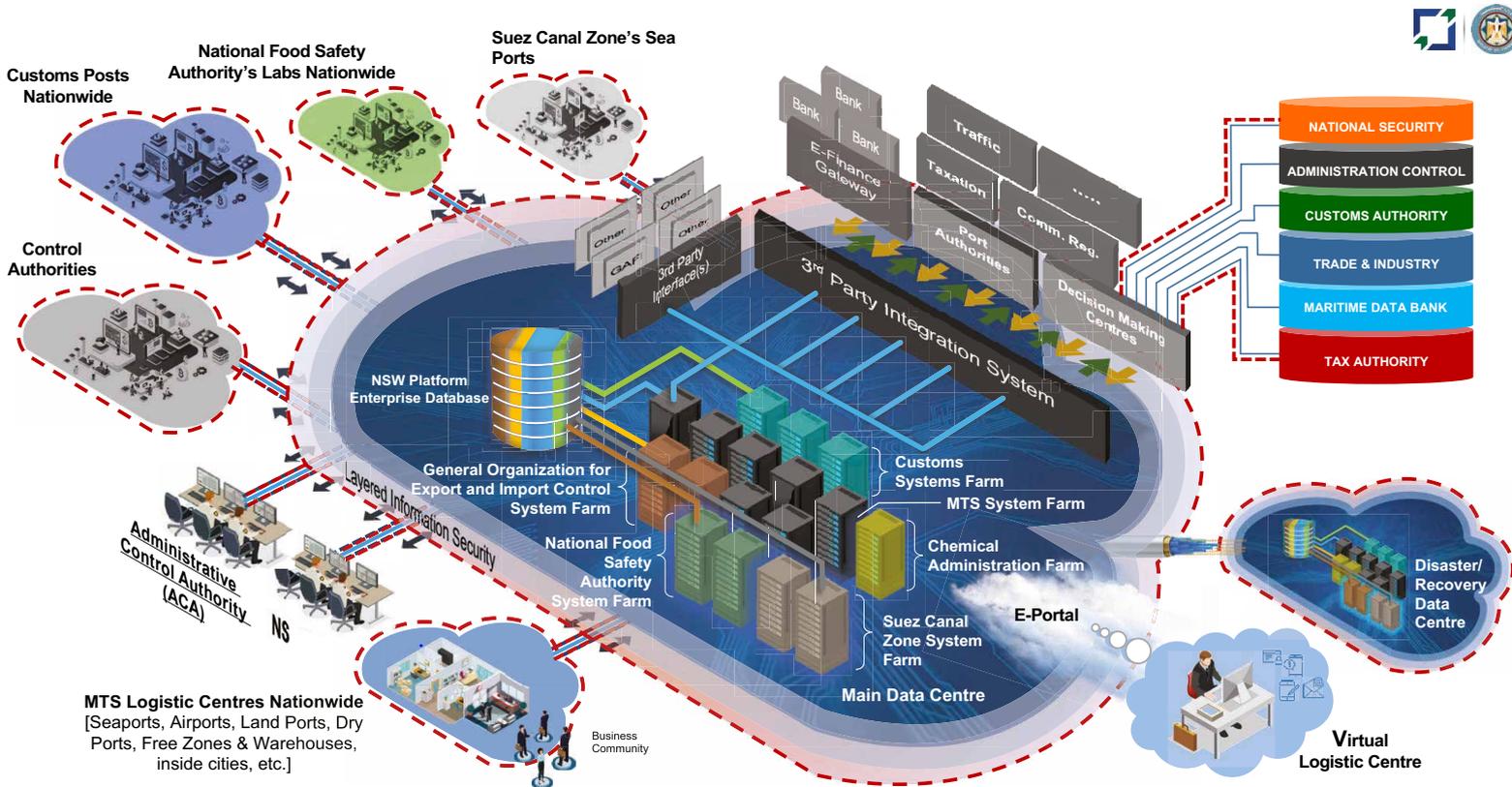
The main impact for the private sector was the removal of the need to be physically present when undertaking formalities, or to make calls and visits to know the status of their declarations. They can now follow up the processing of their transactions online. The security of digital documents and data has also increased.

Digital transformation also requires knowledge transfer and upskilling. Egyptian authorities set forth a comprehensive training plan for 2019 to 2022, during which time 2,670 Customs employees have been trained, along with 1,577 governmental employees, as well as 1,322 MTS employees and almost 17,000 trade community members.

*Economic operators and governmental entities worldwide are embracing electronic trade document exchange, and the vision we had when developing our blockchain platform is becoming a reality. Working with the Government of the Arab Republic, we learned that you need governmental and business stakeholders to bring to the table the specific layers of information that they each own to develop revolutionary features which will impact an industry such as shipping in terms of efficiency, transparency, confidentiality and speed. Almost 100,000 companies around the world are using our blockchain platform in their daily trade operations. We hope that more governments will soon join.*

Stefan Kukman, CEO of CargoX

Figure 3 - The NAFEZA Platform



### Improved customer satisfaction

Reactions to the introduction of NAFEZA have been generally positive. Local and foreign chambers of commerce played a key role as they relayed information to their members. The German-Arab Chamber of Commerce, for example, organized six webinars, attended by more than 300 participants, who were able to ask questions not only during the events, but also after.

### Lessons learned

The project itself, from ideation and design to implementation and deployment, has been extremely rewarding and we would like to share some of the lessons learnt from the experience.

First, the project has shown that governments can drive innovation forward. The NAFEZA single window for foreign trade and its blockchain platform are unique and revolutionary.

Second, we now know that such solutions can be deployed in a relatively short time, despite the complexity of the work required. The prerequisites are the active involvement of all governmental bodies, and committed external and internal experts with a clear mandate and objectives, as well as passion.

Third, it is important to prove that there are benefits to change. Even when processes are known to be slow and inefficient, there will be stubborn resistance to changing them, with people clinging to the principle, "We must not lose the paper document".

Fourth, change can be incremental. Once it has been proven that a solution has been found to manage everyday operations safely and with high reliability in a particular sector, it can be expanded to cover other business areas. The success of the blockchain platform in managing sea-freight operations has convinced the Government of

Egypt to implement the electronic ACI filing approach for the air cargo transport modality.

And lastly, there is no need to reinvent the wheel, even when innovating, so use the resources, guides, compendiums and available standards.

The strategic focus for Egypt in implementing NAFEZA is aligned with that of the WCO: to use modern technologies to support business continuity, and to ensure the resilience of global trade, no matter what type of challenges arise in the future.

**More information**

[www.cargox.io](http://www.cargox.io)  
<https://www.nafeza.gov.eg/en>

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*Communication is key to a smooth and seamless introduction of new Customs clearance procedures. Together with Egyptian authorities, we were able to assist many European exporters and Egyptian importers. We will continue to serve as relay points to reach the economic players concerned and ensure that digital transformation translates into enhanced operational success for all.*

German-Arab Chamber of Commerce

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More than

95,000

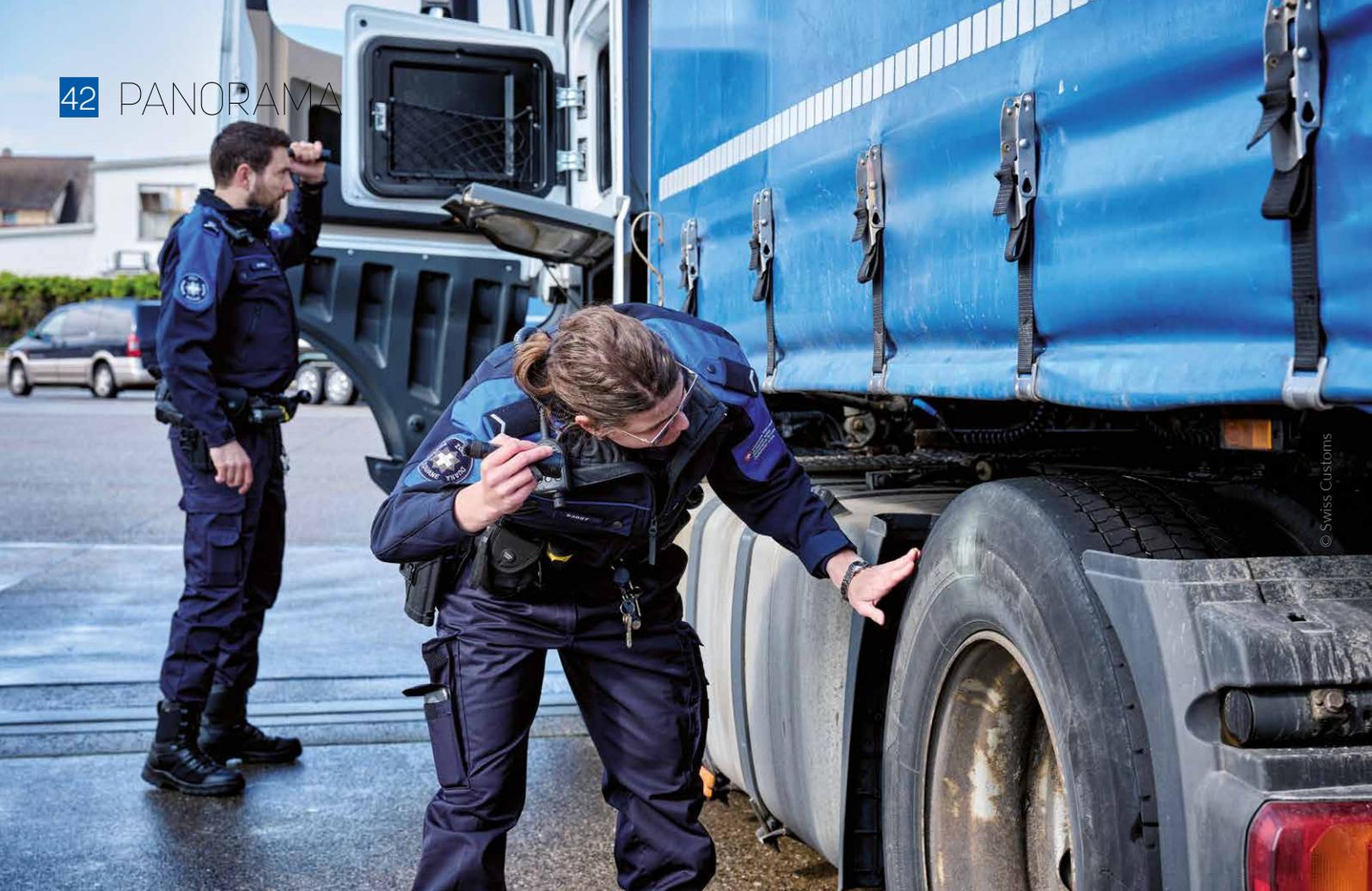
companies feel secure  
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## Digital transformation: Swiss Customs presents its mid-term review

By the Federal Office for Customs and Border Security (FOCBS)

The Federal Office for Customs and Border Security (FOCBS) is constantly evolving. Its objective is to simplify and digitize all processes and to increase the organization's flexibility. DaziT is the name given to the programme that brings together the various activities undertaken to achieve that objective. "Dazi" means "Customs" in Romansh, one of the four official languages of Switzerland, and the final "T" stands for "transformation". The DaziT programme was officially launched on 1 January 2018 and is expected to be completed by the end of 2026. We have therefore reached the halfway point, which is the perfect time to take stock of the results achieved thus far.

### 33 million datasets

One of the tasks undertaken by the FOCBS has been to standardize and centralize the master datasets using a master data management solution.

The data model used thus far has been simplified, enhanced and expanded. Over 30,000 business partner datasets and some 33 million sets of specific Customs master data have gone on to be collected, such as tariff codes or Customs duty rates. "That's a world record," explains project leader Thomas Eggimann. "A million datasets are managed actively and updated daily. We are now able to harness them more easily."

And, possibly even more importantly, strict data management workflows have been implemented to improve the management quality of these datasets. The new solution also allows FOCBS customers to modify their own data in self-care mode – from any location and at any time. As Mr. Eggimann sums up, "With the new centralized management solution, we can ensure the quality and reliability of the data. It provides a solid foundation for further projects in the

DaziT programme and for the many initiatives undertaken by the Federal Administration.”

### Automatic activation

Automatic activation is a key component of the new end-to-end digitized Customs process which is gradually being introduced as part of the DaziT programme. At this juncture, two applications, Periodic and Activ, have been developed to manage periodic declarations (facilities granted for the regional transportation of uniform consignments imported regularly and through the same Customs office) and international transit declarations more effectively. The apps operate on the following principle: the Customs declaration for the goods and the associated transport declaration are connected via one of the two applications. However, the goods declaration is not activated, and hence does not become legally binding, until the means of transport transporting the goods in question is geographically tracked in one of the designated zones close to a border crossing point by one of the 64 geofences installed there. At that point, a risk analysis is undertaken. At the end of the analysis process, the driver is notified whether he may continue his journey or whether a Customs check is necessary.

Since the Activ and Periodic smartphone apps went live in 2019, over 100,000 journeys into and through Switzerland have been automatically activated. The trend is upwards and the growth potential is huge: every day, over 20,000 lorries cross the Swiss border.

### Telematics

Under existing arrangements, lorry drivers must have a smartphone that is turned on and connected to a telephone network; they also have to launch the process manually. One form of technology would facilitate full automation: telematics.

A large proportion of transport companies already use telematics technology on board their lorries to optimize oversight of their fleet. The technology enables them to gather, via telematics operators, data such as the location and speed of the vehicles, or even their drivers' break times.

Customs would need only a tiny proportion of such data to facilitate the automatic activation of Customs declarations. They would just need to be able to determine, using geo-tracking technology,



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when a vehicle transporting the declared goods enters the designated border zone. In technical terms, a simple interface with the telematics operators' software would facilitate this sharing of data. Swiss Customs is also working towards additional solutions, for example, for indicating to drivers that they may continue their journey or must undergo Customs checks. A practical test carried out in autumn 2021 confirmed the potential of the tools developed.

Automatic activation using telematics technology is not restricted to road transport. Studies into technical solutions for other means of transport are ongoing. As regards water transport, activation is expected to be set up using the RPIS (Rhine Ports Information System), a river transport management system which also relies on telematics. For transport by rail, automatic activation is envisaged via ZIS (Train Information System), the telematics platform rolled out by the Swiss Federal Railway. And, finally, activation

for air transport could be linked to the air freight management systems.

### A multitude of digital services

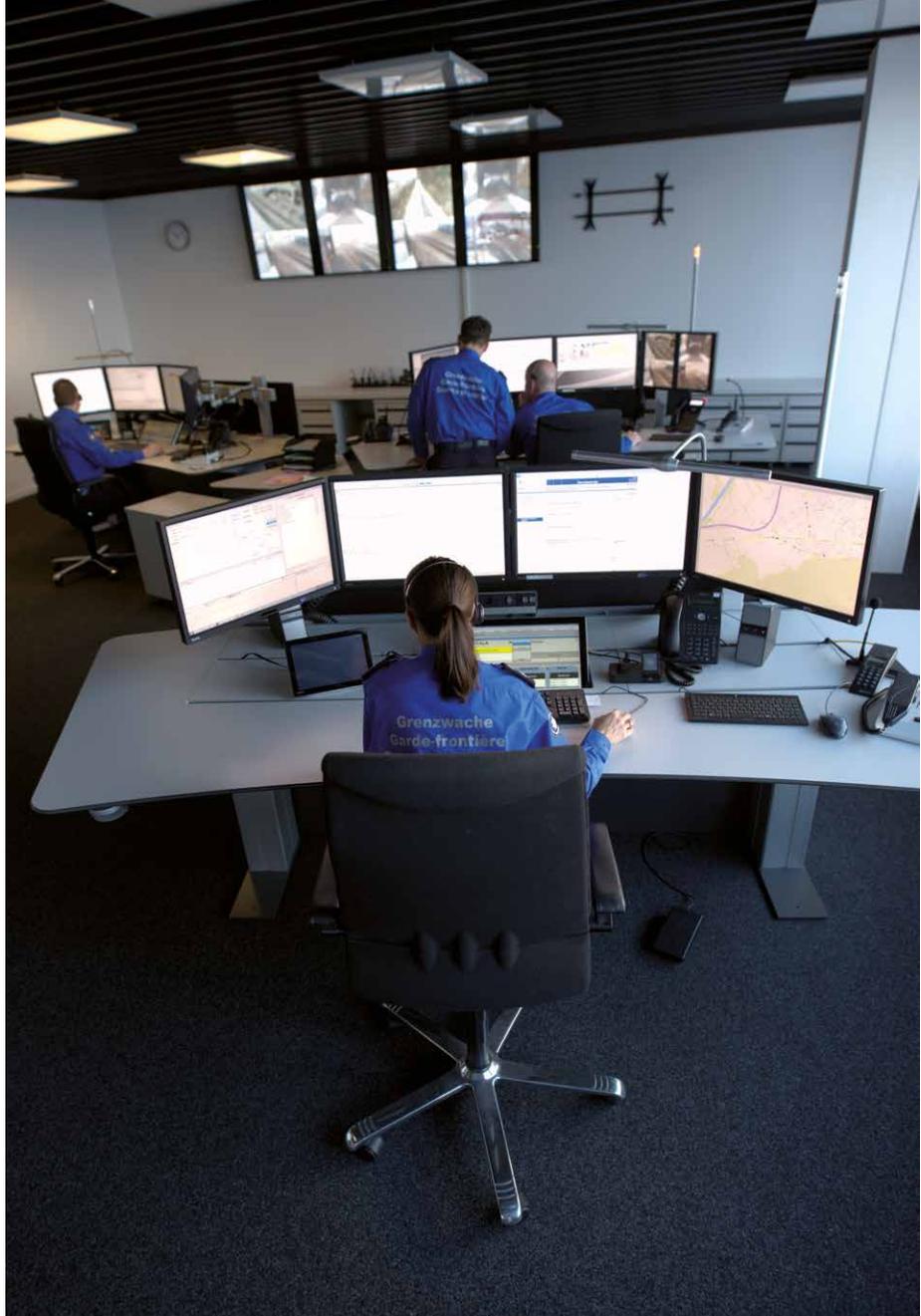
Over the first four years of the DaziT programme, the FOCBS has brought some 30 IT applications and services into operation. Their use is growing steadily, as demonstrated by the following examples:

- **33%:** the rate of increase in the payment of the performance-related heavy vehicle charge (HVC) collected from foreign lorries via the European Electronic Toll Service (EETS). Since January 2020, more than half a million journeys through Switzerland have been processed using EETS, although there are only two FOCBS-certified providers offering this new service.
- **65%:** the percentage of bus and camper van drivers now choosing to pay the lump-sum heavy vehicle charge (PSVA) digitally using the smartphone app Via. Winner of the “Best of Swiss Apps” award, the application has been used more than 60,000 times since its launch in early 2019.
- **99%:** the percentage of beer tax in Switzerland and Liechtenstein which is collected digitally. Following the example of the large and medium-sized breweries, virtually all small breweries are now also declaring their beer production for tax electronically using the Biera app. The tax is calculated automatically. The refund process is also digital.
- **100,000:** the number of goods declarations made by tourist traffic using the QuickZoll app has passed this symbolic threshold. In 2021, around 10% of all revenues from tourist traffic were collected via this smartphone app.

### Mobility and flexibility

The transformation is not limited to digitization; that is just the tip of the iceberg. As an organization, the FOCBS will be undergoing a radical transformation to become more agile and more flexible. The reorganization is focused on a single professional profile replacing the current professions of border guard and Customs specialist. All new colleagues will be trained in the control of goods, persons and means of transport and will go on to specialize in one of those areas. Corresponding training will be offered to existing colleagues, who will be required to build on the

© Swiss Customs



skills acquired in a targeted manner, focusing on the practical aspects.

Automation of some tasks will, moreover, allow staff to focus on the checks and services providing added value for the customers. Work resources and engagement methods will also be modernized. Staff are equipped with mobile communication devices (smartphones, laptops). Patrol vehicles will be kitted out in line with the new fleet strategy, namely with mobile control instruments and a mobile IT infrastructure, so as to offer multifunctional positions.

IT services aimed at boosting staff mobility and work flexibility include:

- the EneXs Mobile app, by which various investigative databases can be searched on a smartphone for details of people or objects;
- telematics and digital logbooks, already fitted in and used by 93% of patrol vehicles.

## Communication

The transformation of the FOCBS is taking place alongside regular exchanges with numerous partner organizations and stakeholders. Discussions with the Customs administrations of the neighbouring countries and the European authorities are under way with a view to simplifying and speeding up border crossings. Discussions with business undertakings and associations are taking place in the business advisory group and in the various working groups. The cantons and security organizations are also regularly informed.

Here are some figures to give an idea of the volume of these discussions since the launch of the DaziT programme: 90 information events for managers and employees; 13 meetings with the business advisory group; 50 meetings with staff associations; and 40 official harmonization meetings with neighbouring countries and the Taxation and Customs Union Directorate-General.

## Second half of the programme

The second half of the DaziT programme looked forward to two important milestones which are to be reached in the coming months: the Federal Council's (Government's) approval of the "dispatch on the total revision of the Customs Act" and the introduction of the Entry/Exit System (EES) developed by the European Commission for capturing electronically the entry and exit of third-country nationals in the Schengen Area.

The next milestone after that will be reached in Summer 2023, when the first release of the new Passar goods traffic system will be rolled out. In DaziT's early years, several very specific applications were placed on the market which improved certain stages in the Customs declaration system for those sectors directly affected; however, they could not quite realize the full potential of simplifying and speeding up the cross-border movement of goods. Passar, which will gradually replace the existing NCTS (transit and export) and e-dec (import and export) systems, contributes significantly to progress in this direction. The two systems will be merged and all general Customs declaration processes will be simplified, harmonized and digitized. The transition will be prepared in close consultation with the business community and software providers. A software development working group has been set up to assist their work.

Other important projects, such as the introduction of a standardized case processing and reporting solution for the entire FOCBS, the introduction of the e-vignette, the implementation of real estate projects, and the continued drive towards cultural transformation, will also be the focus of FOCBS attention in the coming months.

## More information

[www.dazit.ad.min.ch](http://www.dazit.ad.min.ch)

## A day at Swiss Customs



### GOODS TRAFFIC

20,000 lorries cross the border

74 safety deficiencies are detected in drivers or vehicles

100,000 Customs declarations are processed

98 cases of smuggling are established

34 counterfeit products are found

4 consignments of illicit medicines are seized

6 prohibited weapons are seized

30.6 kg of drugs are seized



### MOVEMENT OF PEOPLE

750,000 people cross the border on board 350,000 vehicles

6 forged documents are seized

3 cases of stolen goods or of items originating from burglary are detected

85 cases of illegal residence are established

55 people wanted by the police are arrested, 18 of whom had an arrest warrant issued against them



### REVENUE

CHF 59.4 million are collected in revenue



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# The interconnectivity of transit systems is becoming a reality in West Africa

By the WCO Secretariat and the World Bank Group

Connecting national Customs systems to share data on transit operations is a priority for the Customs administrations of West and Central Africa, as well as for economic operators, international institutions and development partners working in this region. The objective is to secure, simplify and speed up the flow of commercial goods in transit, especially those coming from seaports and destined for land-locked countries. Against this background, a key project came to fruition a few years ago with the deployment of the Interconnected System for the Management of Goods in Transit (SIGMAT), already operating in five countries with two more to join soon.

Unlike other Customs procedures, which happen in one place, transit requires an exchange of information from at least three places, namely where the transit was initiated, at the borders, and where it terminates. In West Africa, the process requires a transit declaration to be registered at the border of each country until the cargo reaches its destination. With SIGMAT, Customs administrations in West Africa are moving away from manual and paper-based transit procedures by connecting their computer systems. A transit declaration is registered in the departure country, and a copy of it is sent electronically to the computer systems of the transit and destination countries to warn of the arrival of the goods. At borders, trucks are not required to wait for a new Customs declaration; the same declaration is used during the entire process. Customs

officers at the border, or at the destination office, then confirm the arrival of the goods in their computer system and confirmation is sent electronically to the departure country. As the Customs administrations involved in the project use three different types of automated Customs systems, an interface had to be built to allow for this exchange of information, and standardized messages – in terms of structure and data format – had to be developed.

## Inception

SIGMAT is the result of a long process, which involved many actors. With the financial support of the European Union (EU), the Customs administrations of some of the countries making up the Economic Community of West African States (ECOWAS) started working on the

interconnection of their systems at the end of 2011, under an initiative called ALISA. In 2013, the Customs Administration of Côte d'Ivoire decided to allocate some of the funds received from the EU under the *Programme d'appui au commerce et à l'intégration régionale* (PACIR) to the development of functional and technical specifications, with the support of the WCO and the participation of the Customs Administrations of Mali and Burkina Faso. Many other international organizations and development agencies were involved in the work, including the United Nations Conference on Trade and Development (UNCTAD), the World Bank, the Japan International Cooperation Agency and the German Agency for International Cooperation. Senegal Customs joined the project in 2014, followed by Togo in 2016.

The ECOWAS Commission adopted the project in 2015 and started working on the development of SIGMAT. The System then benefited from the support of the Trade Facilitation West Africa (TFWA) Program<sup>1</sup>, an initiative driven by multiple development partners that aims to improve existing trade facilitation measures in West Africa. The WCO has continued to provide support, including by training IT experts in Customs administrations to develop message specifications based on the WCO Data Model<sup>2</sup>, to enable them to achieve their goals when it comes to the interconnection of computer systems.

## Benefits

By enabling electronic data about cargo in transit from one border to another to be automatically exchanged between several Customs administrations, SIGMAT offers huge benefits to Customs, traders of all sizes, companies and governments. SIGMAT is expected to enhance the efficiency and transparency of Customs operations and procedures, improve risk analysis capabilities, and significantly boost regional trade by lowering the cost of trade operations.

Since its launch in 2019, the System has been successfully deployed across the following key trade corridors: Abidjan-Ouagadougou, Abidjan-Ouagadougou-Niamey, Cotonou-Niamey and Lome-Ouagadougou. Countries along the corridors have recorded increased revenue,

shorter border crossing times and reduced management costs.

## Deployment

Ongoing activities supported by TFWA include:

- deploying SIGMAT in Côte d'Ivoire and Burkina Faso for goods transported by rail as well as by road;
- developing a mobile version of SIGMAT which will enable interconnection between Customs administrations at locations where it is not possible to use the desktop version;
- supporting the expansion of the interconnection within the region;
- supporting training sessions for Customs officers, freight forwarders and other relevant stakeholders; and
- acquiring IT equipment for the deployment of SIGMAT in Mali and Senegal.

Any Customs administration could eventually benefit from SIGMAT. Its implementation will not require development for those using the ASYCUDA World Customs computer system, making the adoption of SIGMAT particularly feasible for them.

However, there are some important prerequisites. Interested administrations would need to set up a team including officers with strong leadership skills, and ensure that the changes to systems and procedures are supported by strong political will. Changing systems also means changing ways of operating in the field. Administrations would need to train their field staff in order to align their practices, as a lack of harmonization would undermine the benefits of digitalization. Last but not least, they must have the legal basis for exchanging information at the bilateral or regional level.

## More information

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Vyara Filipova, WCO Secretariat:  
[facilitation@wcoomd.org](mailto:facilitation@wcoomd.org)

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*Changing systems also means changing ways of operating in the field. Administrations would need to train their field staff in order to align their practices, as a lack of harmonization would undermine the benefits of digitalization.*

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<sup>1</sup> <https://tfwa.projects.ecowas.int/index.php/en-us/>

<sup>2</sup> <https://datamodel.wcoomd.org>



© Dubai Customs

## Disposing of counterfeit goods through recycling: Dubai Customs' new measure is a game-changer

By Dubai Customs IPR Department

The need to dispose of or destroy goods that infringe intellectual property (IP) rights in an appropriate, environmentally safe manner, in line with the applicable environmental and public health legislation, has been highlighted at various WCO meetings as well as in this magazine.<sup>1</sup>

For many years, a lack of capacity for handling the destruction of such goods properly in Dubai, without any impact on the environment, led the Customs authority to issue decisions to re-export them back to the port of origin. This was generally seen as an unsatisfactory solution for brand owners, as the goods would be exported to other markets or might even be reshipped back to Dubai.

The “re-export” policy was guided by environmental concerns. The volume of suspect goods detained was so massive that the municipal authorities refused to dispose of them in landfills as this would have posed a risk to the environment and to public health.

In 2015, Dubai Customs' IPR department joined forces with brand owners and their legal representatives, as well as diplomatic commercial attachés and other stakeholders, to find an alternative solution. A series of discussions and workshops were conducted and it was eventually decided that the right holders would contract recycling companies based in the UAE to dispose of IP-infringing goods. They would also bear the recycling fees and all related costs. Dubai Customs

<sup>1</sup> <https://mag.wcoomd.org/magazine/wco-news-86/storage-and-destruction-of-counterfeit-goods-the-safety-and-environmental-challenges/>

would supervise the recycling process carried out by the recycling companies. After thorough studies and impact analyses, the new policy for disposing of counterfeit goods via recycling was adopted; it officially came into force in April 2018.

In 2021, Dubai Customs made around 390 seizures totalling 1,764,710 counterfeit items – a big jump from the 1,906 counterfeit items seized in 2020. The fake products ranged from computers to athletic shoes, timepieces, mobile phone accessories, headphones, garments, bags and cosmetics. All of the seized items were sent for recycling.

There are two main scenarios in which a complaint to Dubai Customs regarding suspected IPR-infringing goods may arise (see figure 1):

- Dubai Customs discovers suspected IPR-infringing goods and notifies the IPR owner;
- the right holder discovers a suspect shipment and notifies Dubai Customs.

If the importer does not acknowledge that the suspect goods are counterfeit, Dubai Customs

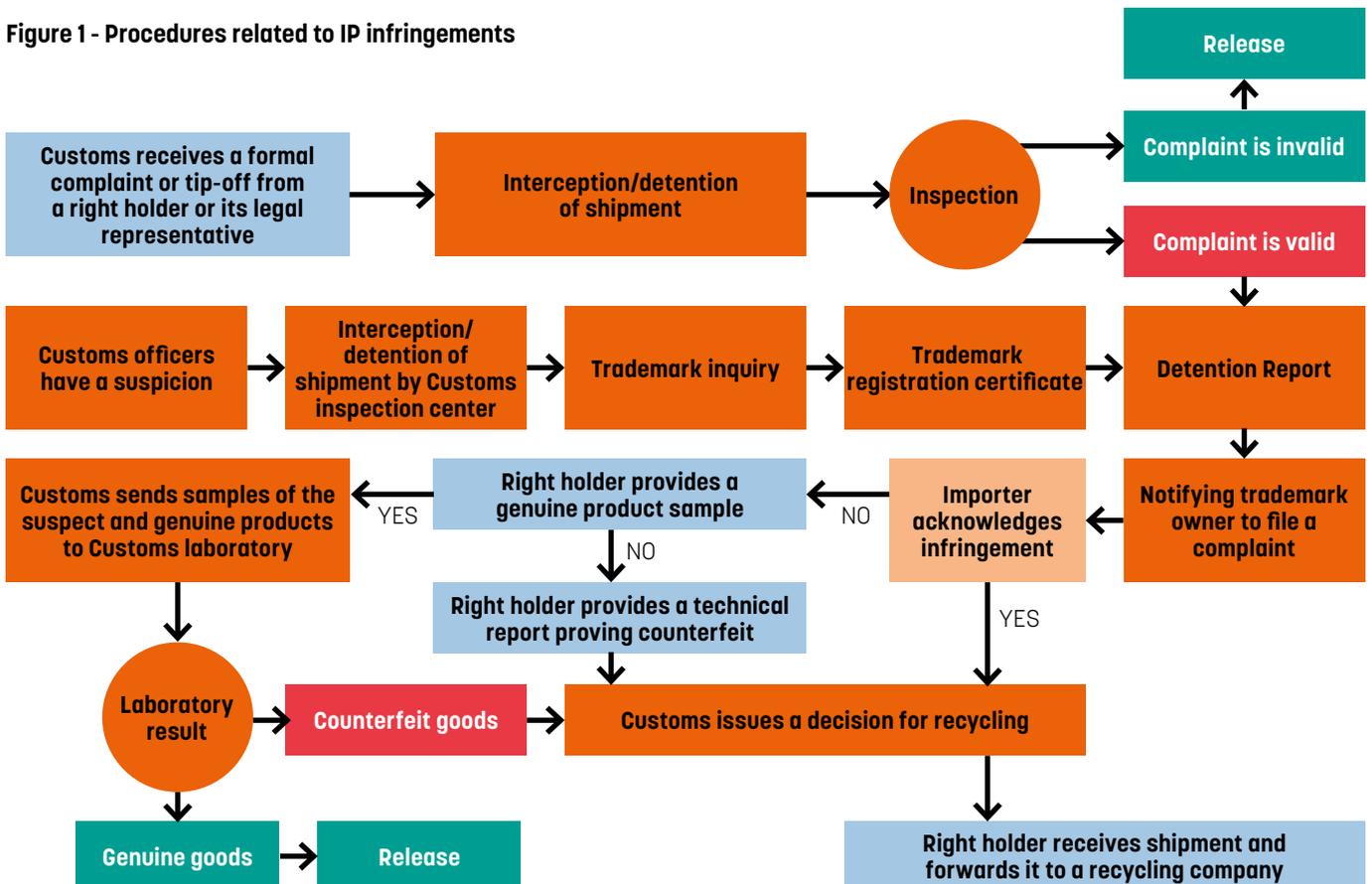
will take a sample of the goods from the shipping consignment or from the location where it has been discovered (factory, warehouse, etc.), and transmit the sample to an official laboratory for testing in order to determine whether or not it is genuine. For this purpose, the right holder is required to provide Dubai Customs with samples of genuine goods that correspond to the suspect goods. If the official laboratory confirms that the suspect goods are not genuine, Dubai Customs will seize them. If the right holder cannot provide a sample of the genuine goods, he must provide the technical specifications of the goods, together with any other relevant information.

**Recent cases**

A recent case involved a major tobacco company. During an ad hoc inspection conducted by Customs officers at the Jebel Ali Free Zone, a shipment containing around two million cigarettes suspected of being counterfeit was found at the storage facility of a logistics company. A forensic inspection of samples was carried out, and the goods were indeed found to be counterfeit. The right holder lodged a complaint to seek the confiscation and destruction of the counterfeit goods and arranged for them to be disposed of by

*In 2021, Dubai Customs made around 390 seizures totalling 1,764,710 counterfeit items – a big jump from the 1,906 counterfeit items seized in 2020.*

**Figure 1 - Procedures related to IP infringements**



a recycling company. Dubai Customs, after proper investigation, ruled that the goods should be seized and handed over to the recycling company.

In another instance, 58 pipes for transporting oil and gas were seized following notification by an IP consultancy that goods infringing a trademark had been loaded into four containers shipped from an Asian country. These pipes would have posed significant security and environmental risks if they had not been removed from the market, as they were not capable of withstanding the level of pressure required for the transportation of gas and oil. Here again, the right holders arranged for the items to be sent to a recycling facility.

### Fresh impetus

The new procedure is set to give fresh impetus to the cooperation between right holders and Dubai Customs. The latter regularly organize training events in cooperation with the right holders of major brands, to enhance the capacity of

inspectors to detect counterfeits and distinguish fake, IP-infringing goods from genuine ones. Risk indicators are continually being developed and updated to enable effective risk assessment through the Smart Risk Engine System. This process is supplemented by physical visits to warehouses and factories, conducted by highly-skilled Customs inspectors.

Other Customs authorities in the United Arab Emirates are also implementing this recycling policy. In 2021, the Office of the United States Trade Representative (USTR) removed the UAE from the US intellectual property protection (IPP) watch list. In the report accompanying its decision, the Office of the USTR recognized the progress made by the UAE in tackling longstanding IP enforcement concerns, particularly through increased efforts by Dubai Customs.

### More information

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# FOCUS: Collecting enforcement-related data

Collecting, storing, analysing and disseminating law-enforcement information efficiently is critical for establishing robust intelligence capabilities. To support Customs administrations in this area, three WCO applications have been developed:

- The Customs Enforcement Network (CEN), a web platform that acts as a depository of enforcement-related information which analysts can mine to produce valuable analysis and intelligence. At its core is a database of seizures and offences, as well as pictures. Its value rests squarely on the steady flow of quality data provided by all WCO Members.
- The National CEN (nCEN), an application to be deployed at the national level. It consists of four independent databases.
- The CEN communication platform (CENcomm), a web-based communication system permitting a closed user group of officers to exchange information, in real time, for the duration of an enforcement operation or project. Information reporting can be standardized with the use of templates, which can be customized to only include data fields that are pertinent to a specific operation.

In this section, we have brought together articles on the need to enhance data quantity and quality in the CEN, on the way Customs administrations use the nCEN and upcoming upgrades of the application, and on how Indian Customs has enhanced its Customs Offence Management System.

# Enhancing data collection - A call to action!

By Iwona Sawicka, WCO CEN Programme

When the first discussions on the creation of the Customs Enforcement Network (CEN) were initiated during the Enforcement Committee in 1999, there was agreement that the CEN would have positive implications for the organization of Customs enforcement services around the world. The project was unanimously supported by WCO Members and the Regional Intelligence Liaison Offices (RILOs), with the common understanding that implementation and success of the project would depend on all parties being willing to share information in a timely and secure manner.

As we look back at its 20 years of history, we realize that the core reasons for building the CEN are just as applicable today as they were at its conception, and, till this day, the CEN is the only global Customs database of seizures and offences. Against the backdrop of Customs embracing a data culture and building a data ecosystem, the relevance of providing information to the CEN to enable better analysis, as well as more effective risk assessment and profiling for all types of fraud, remains high.

## **“It is a capital mistake to theorize before one has data” – Sherlock Holmes**

The key issue in the discussion on the enhancement of data quantity in the CEN is the fact that data is provided by WCO Members on a voluntary basis, and many Members do not comply with the recommendation and request to provide data to the CEN in a comprehensive and timely manner. The main challenge is therefore to encourage and convince WCO Members to contribute more to the CEN database, both in their own interest, and for the sake of the global Customs community.

It is in this context that the *WCO Charter of Data Quantity and Quality Enhancement in the CEN* came into existence, as a fundamental strategic commitment of WCO Members, RILOs and the WCO Secretariat to enhancing data submission to the CEN. It is a document outlining 14

key principles, some addressing the need to re-examine the value of providing data, others addressing the challenges of providing data. These principles require buy-in from all actors that work with the CEN, including all WCO Members, RILOs and the WCO Secretariat, but they have different implications for each actor. The CEN Charter was first endorsed by the Customs Enforcement Network Management Team (CENMaT) at its January 2021 meeting, and a few months later by the Customs representatives participating in the WCO Enforcement Committee and then the June 2021 WCO Council.

## **Engaging WCO Members**

As a basic principle, the CEN Charter calls on heads of Customs administrations to raise awareness among their staff as to the added value of the CEN at the national level, in order to convince them that, by providing high-quality data to the CEN, they can derive more accurate and reliable analysis and enable a data-driven decision making process.

They are also requested to ensure the monitoring of CEN data entry in order to provide timely and comprehensive data input, and to ensure the transfer of their operational data from the Customs Enforcement Network communication platform (CENcomm) to the CEN during operational activities. Lastly, they are requested to consider automating data transfer to the CEN through the implementation of the National Customs Enforcement Network (nCEN) application, which is already being used by 55 administrations.

## **Mobilizing the RILOs**

The RILO Network is a unique and critical part of the broader WCO Information and Intelligence Exchange Strategy. Although most are already active in this domain, the CEN Charter calls on RILOs to regularly monitor the status of CEN data input of their affiliated Customs administrations, and to provide training on data input and data analysis, with the aim of enhancing the capacity of Customs officers to enter data into the CEN,

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*The CEN Charter calls on heads of Customs administrations to raise awareness among their staff as to the added value of the CEN at the national level, in order to convince them that by providing high-quality data to the CEN, they can derive more accurate and reliable analysis and enable a data-driven decision making process.*

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and to additionally derive benefits from this data. In particular, in relation to the latter, RILOs are requested to provide more operational and strategic analysis based on the CEN, and thus showcase the benefits of data collection in the CEN. Although concerns have been voiced that the amount of data in the CEN is limited, the analytical work conducted by some RILOs has proven that the CEN allows for meaningful analysis and for the definition of trends. It should be noted that the production of analytical publications can potentially highlight gaps in data from certain countries or regions, which in turn can prove to be a motivating factor for Customs administrations to provide more data.

### Involving the WCO Secretariat

The creation of the *WCO Charter of Data Quantity and Quality Enhancement in the CEN* was initiated by the WCO Secretariat as a call to action. Customs digital transformation has seen an increase both in the availability of data, and in its relevance in support of the decision making process – from the frontline officers who profile shipments, means of transport, or individuals, through to the strategic decision makers who rely on data for their strategic planning. <CEN call for action.png>

While WCO Members and RILOs are called on to enhance and monitor data entry, the Secretariat is entrusted with providing technical solutions for facilitating and automating data submission to the CEN. In fact, it has already made important steps towards developing technical solutions to facilitate data entry. One example is the introduction of the Electronic Data Interchange (EDI) component in the CEN and nCEN, allowing for seizure data

import from Excel spreadsheets. The introduction of the EDI component has also made it possible for machine-to-machine connections to be set up between the CEN or nCEN and other third-party enforcement databases. For example, the CEN has already been successfully connected for several years with the European Anti-Fraud Office's CIS+ application, allowing for data to be pushed automatically from CIS+ to the CEN on a regular basis.

With these existing data entry facilitation measures in mind, the CEN Charter calls on the Secretariat to look more closely into enlarging the data source pool, through enhanced cooperation with other law-enforcement organizations and the improvement of the interoperability of all WCO enforcement applications. More specifically, the Secretariat is requested to create a new integrated CEN application, "iCEN", capable of gathering data from various sources and integrating data in various formats, with computing functionality allowing for efficient data processing, analysis and visualization.

In terms of showcasing the value of data collection, the CEN Charter calls upon the Secretariat to encourage WCO programmes, WCO Members, and other law-enforcement agencies to use CEN data for pre-operational activities, and to provide analytical products based on CEN data.

### "Ideas mean nothing without execution"

While the strategic initiative is critical to fulfilling our goals, every initiative has to have its own strategy. For the WCO Secretariat, this means, on the one hand, putting in place technological

solutions to facilitate data entry, and working on furthering the concept of the ICEN; on the other hand, it means promoting the broader goals of the CEN Charter: encouraging greater data submission and enhanced use of the CEN for analytical purposes.

Having conceptualized several applied solutions in response to the CEN Charter, the WCO Secretariat, through the CENMat, has developed a simplified input form in the CEN, allowing Customs administrations to record minimal data for statistical purposes. For those administrations experiencing a strain on resources, the simplified input form will facilitate data entry, while continuing to provide quick statistics for the use of frontline officers. With the release of this new functionality, the WCO Secretariat offers every administration the capability to enter data in this simplified format. The functionality has also been extended to CENcomm, with each closed user group (CUG) having the option of collecting data using this simplified format.

Another data entry facilitation measure released in the CEN (and nCEN) is the desktop application. This additional component, downloadable from the main menu of the CEN (or nCEN), has the same look and functionality as the main application. Although more restricted, it allows officers to enter data from anywhere at any time, whether they have an internet connection or not. The seizures entered in the desktop application can subsequently be exported and uploaded to the CEN (or nCEN) when an internet connection becomes available. This offline solution will facilitate the work of frontline officers at border checkpoints, and the operations in administrations where internet connectivity is unreliable.

In order to obtain more data and promote the use of the CEN and nCEN applications, it is essential not only to facilitate data entry, but also to showcase the value of those applications, and in essence the value of the data itself. In reality, however, many Customs administrations lack the

analytical capability in their risk management and enforcement departments to process the data contained in the CEN in a meaningful way. To assist them, a basic visualization feature has been introduced in the CEN which allows for the display of search results in the form of charts, for a quick overview of the global illicit trafficking situation.

The ability of Customs administrations to reap the benefits of CEN data has also been addressed at the capacity building level. The new “CEN Capacity Building Initiative”, currently in its first phase, has the aim of training RILOs and nCEN Regional Leaders on the use of the latest CEN and nCEN functionalities (simplified input form, desktop application, data visualization, etc.), as they are the key actors dealing with enforcement data collected through the CEN and nCEN. In a second phase, it is planned to extend the initiative to WCO Members if specific needs are identified. With a complementary “Stay Connected Initiative”, the WCO plans to raise awareness and practical knowledge among nCEN countries and CENcomm operational coordinating units about interoperability and automated data transfer features in all of the CEN suite applications.

### **A call to action!**

The enhancement of data quantity and quality in the CEN is not an easy feat. When we pause and try to determine the next steps we need to take, it becomes clear that what we need is global action. We need to have buy-in from national contact points working with the CEN, and from nCEN Programme leaders in each Customs administration; we need to have the support of every RILO; and we need to commit resources at the global WCO level in order to make this strategic vision a reality. Our aim is in this way to translate this vision into tools and measures which can be used by every Customs officer at every level, ensuring the continued relevance of the CEN for the Customs community.

### **More information**

[CEN@wcoomd.org](mailto:CEN@wcoomd.org)

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## nCEN: a look into user practice and upcoming upgrades

By the WCO Secretariat with the contribution of Marjan Duevski, Chief Inspector at North Macedonia Customs, and Giorgi Kvaratskhelia, Georgia Customs

Detecting the illicit trade of prohibited or regulated commodities is extremely challenging. One way to enhance identification capacities is to analyse data related to seizures and detentions and develop a set of rules: deductive rules based on watchlists; inductive rules, using indicators or anomalies to assess the risk associated with a transaction; and predictive rules, which are mathematical tools based on historical trend analysis and scenarios. Such an approach requires Customs to collect, store and analyse data related to seizures and detentions. Moreover, the data must be of high quality, comprehensive and detailed.

The WCO, realizing that many administrations did not have the necessary tools, developed the National Customs Enforcement Network (nCEN) application. It consists of four independent databases. The principal database of national seizures and offences comprises data required for analysis, as well as means of conveyance, routes, and the possibility of viewing photos depicting exceptional concealment methods. Two supplementary databases contain information on persons and business entities of interest to Customs. Lastly, a suspicion database allows administrations to collect intelligence information in a structured way, and to keep track of investigations linked to that information in the system.

The application also contains basic data analytics functionality, including automated searches on new data, and matching rules that allow users to identify connections between data elements in the application. All the databases are linked so that linkages between persons, businesses and their illicit activities are recorded and tracked by the system.

Last but not least, a communication component, “lcomm”, allows for data exchange between the nCEN and the two other applications which form the CEN suite, namely the CEN application, which is a central global depository of enforcement-related information, and the CENcomm communication platform, which enables a group of users to exchange data during an enforcement operation. The CEN suite applications can all talk to each other, and this means that nCEN users can all exchange information. Theoretically, data transfer from existing national systems to the nCEN is also possible.

To understand how the tool is currently used, we asked two Customs administrations to share their experience: Georgia Customs, which has been using the tool since 2015, and North Macedonia Customs, which deployed it at the end of 2020. Towards the end of this article, we also describe the latest upgrades made to the application, and upcoming ones.

## Data analysis: the case of Georgia Customs

“Smuggling trends and patterns change very fast. Having quality data on seizures is key to identify emerging risks in terms of commodities and modus operandi”, explained a representative of Georgia Customs<sup>1</sup>. Before implementing the nCEN, data related to seizures and to detentions of prohibited and regulated items was collected in other systems. Deploying the nCEN was motivated by several reasons:

- to capture data in a standardized manner;
- to allow for detailed data analysis;
- to enable data reported by field officers to be sent directly to the CEN database with minimal effort.

Not all Customs offences are reported in the Georgia nCEN. The criteria for doing so include the seriousness of the case, with data on minor and administrative offences stored in the Customs automated system only. The Administration started carrying out analysis as soon as the tool was deployed in 2015. Data must be reported no later than 10 days after the seizure or detention has occurred.

The data fields cover not only commodity category, transport means, and companies and individuals involved, but also investigation results. Data is used to create risk profiles and/or to modify existing ones. Analysing and cross-referencing data on concealment methods, type of declared goods, routes, offenders, nationalities or transport means registration countries, for example, has proven to be efficient as Georgia Customs has seen an increase in the amount of seizures made in recent years.

Icomm is used to transfer data from the nCEN to the CENcomm and from the nCEN to the CEN WCO central database, avoiding duplication of work. However, Icomm is not used to exchange data with other Customs administrations as there is no legal basis for doing so.

## Communication component: the case of North Macedonia Customs

Deployments of the nCEN application in Customs administrations already possessing centralized systems for enforcement data show that the nCEN can also be instrumental in setting up

cooperation mechanisms at the regional level and beyond, as all users of the application form part of a Global nCEN Network.

The Customs Administration of North Macedonia started using the nCEN in 2020, alongside its historical SIM database, which is used to record data on all the controls made by Customs officers (even on controls where no irregularity or offence has been established). The SIM database also includes modules for the collection and analysis of specific data. One of these is the Air Passenger Control Module, which collects Advance Passenger Information (API) from airlines and cross-checks it against lists of people of interest, such as the central list of suspects, the list of persons involved in previous seizures, and the list of persons who have previously declared cash.

North Macedonia Customs also manages a Customs intelligence database, a database of misdemeanour proceedings, a database of criminal proceedings, a database of reported and seized money in cash, a database of intellectual property rights infringements, and many more.

Until the nCEN and the national databases are connected, only some officers from the Intelligence Department are requested to enter data in the nCEN. They have extensive experience with the application, the CEN and the CENcomm. The rationale behind this decision is to ensure the quality of the data. For field officers, data entry is a burden and, as they work to tight deadlines, they tend to enter data as quickly as possible, filling in only the fields that are mandatory, and making many unintentional mistakes. The application has not and will not be translated into Macedonian, which means that the data is entered in English.

In North Macedonia, the nCEN is therefore particularly useful for uploading information stored in the CENcomm into the nCEN, and for reporting national seizures to the WCO CEN. The application has also been used to exchange data with Kosovo Customs, which is also using the nCEN. Information will be shared with other nCEN users when relevant in the future.

## Upgrades

The utility of the nCEN application improves with every version that the WCO releases, as all improvements are based on requests from

<sup>1</sup> See <https://mag.wcoomd.org/magazine/wco-news-81/georgia-europes-first-ncen-country>.

end users of the application. There is still some disparity among the 55 nCEN countries in terms of versions, and it is one of the strategic goals of the WCO to move all countries to the latest version of the software, allowing them to reap the benefits of all new functionalities.

The addition of the database containing information on persons was part of the last upgrade. The database makes it possible to store historical versions of a person record and to track person linkages with other cases.

All the databases are linked, so if a person is related to a new case, there is no need to enter the data again. The same goes for business entities or suspects. As already explained, this data linking process is critical for analytical purposes.

In the most recent version of the application, two features intended to facilitate data entry have been added<sup>2</sup>:

- a simplified input form (SIF), allowing those administrations experiencing a strain on resources to record minimal data for statistical purposes;
- a desktop application, which has the same look and functionality as the main application. Although more restricted, it allows officers to enter data from anywhere at any time, whether they have an internet connection or not. The seizures entered in the desktop application can be exported, for example on a USB device, in order to be uploaded to the nCEN when an internet connection becomes available.

Moreover, to showcase the value of the application and the value of the data itself, a basic

data visualization feature has been developed, allowing for the display of search results in the form of charts for a quick overview of the situation.

When funding becomes available, a database on means of transport will be added to the application. Here again, if a means of transport already recorded in the database is found to be involved in other offences, there will be no need to re-enter the data. Some countries have requested assistance to connect their national databases to the nCEN. The ability of the WCO Secretariat to answer positively to such requests will also depend on whether it manages to raise funding.

For the WCO, the global strategy for furthering the nCEN project rests on certain key pillars. On the one hand, we are committed to introducing more high-tech features in the nCEN, improving its analytical capability and ensuring data security, improving the interoperability of the nCEN with other systems and/or national databases to allow more data to flow to the nCEN from various sources, and guaranteeing the sustainability of the application through well-targeted technical assistance. On the other hand, we want to boost cooperation among the Global nCEN Network, to have more activities, offer more training, and ensure more data is being exchanged, not only with the CEN, but also among the nCEN countries.

Customs administrations and donors interested in supporting nCEN development are invited to contact the Secretariat.

#### **More information**

[ncen@wcoomd.org](mailto:ncen@wcoomd.org)

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<sup>2</sup> The features were also added to the CEN.



# Indian Customs enhances its Customs Offence Management System

By Rajesh Pandey<sup>1</sup> and Kaushik Thinnaneri Ganesan<sup>2</sup>, Indian Revenue Service, Central Board of Indirect Taxes and Customs, Government of India

The COVID-19 pandemic presented many challenges to the international trade community. Many of these were new to the officers working for the Central Board of Indirect Taxes and Customs (CBIC), the Government of India's nodal body responsible for formulation and implementation of policy relating to all matters of indirect taxation. Among other things, they realized that they had to examine some of the IT systems being used, to ensure that they still meet the requirements of the Administration. One such system was the National Customs Offence Management System, known as "DIGIT", which is used for collecting and managing data related to all Customs offences detected in India, and which is comparable to the National Customs Enforcement Network (nCEN) developed by the WCO. The review resulted in substantial enhancements being made to DIGIT, which are presented in this article.

1 Rajesh Pandey was posted as Principal Additional Director General, Directorate of Revenue Intelligence - Mumbai Zonal Unit at the time of authoring this paper.

2 Kaushik Thinnaneri Ganesan was posted as Deputy Director, Directorate of Revenue Intelligence - Mumbai Zonal Unit and was National Nodal Officer - DIGIT at the time of authoring this paper.

## Inception

India's National Customs Offence Management System (DIGIT) was created many years ago to help India's apex anti-smuggling body, the Directorate of Revenue Intelligence (DRI), identify transactions involving persons engaged in smuggling activities. At the beginning, only officers of the DRI were to enter data in the system. This changed a few years ago and frontline Customs officers in charge of Customs clearance are now also requested to feed the database so that DIGIT can be used to detect a wider range of offences. It is worth noting that capturing records of offenders and offences represented additional work for those officers who have to clear passengers and cargo to tight deadlines. While there were teething issues initially, they gradually got used to entering data in DIGIT.

Thanks to the DRI and fields units, a fair bit of data was recorded in DIGIT by early 2019. The following information was collected for every case:

- details related to the detection of the offence (modus operandi of offenders);
- persons involved and their roles;
- goods involved;
- the amount of duties recovered (where offence involved Customs duty evasion);
- the Show Cause Notice, a formal document issued to one party in a dispute which sets out details of an alleged offence and gives the receiving party the chance to explain itself or otherwise face some further consequences;
- the adjudication, in other words, the legal ruling.

## Review

At the beginning of the COVID-19 pandemic, the DIGIT team decided it was time to look again at the system to ensure it was still fit for purpose and to identify ways to enhance it. They first focused on analysing the quality of the data captured in the application and identifying areas of improvement. Among other things, they conducted the following activities:

- mapping the data entry process flow;
- verifying that the system was up-to-date with the current legal provisions dealing with Customs offences;
- analysing the veracity of data entered and, specifically, data related to goods seized and offenders (for example quantity may seem odd

or details may differ from those reported via other channels);

- discussing matters on a regular basis with frequent users of the application;
- developing ways to simplify the data entry process and minimize errors;
- generating periodic reports;
- analysing data with the aim of enhancing policy formulation and targeting capacities;
- publishing documents, such as newsletters, to familiarize users with the application;
- developing and conducting training to motivate staff and improve data entry.

The analysis of the application was hugely informative and many of the application features that could be improved were identified. The main proposed changes included:

- creating a new data field related to the category of goods seized, in addition to the specific commodity involved, such as flora and fauna, hazardous material, medicine and pharmaceutical products, and commercial goods;
- adding a separate category of offences for narcotics;
- harmonizing data entry related to the Unique Quantity Code (UQC): officers were using different UQCs for the same commodity. For instance, quantity of gold seized was reported in grams, units, cartons, bundles, carats, etc.;
- facilitating data reporting by enabling officers to see all data fields on one screen: reporting data such as the place of seizure, the Customs Tariff Item or the country of origin required opening a different screen in the app and was not always done systematically;
- listing categories of offenders and presenting them in a vertical drilldown menu: the data field related to the function played by the offender was in a free text format and was often not properly filled. Although investigations mentioned, for example, the involvement of airline staff, airport contractors or public agencies operating at airports, the information was not easily accessible in the app;
- creating a new data field related to the type of alleged offence: the issuance of a Show Cause Notice is a critical event in the

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*To support the review process, and in association with the National Academy of Customs, Indirect Taxes and Narcotics, the DIGIT team decided to organize webinars with the app users to remind them of its existing features and to get their feedback on the tool. More than 600 officers from across the length and breadth of the country participated in these meetings.*

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investigation lifecycle that is captured in DIGIT, but information related to specific provisions under which the Notice was issued was not easily available;

- creating a new field related to the type of location where goods were seized, such as airports, sea ports, inland container depots, courier/cargo terminals and land borders.

### Attracting stakeholder interest

To support the review process, and in association with the National Academy of Customs, Indirect Taxes and Narcotics, the DIGIT team decided to organize webinars with the app users to remind them of its existing features and to get their feedback on the tool. More than 600 officers from across the length and breadth of the country participated in these meetings. Next, a series of newsletters was prepared. Released on a monthly basis, they enabled readers to delve deep into the various modules of DIGIT. Each newsletter focused on a particular module of the app and

included a set of frequently asked questions. Finally, as and when new features were rolled out, detailed communications were sent to all users, explaining which feature had been introduced, the background to this change and what to keep in mind while entering data.

### Impetus from the top

This comprehensive review of DIGIT was not only supported but also driven by the highest echelons of the Indian Customs Department, ultimately culminating in the development of a dashboard for the Finance Minister of India, which enabled her to visualize Customs offences based on the data fed into DIGIT. Throughout 2020 and 2021, letters were written by the Chairman of Indian Customs and the Head of the Compliance Management Department, exhorting field officers to report data related to Customs offences regularly and accurately. This greatly contributed to spreading awareness about DIGIT and the importance of timely and accurate data reporting.

# WCO Trade Tools



[www.wcotradetools.org](http://www.wcotradetools.org)

## A single point of access to:

- Harmonized System
- Preferential Rules of Origin
- Customs Valuation

## & Key functionalities:

- Multi-user option
- Comparison cart
- History tool

### Three types of changes

Once improvements were identified, the DIGIT team set about making the required changes to the backend of the application in a phased manner. The changes can be broadly categorized into three types.

#### User interface

The first category of changes relates to the user interface (UI), the point of human-computer interaction and communication in a device:

- shifting to a drop-down based system for various fields, such as quantity of goods, place of seizure and type of goods, to ensure data accuracy;
- adding pre-populated categories related to the role of offenders;
- eliminating redundant fields pertaining to offenders;
- adding a category called “Critical Cases” to facilitate the identification of cases requiring close monitoring;
- redesigning the dashboard page to show, at a glance, figures such as the number of investigations which are pending or which have been completed, or the number of cases pending adjudication;
- streamlining terms used throughout the application – for instance, “accused” and “offender” were being used interchangeably;
- simplifying the “prosecution module” to facilitate follow-up of the developments of cases.

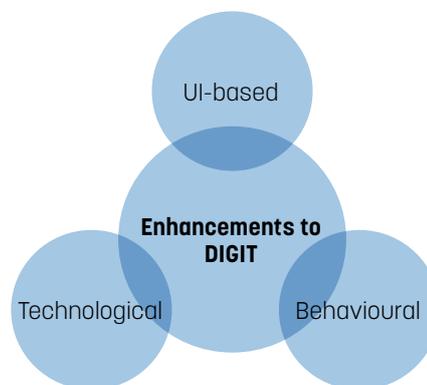
#### Behavioural changes

The second category of changes aims at changing users’ practices:

- imposing a time-lock on entry of seizure details to ensure timely entry;
- making all the data fields of the module related to goods accessible on a single screen to facilitate data reporting;
- issuing instructions and guidelines for smooth data entry;

- nudging users to rely on DIGIT data for reporting purposes – ultimately, quality of data will improve as users realize the convenience of automated reporting;
- creating fields to capture specific provisions invoked in Show Cause Notices to encourage officers to take into consideration such data in their analysis, including when studying trends and patterns;
- creating fields related to the languages known by the offenders to ensure more comprehensive profiling.

Figure 1: Types of enhancement made to DIGIT



#### Technological changes

The third category of changes is purely technical:

- inclusion of category of seizures dedicated to narcotic drugs and psychotropic substances;
- standardization of UQC for major commodities:
  - gold – grams
  - silver – kilograms
  - cigarettes – no. of sticks
  - red sanders – metric tonnes
  - narcotics – kilograms, litres or tablets
  - foreign currency – amount in the given currency and equivalent amount in Indian rupees
- inclusion of data related to the specific provision under which a Show Cause Notice is issued;
- option to upload documents in certain cases for easy retrieval;
- ability to generate customized reports;

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*When reviewing DIGIT, Indian Customs took measures to ensure that the changes made were aligned with the CEN data structure and would allow automatic data exchange if the two systems were to be connected.*

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- restricting users to enter only certain types of values to ensure data accuracy – e.g. disabling text in numerical fields, or limiting the HSN Code field to 8 digits.

The result was a comprehensive transformation of DIGIT into an agile, robust, intuitive, user-friendly application that not only made data entry easier, but is also more aligned to the legal and administrative requirements of the Administration. The data capturing methodology has been improved and the application has received support not only from officers involved in the detection of offences and data entry, but also in policy formulation.

### Synergy with the WCO CEN

Indian Customs is an active Member of the WCO and regularly reports national seizure data into the WCO Customs Enforcement Network (CEN), which aims at being a central global depository of enforcement-related information, enabling Customs administrations and the WCO Secretariat to produce valuable analysis on illicit trade.

When reviewing DIGIT, Indian Customs took measures to ensure that the changes made were aligned with the CEN data structure and would allow automatic data exchange if the two systems were to be connected. The creation of broad categories for goods (such as narcotics, precious metals and precious stones, tobacco products and hazardous waste) was partly driven by this imperative, and the names of the categories match those of the CEN with very few differences.

In the meantime, Indian Customs will continue to report data into the CEN and to support initiatives aimed at enhancing the system. As an example, during the 19<sup>th</sup> Customs Enforcement Network Management Team meeting held in 2021, it shared its practices aimed at improving data quality, endorsed the creation of a WCO Charter of Data Quantity and Quality Enhancement in the CEN, and supported the creation of a Task Force on Data Collection to review the data entered so far in the CEN. At the 42<sup>nd</sup> Meeting of the WCO

Enforcement Committee held in 2022, Indian Customs also strongly supported the proposal of the WCO Secretariat to launch a CEN Data Visualization Project which would enable users to easily gain information from the data recorded in the system.

### An eye on the future

In 2022, the WCO Secretary General encouraged Customs administrations when it comes to “Scaling up Customs Digital Transformation by Embracing a Data Culture and Building a Data Ecosystem”. By conducting the review of DIGIT, Indian Customs has shown its commitment to doing so.

India has the advantage of being a technology powerhouse and the Customs Administration has no problem in hiring talented IT specialists. However, the system upgrade was made possible thanks not only to the DIGIT team, but also to the active involvement of the Administration’s top management and of the main users of the application.

With such all-round support, the DIGIT team is now equipped to work on:

- the calculation of the average time taken for completion of an investigation;
- the analysis of pending cases;
- the development of risk profiles for entities;
- the analysis of modus operandi;
- tracking post-investigation decisions and procedures;
- conducting predictive analysis based on past offences, to understand the future and answer the question: “What is likely to happen?”.

Technology, combined with a relentless passion for systemic improvement, has resulted in positive outcomes, with more in the pipeline. DIGIT holds immense potential for enhancing the monitoring of Customs investigations in India and driving policy based on data.

### More information

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## WCO marks its 70<sup>th</sup> Anniversary in the margins of the Council Sessions

The Convention establishing a Customs Co-operation Council entered into force on 4 November 1952. Accordingly, the World Customs Organization (WCO), as the Customs Co-operation Council is now known, is celebrating its 70<sup>th</sup> Anniversary this year.

Given that Belgium is the host country of the WCO, representatives participating in the Organization's June 2022 Council Sessions were graced by the presence, on Friday 24 June 2022, of her Royal Highness Princess Astrid of Belgium; Mr. Vincent Van Peteghem, Belgium's Deputy Prime Minister and Minister of Finance; and Mr. Hans D'Hondt, President of the Federal Public Service of Finances.

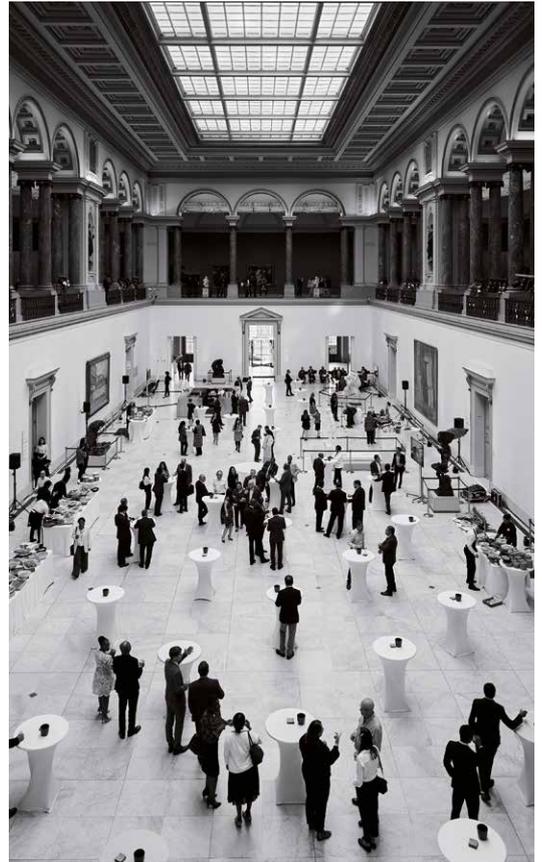
Mr. Van Peteghem addressed the assembled guests, highlighting the importance of international trade for his country, one of Europe's major logistics hubs, as well as the crucial need for a Customs service that operated smoothly and efficiently. He expressed his satisfaction at knowing that digitalization and data analysis were among the WCO's priorities, as progress in these areas would enable Customs to meet the challenges of tomorrow.

A tree offered to the WCO by Belgian Customs was also planted in the WCO Secretariat gardens. It symbolizes the strong bonds forged between the Organization and Belgium over the years.

Participants in the Council Sessions were also invited to a guided tour of one of the collections of the Royal Museums of Fine Arts of Belgium, which was followed by a gala dinner.



A. Al Khalifa, President of Customs Affairs in Bahrain and Chairperson of the WCO Council, and Kunio Mikuriya, WCO Secretary General



Participants in the Council Sessions were invited to a gala dinner

H.R.H. Princess Astrid of Belgium honoured the delegates with her visit. She was accompanied with the Belgian Deputy Prime Minister and Minister of Finance, Mr. Vincent Van Peteghem, who delivered a speech on the key role played by Customs at borders for trade facilitation and the protection of society.

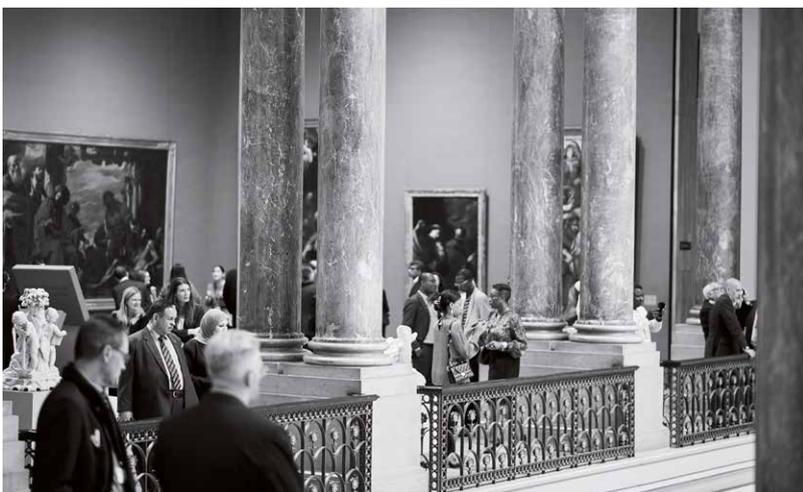




A tree offered to the WCO by Belgian Customs was planted in the WCO Secretariat gardens



Participants in the Council visiting one of the collections of the Royal Museums of Fine Arts of Belgium



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# Highlights from the Green Customs Global Conference



Environmental concerns are at the centre of many policies which impact on trade, and which Customs administrations consequently have to implement. Some of those policies are already into force, while others are under negotiation at the regional and international levels. To stimulate discussions on how to improve the implementation of existing policies, and provide an overview of the ongoing discussions and initiatives that aim to make the supply chain sustainable, and “green”, where possible, the WCO Secretariat organized the “Green Customs Global Conference” on 27 and 28 June 2022. This article provides an overview of what was said during the event. Interested readers will find a detailed report of the Conference on the WCO website.

The first panel looked at the concept of the circular economy and the key challenges companies faced when operating a circular supply chain - in other words, when moving goods and materials as part of either a re-use, refurbish, remanufacture or recycle loop. Among the obstacles mentioned were the lack of harmonization and alignment of regulatory rules for consumers, Customs regulations and waste management regulations. Speakers highlighted the importance of international definitions, especially when it came to waste. They argued that waste should be defined as a resource to facilitate a circular economy, and that the legal framework should allow a distinction to be made between products/materials that could be reused, repaired, repurposed or refurbished, and those that should actually be recycled/disposed of. They also noted the need to facilitate the flows of goods entering

the re-use, refurbish, remanufacture or recycle loop, and to remove existing restrictions on trade in such goods.

Discussions also touched on the taxation of carbon emissions. Participants learned about the initiative launched by a member of the automotive industry to measure the CO<sub>2</sub> emissions of products and their constituent parts, and to track this information through the entire value chain.

The first panel also highlighted the need for policy makers to understand the role of Customs in implementing environmental policies, especially during a side session focusing on the timber trade, in which emerging legislation to control deforestation was compared, and the role allocated to Customs in each legal framework was also explained.

The second panel looked more deeply into the cross-border movement of waste. The complexity of the waste trade market was examined, as well as the myriad ways in which rules could be flouted. One speaker explained that the illegal trade in plastic waste was facilitated by the serious lack of transparency and accountability that operated in the sector. Against this background, it was recommended that firm deterrent penalties be put in place for false declarations of HS codes, and that strong cooperation be promoted between Customs agencies and environmental agencies, including joint training events on risk profiling and the actions to take following a seizure, as well as robust collaboration with NGOs, including on training and the sharing of information. Two Customs administrations shared their experiences in fighting illicit trade, highlighting the challenges of risk profiling and the importance of developing sound implementation plans with all stakeholders, understanding their respective functions and responsibilities. The floor was also given to a manufacturer who shared detailed information on the challenges of operating a remanufacturing programme for ICT components.

One question that came up repeatedly throughout the Conference was how to ensure that classes of goods of importance to environmental policy were identified in the Harmonized System (HS) - not only environmentally harmful goods that fell under multilateral environmental agreements (MEAs), but also environmentally preferable goods or goods which were traded under a circular production model. The idea was that more granular HS codes would help design and implement policies. The third panel looked specifically at this issue, with many speakers arguing in favour of the benefits of creating specific HS codes for some commodities. The WCO Secretariat took this opportunity to explain the principles governing the creation or amendment of a provision in the HS, and how to submit a sound proposal for

this. The Secretariat also issued a call for action, explaining to participants that they needed to come up with proposals urgently if they were to be examined and included in the next edition of the HS, which was to be finalized by June 2024. Participants were also informed that the WCO Secretariat would be organizing a symposium on "Greening the HS" in the second half of this year to discuss these issues in depth.

The fourth panel looked at various topics, including Customs challenges in implementing MEAs and the work done under the Green Customs Initiative, the concept of a digital product passport, additional practical actions which could be taken by Customs to contribute to climate change mitigation, and the state of play of research projects aiming at enhancing the capacity of Customs to differentiate sustainable and non-sustainable products.

"It is important to show that Customs cares, but it is equally important for traders, policy makers and NGOs to realize we cannot do it all," declared one Customs representative. "Because we looked at goods for fiscal aspects, we were asked to look at other aspects, but are not always the best placed to do the job. We are a general doctor. We sometimes need specialists to intervene to find cures," explained another.

To conclude, the WCO Secretariat hopes that the Conference has enabled participants, whether Customs officers, traders, manufacturers, activists or policy makers, to better understand the challenges and realities they each face and, potentially, to identify ways to move forward through cooperation.

#### **More information**

[www.wcoomd.org](http://www.wcoomd.org)

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Employees

# 24

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Globally

# 100%

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