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WCO Trendspotter Study on Customs-Related Commercial Fraud

The WCO has published its first *Trendspotter* Study, with the aim of identifying trends in commercial fraud involving trade in goods. The Study was written by a project team with the assistance of experts from Customs administrations, and was funded by Korea Customs.

The *Trendspotter* methodology was developed by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) for the rapid assessment of emerging drug-related trends. It aims, in particular, to make it possible to study phenomena for which we do not have a precise set of data and "involves the collection of data from multiple sources and the use of a number of different investigative approaches".[1]

The use of this method to identify trends and modi operandi in the field of Customs-related commercial fraud has become necessary in the WCO, given the need to supplement the information reported by Customs administrations via the Customs Enforcement Network (CEN) database.

Besides CEN data, the project team and the expert group have consulted various sources of information:

- open-source documentation, such as reports by international organizations or published court cases of national and regional tribunals;
- scientific journals;
- answers provided by members of the expert group to a questionnaire;
- other existing internal sources, such as answers given by Customs administrations on a voluntary basis in the survey conducted in 2021 as part of the preparation of the Illicit Trade Report, or analysis by Regional Intelligence Liaison Offices (RILOs) and administrations.

Certain areas – essentially because they are addressed at the WCO in the context of specific programmes and working bodies – were excluded from the scope of the Study: excise goods such as tobacco and alcohol products; illicit trade; transfer pricing; and money laundering. However, the Study refers to these areas when necessary to give a more holistic picture of the current situation.
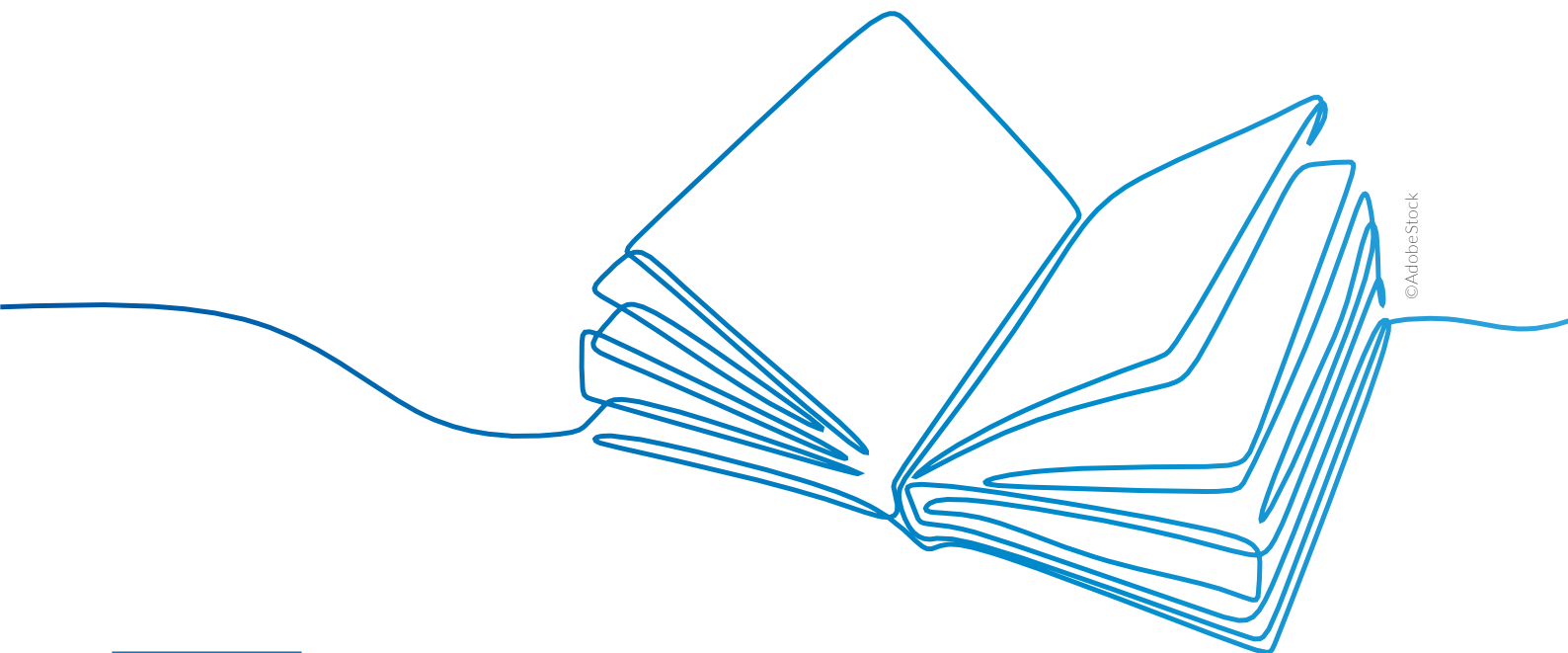
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1   *European Monitoring Centre for Drugs and Drug Addiction, Trendspotter manual, 2018. https://www.emcdda.europa.eu/system/files/publications/10233/2018-trendspotter-manual.pdf*

The Study analyses the three most significant types of fraud: undervaluation, misdescription, and smuggling. It also highlights several activities that have been identified as the main threats when it comes to commercial fraud: illicit activities relating to e-commerce, the use of shell and vanishing companies, the circumvention of anti-dumping and countervailing duties, exploitation of free zones, mechanisms to fraudulently evade VAT obligations, fraud committed by passengers, and modi operandi in maritime transport.

In its conclusions, the Study describes how the profile of fraudsters has evolved, and the effects of successful operations by fraudsters. It also looks at detection methods, tools and operational measures that have proven successful in certain countries.

The last section of the Study presents several recommendations that would enable the WCO to better understand fraud trends in the future. It proposes, among other things, the creation of a Commercial Fraud Observatory. The Study also underlines the need for Customs administrations to report cases of commercial fraud in the CEN database, and to provide enough detail on each case. In fact, although 4,030 seizures were reported in the CEN in 2021 under the category "tax and duty evasion", the nature and type of fraud were indicated in only 584 of them, and the modus operandi was almost never documented.

It should be recalled that WCO Members approved the "WCO Charter on Improving the Quantity and Quality of CEN Data" in June 2021 and, in doing so, committed to improving data entry in CEN.[2]

Customs representatives with a login and access to the Enforcement Section will be able to download the Study by visiting the WCO website via the link below.

More information

https://www.wcoomd.org/topics/enforcement-and-compliance/activities-and-programmes/revenue-programme.aspx

Definition of Customs commercial fraud

Any offence against statutory or regulatory provisions which Customs are responsible for enforcing, committed in order to:

- evade, or attempt to evade, payment of duties/levies/taxes on movements of commercial goods;
- evade, or attempt to evade, any prohibition or restrictions applicable to commercial goods;
- receive, or attempt to receive, any repayments, subsidies or other disbursements to which there is no proper entitlement;
- obtain, or attempt to obtain, illicit commercial advantage injurious to the principle and practice of legitimate business competition;
- exploit, or attempt to exploit, commerce for the purpose of transferring proceeds of crime.
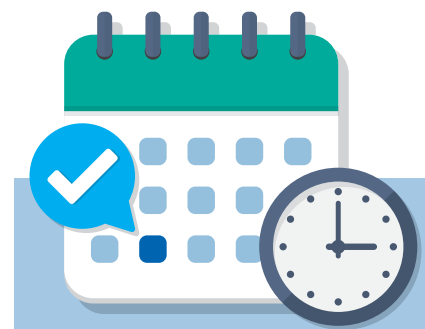
Save the date!

WCO-UPU Global Postal Conference, 6 to 8 June 2023, Tokyo, Japan

WCO Technology Conference & Exhibition, 10 to 12 October 2023, Hanoi, Vietnam

WCO Global Origin Conference, 8 and 9 November 2023, Santiago, Chile

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2   See article in WCO News 99, Issue 3: https://mag.wcoomd.org/magazine/wco-news-99-issue-3-2022/enhancing-data-collection.

New e-learning module on Internal Affairs

An e-learning module on Internal Affairs was released in January 2023 on CLiKC! – the learning platform developed by the WCO for Customs officers. The course was first released in English, but will be available in French, Portuguese, Arabic and Spanish by the end of March 2023.

The WCO's Revised Arusha Declaration,[1] which lists the ten key factors that must be taken into account in a national Customs integrity programme, declares that "the prevention and control of corruption in Customs can be assisted by the implementation of a range of appropriate monitoring and control mechanisms such as internal checks programmes, internal and external auditing and investigation and prosecution regimes". In this regard, Internal Affairs is a specialized group whose core responsibilities are to investigate cases of corruption, misconduct, or malpractice and deal with other important aspects of preventive vigilance, including processing and verifying declarations of assets, conducting pre-employment integrity checks, conducting ethics and integrity-related training, mapping corruption risks and spearheading integrity projects.

Through discussions held at meetings of WCO working bodies and following integrity development assessments conducted with administrations over the years, the WCO Secretariat identified the need to provide support on this topic and develop a training curriculum on Internal Affairs-related processes, procedures and activities that would positively impact the level of integrity of Customs officials (see table below).

This work was, and still is, led by the team managing the WCO Anti-Corruption & Integrity Promotion Programme for Customs (A-CIP), which is funded by Norway and Canada. When designing the Internal Affairs training curriculum and the course material, the team received inputs from experts and from administrations which piloted or have benefitted from the training.

Internal Affairs Training Curriculum

PREREQUISITES		
• WCO Integrity e-Learning Module • WCO LMD e-Learning Module • WCO Integrity Development Guide (IDG)	IC000 - Informal discussion between WCO Internal Affairs experts and partner country senior management	IC001 - Questionnaire to survey current state of Internal Affairs

FOUNDATION		
IC101 - Internal Affairs Functional Model	IC102 - Basics of Internal Affairs	NEW IC103 - Internal Affairs e-Learning

ADVANCED			
IC201 - Corruption, Misconduct or Malpractice Reporting	IC207 - Administrative Investigation Process	IC205 - Disciplinary Panels	NEW IC204 - Social Media and Integrity
IC206 - Corruption Risk Mapping 🚧	IC203 - Performance Measurement 🚧	IC202 - Interviewing Techniques 🚧	

TAILOR-MADE	
IC301 - How Do You Series (One to two-hour conversation on specific key internal affairs issues)	NEW IC302 - Professional Attachment

▶ While the Internal Control comprises internal audit and internal affairs, this curriculum only covers internal affairs.
▶ Training materials include pre-training work assignments.
▶ Training materials include post-training work assignments to build on work done and maintain momentum.

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1   https://rad.wcoomd.org

The new e-learning course, which is one of the team's most recent achievements, has been developed based on three existing training workshops designed to be delivered by experts in Internal Affairs, either virtually or in-person, namely the "*Internal Affairs Functional Model*", which is intended for Customs administrations working towards creating their own Internal Affairs function, "*Basics of Internal Affairs*", which aims to take stock of the level of maturity of Internal Affairs within an administration, and identify related strengths to build on and gaps to address, and "*Administrative Investigation Process*", which explores administrative investigation models and related best practices.

The e-learning course provides a comprehensive roadmap to either create or consolidate an Internal Affairs capacity. The learning scenario is based on the onboarding of a new Junior Investigator into an Internal Affairs team. At the end of the course, the learner is able to appreciate the importance of the Internal Affairs function and identify the mechanisms (which must be transparent, accessible and safe) for receiving, assessing and managing complaints concerning corruption, misconduct or malpractice. The e-learning module also provides guidance related to the administrative investigation process, common challenges facing an investigator and ways to overcome those challenges. Finally, it includes some further instructions on the interview process, as well as how to prepare an effective report.

More information

https://clikc.wcoomd.org
capacitybuilding@wcoomd.org
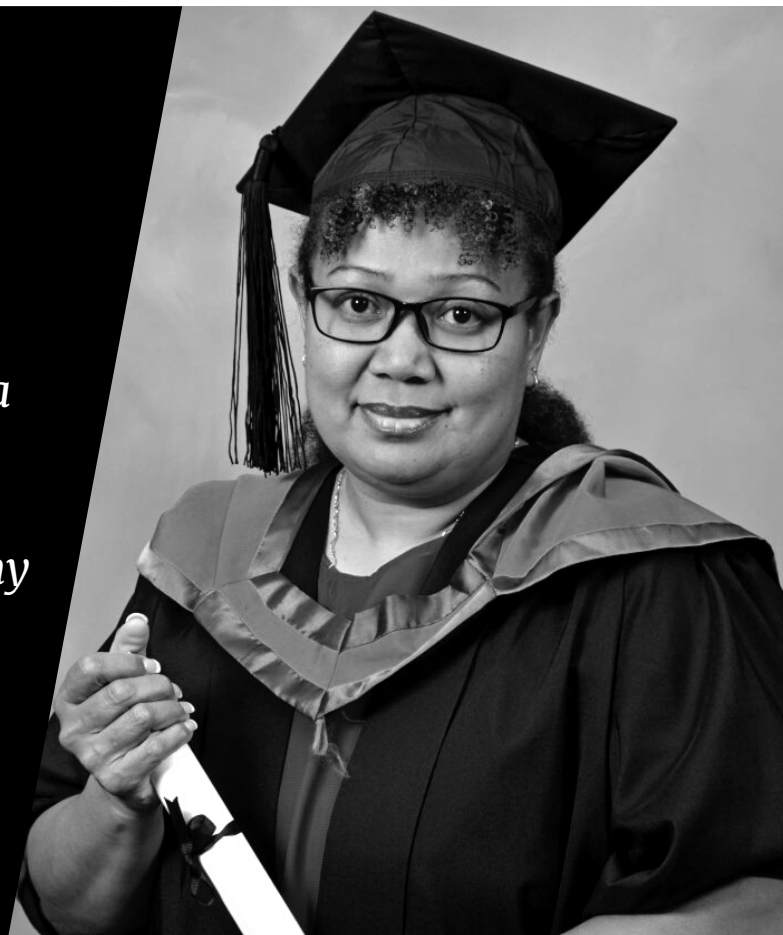
WCO Secretariat develops a dashboard for PCA

Post-clearance audit (PCA) includes a preparation phase during which data from various sources is collected and then analysed, especially import and export declaration data. The aim is to obtain a comprehensive overview of the auditee's business structure and, on this basis, identify and analyse specific risk areas of the auditee's systems. An audit plan would then be drafted, specifying the audit objectives and scope, as well as the methodologies to be used.

This audit preparation is generally an abductive process in which, prior to obtaining the auditee's data by contacting the auditee, the data held by Customs is considered and analysed to infer high-risk areas of the auditee's business. While some administrations have developed sophisticated analytical tools, auditors usually rely on software such as MS Excel or MS Access to do the job. This raises several issues, the main one being that it takes extensive knowledge and experience to properly perform risk analysis using such tools.

At the WCO Secretariat, a modest three-person team decided to take up this matter and to develop a prototype dashboard using Microsoft Power BI. Launched nearly a decade ago as a standalone desktop data visualization tool, Power BI is now a business analytics service provided by Microsoft that enables users to easily build different charts and graphs to analyse and visualize vast volumes of data from multiple sources.

The dashboard aims at making the techniques that auditors have traditionally used with MS Excel or MS Access more effective. It enables users to capture the insights of experienced auditors, and is easy to use and to customize.

To take the project a step further, the Secretariat team is looking for Customs administrations to:

- implement the tool in their PCA division with the guidance of the team;
- join the team to refine the dashboard by incorporating additional analytical techniques and by providing data such as their import and export data and traders compliance history; and
- fund deployment and development activities.

Donors wishing to support this project are also invited to contact the Secretariat.

More information

Pca@wcoomd.org

An overview of existing closed user groups on the CENcomm

Several closed user groups (CUGs) have been set up in CENcomm, the WCO's secure, web-based communication system. They aim at enabling information exchange on illicit trade and smuggling activities and/or the sharing of information of interest to field officers and analysts. The focus of the respective groups is described below. If you wish to join a CUG and you fit the user profile then please contact the group owner or the WCO CEN team at cis@wcoomd.org.

CUG name	User profile	Focus / commodities	Type of documents / information	Functions	Number of users	Owner / contact
CAVA – Vehicle Concealment Library	Front line officers, analysts, (Customs, Police, Border Force)	All commodities	Photos, videos and written documentation about detected concealments in all kind of vehicles	Mail system Library Chat	3,812 users 63 countries	RILO Western Europe rilowe@zka.bund.de German Federal Criminal Police Office (BKA) so21-cava@bka.bund.de
VERIL - Vessel Rummage Information Library	Vessel rummage officers, analysts, (Customs, Police, Border Force, Coast Guard)	All commodities	Ship plans, general arrangement plans, seizure reports, training material	Mail system Library Chat	790 users 67 countries	RILO Western Europe rilowe@zka.bund.de Main Customs Office (HZA) Hamburg veril.hza-hamburg@zoll.bund.de
ContainerCOMM	Ports officers, risk management units and national targeting centres.	All commodities	Seizure information, open source information, alerts, annual reports, research, trends analysis, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback)	1,396 users	UNODC-WCO Container Control Programme cis@wcoomd.org
AirCargoComm	Air cargo control units and law enforcements officers operating in the air cargo environment.	All commodities	Seizure bulletins, open-source information, manuals, alerts, annual reports, research, trends analysis, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback)	190 users	UNODC-WCO Container Control Programme aircargocomm@wcoomd.org
IPR CENcomm Group	Customs officers, law enforcement	Infringements of intellectual property rights - All commodities	Alerts, open source information, risk indicators, operation reports, newsletters, photos, videos, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback)	506 users	WCO Secretariat IPR@wcoomd.org
Programme Global Shield (PGS)	PGS National Contact Points (NCP) in Customs administrations	Explosive precursor chemicals and additional IED components	Information on monitored substances, PGS pocket guide, PGS analysis, PGS newsletters, PGS implementation guide, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback, monthly report)	250 users	WCO Secretariat pgs@wcoomd.org

CUG name	User profile	Focus / commodities	Type of documents / information	Functions	Number of users	Owner / contact
ExciseNET – network of experts in excise fraud	Customs and law enforcement officers	Tobacco and alcohol (excise goods)	Alerts, open source information, risk indicators and risk analysis, operation reports and newsletters, photos, videos, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback)	140 users 75 countries	WCO Secretariat enforcement@wcoomd.org
AIRCOP	Customs and law enforcement officers working in one of the Joint Airport Interdiction Task Forces formed as part of the WCO Project AIRCOP	All commodities	Alerts, open source information, risk indicators and risk analysis, operation reports, newsletters, photos, videos, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback)	483 users	WCO Secretariat Drugsprogramme@wcoomd.org
COLIBRI	Customs and law enforcement officers	All commodities	Alerts, open source information, risk indicators, risk analysis, operation reports, newsletters, photos, videos, etc.	Mail system Library Chat Structured messages (seizure, warning, feedback, control sheet)	97 users 23 countries	WCO Secretariat Drugsprogramme@wcoomd.org
FinCRIME online Library	Customs and law enforcement officers	Money laundering and terrorism financing	Alerts, open source information, risk indicators, operation reports, newsletters, photos, price chart of precious metals, information on money laundering schemes, links to partner institutions	Mail system Library Chat Structured messages (seizure, warning, feedback)	298 users 92 countries	WCO Secretariat enforcement@wcoomd.org
GRAN (Global Rapid Alert Network)	National Contact Points in Customs administrations	All commodities	GRAN background documents	Mail system Library Chat	152 users	WCO Secretariat I2C@wcoomd.org
ENVIRONET	Customs and enforcement officers, representatives of the transport industry and non-governmental organizations	Hazardous waste, chemicals and pesticides, Persistent Organic Pollutants (POPs), wildlife (fauna and plants), Living Modified Organisms (LMO), Ozone Depleting Substances (ODS)	Guidelines, manuals, toolkits, handbooks, sample permits, alerts, reports, newsletters brochures, leaflets, factsheets, lists of focal points	Mail system Library Chat	825 users	WCO Secretariat enforcement@wcoomd.org
ARCHEO	Customs and enforcement officers, representatives from international organizations	Cultural goods	Alerts on stolen and looted cultural objects, International Council of Museums Red Lists, national and international legislation, research papers, training materials	Mail system Library Chat Structured messages (seizure, warning, feedback)	300 users	WCO Secretariat archeo@wcoomd.org

Supporting trade integration in Africa: a look at the EU-WCO Rules of Origin Africa Programme

In December 2021, the WCO Secretariat and the European Commission signed a partnership agreement establishing a programme on the implementation and application of rules of origin in Africa, commonly dubbed the EU-WCO Rules of Origin Africa Programme. This article provides an overview of the activities undertaken as part of this Programme up to January 2023 – that is, just over a year since its inception.

The EU-WCO Rules of Origin Africa Programme (RoO Africa Programme) aims to support Customs administrations on the African continent to improve their capacity to deal with rules of origin and, ultimately, to apply the preferential rules of origin provided for in continental and regional agreements, especially Annex 2 of the African Continental Free Trade Area (AfCFTA) Agreement[1] which defines the nationality of a product within Africa, and hence enables that product to circulate with preferential treatment among the signatories to the Agreement.

The Programme is organized under four components, each dedicated to a group of beneficiaries which are brought together at an annual meeting. These beneficiaries are:

- at continental level, the AfCFTA Secretariat and the African Union Commission (AUC);
- at regional level, the African Regional Economic Communities (RECs),
- at national level, Customs administrations and other relevant government administrations,
- private sector stakeholders.

Supporting the AfCFTA Secretariat

In the inception phase, the focus of the RoO Africa Programme team has been on supporting the AfCFTA Secretariat and the AfCFTA Sub-Committee on Rules of Origin in finalizing Appendix IV to Annex 2 on Rules of Origin, which includes Product Specific Rules (PSR) of Origin

for goods traded among State Parties. The team has also assisted with the drafting of the AfCFTA Manual on Rules of Origin, which is a legal instrument complementing Annex 2. Recently, the team has assisted the AfCFTA Secretariat with the technical updating of the AfCFTA Rules of Origin to align them on the latest edition of the Harmonized System (HS), i.e. HS 2022. Once adopted by the AfCFTA legal structures, this update will ensure consistency between HS classification and origin determination.

The WCO Secretariat is also supporting the AfCFTA Initiative on Guided Trade, which brings together eight countries (Cameroon, Egypt, Ghana, Kenya, Mauritius, Rwanda, Tanzania and Tunisia) whose tariff offers on goods have been fully approved and officially published, to test procedures and processes related to the determination of preferential origin under the provisions of the Agreement; the aim of this initiative is to provide practical orientation and supervision for the clearance of selected shipments. The launch of the initiative was preceded by the publication of the AfCFTA e-tariff book and the AfCFTA Rules of Origin Manual. At the end of 2022, the RoO Africa Programme team organized a workshop for Customs officials and private sector representatives from the countries involved in the initiative, in partnership with the Egyptian Customs Authority, with the aim of ensuring that Customs administrations and traders have an in-depth understanding of the

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1 The AfCFTA Agreement entered into force on 30 May 2019, and the Operational Instruments governing trade under the AfCFTA regime were launched in Niamey, Niger in July 2019. Trading under the AfCFTA Agreement commenced on 1 January 2021.

rules and are able to, respectively, implement and claim preferential origin.

Consultations and needs assessment

Delivery of technical assistance and capacity building activities started in July 2022, after the RoO Africa Programme was officially launched at a conference attended by representatives of various national, regional and international bodies as well as experts on rules of origin. Together they discussed and identified the best avenues for the efficient delivery of meaningful support and capacity building to all stakeholders under this initiative.

In order to take stock of the management of rules of origin and the challenges this poses at the regional level, the Programme team also conducted two regional consultations, one in partnership with the Economic Community of West African States (ECOWAS) and one in partnership with the Southern African Development Community (SADC). The objective of these consultations was to gather views on how Customs and the private sector can navigate between the multiple preferential trade schemes on the continent (the "spaghetti bowl"), and how to make proper use of these schemes to boost regional integration. Further consultations are planned, with other RECs, to identify technical assistance needs for implementing the AfCFTA Agreement, EPAs and other FTAs, as well as to explore other opportunities for streamlining processes in Africa.

Capacity building activities conducted from July to December 2022

Programme activities are aimed especially at ensuring that Customs administrations fully understand the AfCFTA RoO – a prerequisite and a game changer for successful trading under the AfCFTA Agreement – and are able to implement them effectively and in a coordinated and harmonized manner. As the AfCFTA builds upon the achievements made within the RECs rather than replacing them, the Programme team also supports a number of RECs in implementing procedures related to rules of origin.

Malawi

A diagnostic was conducted for the Malawi Revenue Authority (MRA), to analyse origin management within the Administration and make recommendations for reform and modernization. The analysis work involved MRA officials working

The Programme's inaugural Continental Conference took place in Accra, Ghana, on 19 and 20 July 2022

in the areas of origin, risk management, post clearance audit, legal affairs, human resources and training.

Cote d'Ivoire

A workshop on the development of an advance rulings mechanism was organized online for Cote d'Ivoire Customs, in cooperation with the German Agency for International Cooperation (GIZ). The WCO Secretariat's contribution consisted mainly of reviewing areas of the legal, procedural and organizational frameworks and providing technical assistance with the drafting of legal and procedural texts, as well as ensuring quality control of such documents.

The Gambia

A training workshop was organized for the Gambia Revenue Authority (GRA). Participants acquired an in-depth, structured knowledge of the application of rules of origin, making it possible to expand that knowledge within the Customs Administration.

Botswana

A national workshop on the development of an advance rulings mechanism was organized in partnership with the Botswana Unified Revenue Service (BURS), with the participation of Customs officials from Classification, Valuation and Origin. The objective of the workshop was to assist BURS with reviewing the draft Advance Rulings Guidelines document, and to enhance officials' knowledge and application of advance rulings.

RECS

Self-certification is included in the ECOWAS Additional Act signed in 2018, but has not yet been

implemented by ECOWAS members. To support the implementation and use of self-certification schemes when requesting preferential origin under the REC or AfCFTA provisions, a pilot project has been initiated and the RoO Africa Programme team has organized a workshop on self-certification for the ECOWAS Secretariat and certain ECOWAS member countries (Cote d'Ivoire, Ghana, Niger, Nigeria and Senegal).

The Programme team has also assisted SADC with the technical updating of the SADC rules of origin to align them on HS 2022. The application of an updated version of the rules of origin in the SADC Protocol on Trade will facilitate the use of preferential origin provisions by traders, as well as correct duty collection.

Private Sector

Trade agreements and arrangements are made for businesses. It follows logically, therefore, that any programme aimed at supporting the implementation of an FTA should also provide guidance to businesses so that they can use and implement it. With this in mind, the Programme team has published a Quick Guide on AfCFTA Rules of Origin.[2] The Guide does not in any way replace the AfCFTA legal documents on rules of origin, but explains essential technical terms and concepts as well as the steps to be taken in order to benefit from preferential treatment.

Moreover, and as reported in this article, some of the workshops organized by the Programme team were open to private sector representatives. In addition, the team stands ready to assist industries and traders in a more direct way; for example, it organized an online workshop on the use of AfCFTA cumulation provisions for a company which had initiated a project to examine whether the AfCFTA could enable African farmers cultivating tobacco leaf to sell their products to African-based manufacturing sites under preferential treatment, as this would enable them to offer competitive prices.

A workshop in support of the Guided Trade Initiative was organized in Cairo, Egypt, from 12 to 14 December 2022

The WCO Secretariat Project team and representatives of SADC in Gaborone, Botswana, in November 2022

Capacity building activities for the private sector should, as a general principle, be conducted in cooperation with Customs administrations. Businesses and trade organizations operating in Africa and wishing to benefit from technical assistance in the area of rules of origin should reach out either to the Customs administration of the country in which they are based or directly to the RoO Africa Programme.

More information

EU-WCORoOAfrica.Program@wcoomd.org

Resources

Quick Guide on AfCFTA Rules of Origin

Practical Guide on AfCFTA Rules of Origin (June 2023)

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2   https://www.wcoomd.org/en/topics/origin/instrument-and-tools/afcfta-rules-of-origin.aspx

FTAs

Using Free Trade Agreements as a Strategic Management Tool to Improve Competitiveness

Taxes and Duties

Taxes and duties are critical inputs in supply chain network design as they impact:

- overall costs
- sourcing decisions
- production strategies
- and ultimately competitiveness

An example from the automotive industry:

By expanding vehicle production for the EU market to South Africa, it is possible to achieve tariff savings under the EU-South Africa agreement so large that they cover a substantial part of the related investment costs in the first year alone.

A **Free Trade Agreement (FTA)** is a treaty between two or more countries to facilitate trade and remove trade barriers. It aims to eliminate customs tariffs and to create an open and competitive international marketplace.

32%

Total EU trade under FTAs accounts for around 32 % of all EU trade with third countries.

As a result, vehicles can be offered more competitively on the EU market, which likely increases the demand for these vehicles. This also leads to a higher demand for engines or transmissions from EU suppliers which deliver to the production plant in South Africa, and thus also secures or even increases jobs in the EU.

€ 15 000 000 000

EU exporters could save an estimated 15 billion Euros annually if they made full use of the preferences offered by all EU FTAs.

For businesses competing globally, the utilization of FTAs needs to be a strategic management tool.

Nowadays there are more than **400 FTAs** in use around the world, which are often complex and hard to handle without knowledge, resources, and automated processes.

Yet approx. **75 % of the companies** are not aware of the large number of FTAs available and are therefore not able to benefit from them.

Even in the supply chain planning phase FTAs need to be considered in the **simulation of sourcing and production scenarios** to illustrate potential for cost optimization and increased competitiveness. This can only be achieved with digitization strategies that allow such analytical approaches and that ensure compliance in execution.

This is where Global Trade Management software solutions play a vital role. By automating these FTA processes the compliance is further ensured in day to day operations, thereby …

- reducing risks
- saving time
- optimizing resources
- and giving sufficient space to work on strategy

MIC's Origin Calculation System OCS provides the necessary tools to manage the entire process for FTAs around the world. **Contact us now!**

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WCO develops a model to assess maturity of leadership programmes

Leadership competencies and skills oil the wheels of organizational progress and success. To support its Members in this field, the WCO has developed a Leadership and Management Development Programme. This article introduces the Maturity Model, one of the tools developed as part of this programme.

Leadership as Partnership

Academic researcher Russ S. Moxley, in an article entitled *Leadership as Partnership*, explains: "Leadership is typically understood as something an individual provides. Leaders lead, provide a compelling vision, set direction, determine strategy, motivate and inspire. This understanding has worked reasonably well, but it has its limitations because there is only so much that any individual can do. […] To be successful in the long haul, organizations need systems, structures, and practices of leadership that call forth the energies of all employees."[1]

The WCO Leadership and Management Development (LMD) Programme is in line with such a view and focuses on developing leadership and management skills, from middle managers through to top executives, within Customs administrations. It aims to modernize the management culture in the whole organization so that the organization achieves its vision and delivers its strategy in an easier and more effective way, while living its values.

An assessment at four levels

The LMD Programme has developed a Maturity Model to support Customs administrations wishing to assess their level of maturity in implementing and promoting a leadership-oriented culture. Results of the assessment then guide the Secretariat, when requests for assistance are received, in defining the type of activities to be deployed with a given administration.

The Maturity Model takes into consideration the four levels of intervention of the LMD Programme:

• At the individual level, experts work with managers to strengthen their capacity in knowing themselves (qualities, beliefs, convictions, values and vision, influencing the way they perceive situations, people, challenges or opportunities); managing themselves (being mindful of thoughts, emotions, words and deeds at all times); and understanding others (really listening to others, and finding out why and how they think and act as they do). The idea is to be able to adopt a management style based on the human relations theory, while at the same time being highly demanding in terms of outputs and results.

• At the management team level, experts discuss techniques aimed at creating a working environment based on trust and openness, where each member of the management team

1   Moxley, R.S. (1999), Leadership as partnership. Leadership in Action, 19: 9-11. https://doi.org/10.1002/lia.4070190302

is not afraid of confrontation and accountability, and where honest, open and constructive relations are natural.

- At the stakeholder level, experts work with managers to enable them to establish or enhance partnerships with external entities through effective engagement practices, negotiations and communication.

- At the organizational level, experts work with managers to ensure strategy, vision and values are defined and communicated, channels of communication are established, managers are exemplifying the values, ethics and policies of the organization, continuous learning is embedded into the organizational culture, and much more.

Five maturity levels

Each of these levels of intervention has five corresponding maturity levels for which various statements apply. To assess its maturity, an administration would have to choose which statement best reflects its situation. For example, "Level 1 – Initial" in the category "Individual" includes the following statement: "Communication about tasks, objectives, roles and expectations is unclear and irregular, there are no channels established for formal or informal feedback, exchange of ideas, expression of needs." In the same category, "Level 5 – Optimized" reads: "Nurturing and coaching future leaders is the main focus. A variety of management and communication tools is regularly applied with an objective to develop people as future leader-managers and as better persons."
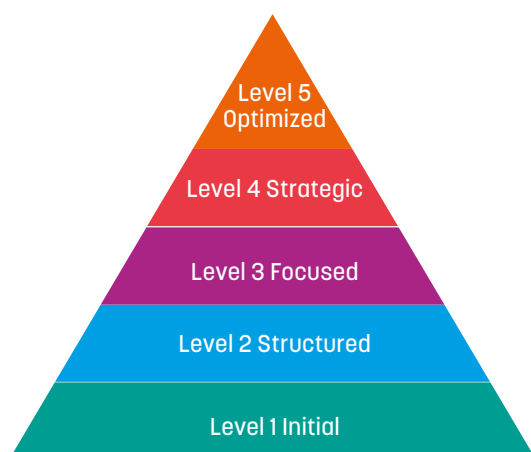
The five levels of the LMD Maturity Model

Undertaking a maturity assessment makes it possible to identify areas or issues that need improvement. Implementing some of the activities described in the assessment is a task full of challenges, and requires significant time investment, for example, developing a talent management programme or promoting team work, critical thinking and innovation.

In other words, it is the start of a journey. The WCO Secretariat stands ready to accompany administrations wishing to improve their staff leadership skills, and offers them three types of activity:

- the Top Executive Retreat (TER), which is aimed at strengthening the capacity of Directors General and their top executive teams to lead and drive reform and modernization agendas;

- the LMD Workshop, which aims at providing senior and promising middle-level Customs Managers with a better understanding of modern management approaches and their own personal leadership attitude and behaviour, based on improved self-knowledge and self-awareness;

- the Middle Management Development (MMD) Training, which aims at equipping middle managers with a set of fundamental management competencies and skills.

Administrations wishing to develop their national training capacity in this domain can enrol officers in the MMD train-the-trainers workshop. Moreover, a Leadership and Management Development e-learning module is available in English, French, Spanish, Russian and Arabic on the WCO CLiKC! platform.

More information
Capacity.Building@wcoomd.org

To assess its maturity, an administration would have to choose which statement best reflects its situation.

Dossier: Managing Knowledge

In Frederick, Maryland, Students at the CBP Agricultural Academy learn about pests which can enter the United States via imports from other countries. Photo by James Tourtellotte

Nurturing the next generation: promoting a culture of knowledge-sharing and professional pride in Customs

By Kunio Mikuriya, WCO Secretary General

Each year, the WCO Secretariat invites the Organization's Members to focus on a theme it considers relevant to the Customs community and its partners. In 2023, under the slogan "Nurturing the Next Generation: Promoting a Culture of Knowledge-sharing and Professional Pride in Customs", the Secretariat is inviting Customs administrations to look at how they support newly-recruited officers, facilitate the sharing of knowledge, and heighten the sense of pride in being part of this institution and of the global Customs community.

This is about placing human capital, and especially the new generation, at the heart of the transformation of Customs – an approach the WCO has been advocating for a number of years. Young Customs officers often have particular strengths, but they need to acquire specific, and often tacit, knowledge and know-how. This approach to learning must be rooted in the culture of the administration, holding true throughout an officer's career. It requires not only dynamic inter-generational relationships, but also an outward-looking attitude, characterized by exchanges with the actors engaged in the movement of goods and passengers, as well as with service providers and with academia. Such an approach will enable an organization to support the creation of knowledge by individuals, by offering them the opportunity to learn, share and create.

However, it has to be recognized that certain Customs organizations do not have the processes and methodologies in place for managing knowledge and ensuring that it is transmitted. In 2023, Customs administrations are therefore being invited to focus on this issue and develop a knowledge management system which fosters the identification and provision of knowledge and know-how in all their forms: reports and other documentation, training courses (whether online or in-person), forums, mentoring programmes, work placements, exchanges between services, magazines and newsletters, among others.

By creating a stimulating work environment and offering learning opportunities to their officers, Customs administrations can not only attract and retain talent, but also enhance their officers' sense of professional pride. It is often said that the new generation are searching for meaning; working in Customs is a noble mission, whose fulfilment is essential for the well-being of nations.

Some thoughts on knowledge and its management

Knowledge management is an interdisciplinary area of studies and is closely related to information science. It comprises a collection of processes that govern the capture, storage, creation, dissemination and utilization of knowledge in an organization.

Researchers Maryam Alavi and Dorothy E. Leidner establish a relationship between the concept of knowledge and the definition of its management. If knowledge is perceived to mean access to information, knowledge management should focus on establishing systems to store knowledge. If knowledge is perceived as a process, then knowledge management is more about flow and the focus is on creating, sharing and distributing this knowledge. If knowledge is seen as a capability, managing knowledge means building skills and intellectual capital.

By creating a stimulating work environment and offering learning opportunities to their officers, Customs administrations can not only attract and retain talent, but also enhance their officers' sense of professional pride.

In the ranking of key success factors in knowledge management established by researchers Jennex and Olfman in 2004 based on the literature, four factors are considered critical:

- a knowledge strategy that identifies users, sources, processes, storage strategy and knowledge itself;

- motivation and commitment of users, including incentives and training;

- a technical infrastructure that includes networks, databases/repositories, computers and software;

- an organizational culture and structure that supports learning and the sharing and use of knowledge.

The WCO has not yet developed any specific guidance material on knowledge management, but this topic was on the Agenda of the Capacity Building Committee's most recent session, held in February 2023. The objective was to provide delegates with an opportunity to share information about their organizations' foresight activities and policies in the area of knowledge management, and to reflect on avenues for enhancing the WCO's support to Members in this area by developing dedicated tools or deploying relevant activities.

Dossier contents

"We do not learn from experience...we learn from reflecting on experience" said American philosopher and educator John Dewey. To move forward with our theme for this year, in the Dossier for this edition of the magazine we have invited various people to tell us how they nurture the next generation and how they manage and share knowledge, and let us know what they have learned in the process. The idea, as always, is to highlight any challenges faced, showcase initiatives that will inspire others, and – of course – to communicate best practices.

To start, we asked PwC to present the outcomes of a survey it conducted to identify the concerns of today's workforce and give us insights into how leaders of organizations today can address workforce-related challenges such as retention or skill scarcity. Knowing the current concerns of staff members – their fears, hopes, aspirations and expectations – is indeed critical to any administration when it draws up programmes and

policies intended to support the development of individual capabilities and institutional capacity.

Next comes an article by Qatar Customs which explains how the Administration developed its knowledge management strategy and the various initiatives contributing to its implementation. Among other things, this article highlights the need to set clear goals and objectives, and to ensure that all employees understand what knowledge management means.

Two articles then address opportunities for Customs officers to develop skills and competences through the provision of training and other learning opportunities. Such activities are warranted if employees have inadequate skills for the roles in which they would ideally be placed and if the newly-acquired skills will actually be put to use immediately after the training, or if specific skills are needed for the career advancement of the individual or for the educational upgrading of a work group. In the first article, the International Network of Customs Universities presents interesting trends in Customs university programmes, highlighting the evolution in the types of topics covered and the learning models used. In the second article, China Customs introduces its training strategy and outlines recent initiatives for identifying, collecting, creating, sharing and transferring knowledge across the Administration.

Due to demographic evolution, some countries will see about a third of their civil service retire in the next 10 to 15 years. This creates serious risks for the continuity of the service and the performance of the public administration. Faced with this issue, Serbia Customs explains the measures it has taken to connect employees, build their sense of belonging and pride, and create a knowledge culture. The objective is to ensure that experienced officials are recognized and their knowledge valued, as well as encouraging the new generations to feel they are contributing to the building of institutional memory. Together, they decide on what should be preserved and passed on to generations to come.

Finally, the Dossier includes two articles which look at the practices used by brokers when it comes to collecting and sharing knowledge to deal with the hugely complex, demanding and risk-laden field of Customs knowledge. Their thoughts and considerations are relevant to all Customs practitioners and trading businesses.

I would like to end by conveying my sincere thanks to all those who have contributed to this Dossier, and to the other contributors to this edition of our magazine who have taken the time to share their thoughts and experiences on various Customs and international trade issues. Together, they are helping to make the WCO an environment for creating and sharing knowledge.

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EXPLICIT KNOWLEDGE
IS DOCUMENTED INFORMATION

IMPLICIT KNOWLEDGE
IS APPLIED INFORMATION

TACIT KNOWLEDGE
IS INFORMATION THAT IS UNDERSTOOD

NOTES
MANUALS
VIDEOS
MEMOS
HOW-TO-GUIDES
DOCUMENTS
HISTORICAL RECORD
DATABASES
LOGIC
THEOREMS
BELIEFS
SHADOWING
PRACTICE
GENERALIZED RULES
LESSON
CULTURAL LEGACY
INSIGHTS
EXPERTS
OBSERVATION
EDUCATION
EXPERIENCE
ORGANIZATIONAL VALUES

Why now is the time to address workforce challenges

By Tobias Sattler, Managing Director, and Claire Monari, Manager, People & Organisation Consulting, PwC Switzerland

The workforce-related challenges faced by leaders of organizations in all sectors across the world are mounting. Recent empirical research in the form of one of the largest labour market studies ever conducted worldwide paints a more detailed and nuanced picture of what is going on – and points to concrete ways of responding.

What is going on in the workplace?

The Great Resignation has been making a lot of noise in recent news. But what does it mean? Is it really happening?

The reality is more complex than the headlines would suggest. Many organizations are indeed struggling to find the right people, but the uncertainty in the market is affecting different geographies and sectors differently. High-tech firms, for example, are letting people go, while the professional services and consumer goods industries are finding it hard to attract the talent they need.

What we see happening is first and foremost a talent shortage in countries around the world, accompanied by rising unemployment. Many people between the ages of 15 and 24 are struggling to acquire the skills they will need in the workplace. Leaders – including those of public entities such as Customs authorities and leaders in the trade community – must think about the workforce of the future and start developing the necessary talent today within their own ranks.

Another factor is the way expectations are growing and changing. The message coming from employees worldwide is that they do not want to be taken for granted. They are finding new confidence in the shifting world of work. They are calling on employers to listen, learn and engage.

The challenges extend to the public sector. Leaders of public entities, like their counterparts in other sectors, are having to deal with complex challenges related to digitalization, automation, workforce diversity, equity and inclusion, culture and sustainability. The sheer variety of these potential stumbling blocks and their impact mean it is important to address both the financial and human capital elements of the equation. At the same time, public entities face increased pressure from both their workforce and members of the public to demonstrate that they are consistently putting their values into practice and walking the talk when it comes to workforce matters.

Looking ahead, thriving organizations will need to understand how to unleash their workers' full potential and better adjust to their expectations. Comprehensive research in connection with PwC's *Workforce Hopes and Fears Survey 2022*[1] provides some precious insights into how to address this challenge.

Retention strategies: meaning is as important as money

When it comes to retaining people, fair and equal pay is key. But it is not enough by itself to retain workers, who in our survey were almost as likely to cite intangible factors related to the meaning and purpose of their work. Job fulfilment and the ability to be one's true self at work were ranked second and third among the people considering a job change.

1   https://www.pwc.ch/en/insights/transformation/pwc-workforce-hopes-and-fears-survey-2022.html

Managers who sense that these elements are at play – or even starting to emerge – must take steps to reshape the employee experience. Making jobs fulfilling requires deep empathy on the part of managers, and the ability to translate the organization's overall purpose into specific actions and behaviours so that people can see how their work contributes to that purpose.

Empowerment, specialization and scarcity

Even though organizations are investing more and more into their workforce, skill scarcity remains a big challenge for many. People who have specialized skills and training are in great demand. This highlights a need for more targeted training to develop these skills. With many jobs requiring a level of specialist training, this brings out a new element of workforce empowerment. On the flip side, we see that upskilling is one of the strongest measures to empower people. For example, the survey suggests that people who believe that they have scarce or specialized skills not only feel more confident, but are also more satisfied and more likely to recommend their organization to others.

In this context, leaders need to anticipate. As the global environment grows more uncertain, deliberate workforce planning is becoming even more important – and more difficult – than ever. Organizations can increase their agility and resilience by envisioning different scenarios of what the future could look like and drawing conclusions about what it means for their people and their organization – and subsequently feeding these insights into their workforce strategy. Quality workforce analytics, investments in training, and leadership that encourages and empowers re-skilling and continuous learning and development are all ways of doing this.

Simultaneously, there is an opportunity to reduce the perception gap between HR and executives if they work together more closely to develop, deploy and track a common workforce strategy that is fully integrated into the organization's wider strategy. Given that the implementation of new technology is more sustainable when co-developed and deployed with people at the centre, organizations should also be preparing for and deploying technology with humans in mind. Doing so can significantly improve the organization's impact and the value of its technology investments.

Politics and social issues

In today's workplace, discussions about political and social issues are becoming more normal. This new shift is breaking down the barriers to talking about sensitive political and social issues at work, as these are no longer as divisive or the polarizing distraction that managers might fear. On the contrary, the findings of the *Hopes and Fears Survey 2022* show that, among the respondents who have political and social conversations at work, the positives – a better understanding of co-workers, a more open and inclusive work environment, and increased empathy – outweigh the negatives.

Even though supporting and encouraging sensitive conversations is not easy, leaders can create spaces to direct these discussions to the positive. They can also facilitate progress by establishing norms, offering resources and helping ensure that these conversations happen in safe, non-judgmental environments. These environments should emphasize listening – not reaching solutions or generating consensus – and thus represent growth opportunities, including for senior executives, who are often much more comfortable in problem-solving mode. The leader's role here is to help the organization to create a safe space and bring meaning, humanity and social impact to the workforce – not to deliver answers.

When it comes to societal goals, transparency is everything

People want organizations to take a stand, and are demanding that their employers look beyond financial performance to broader environmental, social, and governance (ESG) considerations – particularly regarding transparency. The area in which survey respondents say that transparency is most important is the organization's record on protecting worker health and safety. This, no doubt, is related to some extent to the pandemic and the need to recreate working environments with public health in mind. Nonetheless, economic impact, workplace diversity and environmental impact (including climate) were not far behind in the survey.

To remain attractive as an employer over competitors, organizations have to be transparent in their reporting and responsible in their actions on ESG. More and more organizations are investing in activities to measure their environmental, economic and social impact, and

Upskilling is one of the strongest measures to empower people. For example, the survey suggests that people who believe that they have scarce or specialized skills not only feel more confident, but are also more satisfied and more likely to recommend their organization to others.

regularly report on the outcomes of efforts to keep their workforce informed and involved. To facilitate this process, organizations can develop specific action plans to improve and continuously protect worker health and safety, as well as address diversity and inclusion in the workplace. Here it is key for organizations to communicate their promises clearly and then act on them.

Hybrid work: meet your workforce in the middle

Flexible approaches resonate with the workforce. The majority of those surveyed believe that in the coming year, their employer will provide work options they like. 62% of respondents whose function allows them to do so prefer some mix of in-person and remote work, and 63% said they expect their organization to offer that kind of approach in the next 12 months, compared with 72% in the 2021 survey.

That said, it is also crucial not to overlook people who cannot work remotely. Workers without the remote option are also far less likely than others to say that they find their job fulfilling, believe that their team cares about their well-being or feel that they are fairly rewarded financially or that they can be creative in their work. As organizations revisit their workforce strategies, they must take these people into greater account. In addition, as part of their broader social responsibility mandate, employers need to consider the role that people who cannot work remotely have played in the overall community responses to the pandemic. After all, these people often serve a critical role in society, providing services that cannot be delivered virtually.

Investing in the employee experience yields financial returns

HR managers and business leaders know that improving the employee experience is good for

both the workforce and business. But where to start? How can organizations prioritize their investments to secure better – and more predictable – results? Across the organizations included in the study, investing in people's mental and physical well-being delivered the highest returns. Training, and career development, ran a close second and third, respectively.

The key is directing resources to where they are needed most. Before pouring resources into the employee experience, it is vital to work closely with HR leaders to examine individual strengths and weaknesses and elicit honest and robust feedback from people to make informed decisions on where to invest. Building and maintaining trust between leadership and staff is essential to attract and retain talented workers. At the same time, organizations still struggle to establish and maintain a culture that reinforces trust at all levels and breaks down communication barriers.

Conclusion: It is time for focused, vigorous, informed action

With the global geopolitical context also fluctuating, organizations, and public entities, need more than ever to constantly adapt and accelerate their level of responsiveness in the deployment of their resources and programmes across the world. Lukewarm agreement or action will not create the impact needed to regain trust and address today's biggest workforce risks.

Leaders are most likely to succeed if they take vigorous and prompt action to strengthen their organization's capacity to meet today's pressing challenges and prepare for the future of work. It is also important to consider and overcome the factors that tend to block progress.

In our survey, leaders said that the most recurrent blocks to change when it came to their future of work strategy included organizational culture, factors outside their control, e.g. legal or regulatory factors, and a lack of senior leadership capabilities to overcome them.

Leaders will need to engage with the wider workforce. This involves initiating a conversation around the meaning of trust. It will also involve building an organizational culture that fosters security, growth, productivity and openness to technological changes. Factors that lie outside leaders' control need to be predicted and, whenever possible, evaluated to make the best of the factors that can be controlled and worked with.

More information

https://www.pwc.ch/en/services/people-organi-sation/workforce-of-the-future.html

Across the organizations included in the study, investing in people's mental and physical well-being delivered the highest returns. Training, and career development, ran a close second and third, respectively.

About the study

With 52,195 employees from 44 countries surveyed online, PwC's *Global Workforce Hopes and Fears Survey 2022* is one of the largest labour market studies ever conducted worldwide. The survey spans Europe (18,558 respondents), North America (7,301), Latin America (4,694), the Middle East (1,565), Asia (15,906), Oceania (2,086) and Africa (2,086), with sample sizes guided by each country or territory's share of global GDP.

The average sample size per territory was 1,200. Overall, 42% of respondents were female and 57% male. Millennials provided 46% of the responses, Generation X 30%, Boomers 13% and Generation Z 11%. Of those surveyed, 84% worked full time; 73% were in professional or administrative roles, 15% in skilled manual work and 12% in semi-skilled or unskilled manual work.

Organizations of all sizes were covered, from entities employing only one person to those with 10,000-plus employees.

Sector coverage was also comprehensive: 26% of respondents worked in industrial manufacturing, 21% in retail and consumer, 15% in government and public sector, 12% in technology, media and telecommunications, 10% in health industries, 9% in financial services, and 5% in energy, utilities and resources.

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Qatar Customs Knowledge Management Strategy

By Dr. Tariq Shbail, Customs Expert, Regional Training Centre, General Authority of Customs, Qatar

The General Authority of Customs (GAC) of Qatar considers that knowledge management is key to improving its performance in all areas, ranging from service quality and productivity to the decision-making process and communication. Knowledge management is not really about managing knowledge, but about developing a culture that values learning and the sharing of knowledge. It consists of a collection of processes that govern the creation, dissemination and utilization of knowledge in an organization.

Steering Committee

Knowledge management requires a multidisciplinary effort, and the implementation of a policy in this domain cannot be assigned to a particular department. Therefore, the GAC has established a Steering Committee to develop and monitor the implementation of a Knowledge Management Strategy. The Committee is headed by the Deputy Head of the Support Service and is composed of the Directors of most departments, including those in charge of regional training, planning and quality, human resources, information technology, financial and administrative affairs, and public relations and communications.

The duties of the Steering Committee are as follows:

- develop the Knowledge Management Strategy and ensure its alignment with the overall strategic objectives of the GAC,
- support knowledge management-related initiatives, programmes and methodologies,
- monitor the implementation of the Strategy, review achievements and assess results,
- develop and update relevant policies and procedures,
- ensure the effective participation of staff in projects and activities, and
- allocate the financial and human resources needed for the delivery of programmes and projects.

The Strategy developed by the Committee focuses on three key pillars:

1. a knowledge culture which involves people in the knowledge creation and sharing process,
2. tools and methodologies to manage, develop and maintain the Administration's knowledge assets and sources, and

3. a knowledge-sharing system that supports decision-making processes and improves the quality of services.

Assessment

Before developing a strategy, the Administration needed to assess its existing processes and its maturity level in the area of knowledge management. To do so, it conducted a survey involving all staff. The questions posed covered the awareness, acquisition, sharing, evaluation, transfer and use of knowledge. The survey questions were drafted based on existing knowledge management literature, theories and questionnaires. The questions were customized to fit the Customs context, and were reviewed by academics and experts in knowledge management who ensured that questions were clearly formulated and could be easily understood, replacing words and clarifying certain terms where needed. They also worked on the sequencing of the questions, which had to follow logical reasoning, and agreed with the privacy policy describing the way data provided by staff was to be stored and used.

Raising awareness and ensuring staff engagement

The answers to the questionnaire were analysed by experts at the GAC. The results revealed that knowledge management practices and tools were known, but needed to be organized, explained and institutionalized.

Various initiatives were then launched with the aim of:

- raising awareness of knowledge management, its importance, and related concepts;
- developing an effective electronic system for disseminating and exchanging knowledge throughout the GAC;
- organizing and categorizing knowledge assets and sources internally and externally;
- converting tacit knowledge into explicit knowledge; and
- mitigating knowledge threats.

The driving force of knowledge management is people, with their tacit and explicit knowledge. To raise awareness of the importance of knowledge management among staff, the Customs Training Centre organized a series of training and workshops for all employees. The benefits of knowledge management were examined and

technical terms (such as knowledge maps, knowledge assets, intellectual capital, knowledge gap, tacit knowledge, explicit knowledge and sources of knowledge) were discussed. The workshops were delivered by experts in knowledge management working at the Customs Training Centre.

A communication campaign was also designed and various material was developed, with the use of brochures to explain concepts related to knowledge management, posters to communicate the objectives and importance of knowledge management in the GAC (see Figure 1), and emails to report achievements, progress and updates on knowledge management projects and programmes.

Figure 1 - Poster listing different types of tacit (95%) and explicit (5%) knowledge

Staff were also encouraged to explain what knowledge management meant to them, through a competition. They had the opportunity to present their ideas on how to enable the exchange of knowledge and expertise at the national and international levels; one of those ideas became the "Sharing Success Stories Project". This created space for open communication about the wins, losses and lessons that employees are collectively experiencing.

A survey, to be conducted periodically, has also been designed to assess the level of awareness of

employees regarding key concepts and tools, as well as their evolution over time. The questions focus on the Knowledge Management Strategy and Vision, knowledge sharing and motivational methods, means of communication, knowledge sources and accessibility, as well as on the electronic information systems used by the GAC.

Knowledge platform

To enable officers to communicate, share knowledge and access relevant information via a single portal, the Administration has developed a platform on its intranet. This knowledge-based platform is designed to enable officers to share ideas, initiatives and suggestions to enhance their work environment and procedures. It is also used to publish studies and research carried out by the GAC's officers. The portal is managed and supervised by the Public Relations and Communication Department.

The Administration also uses the platform to provide information about learning opportunities, such as upcoming national and regional training and details of how to enroll on them. There is also a link to the WCO CLiKC! Platform and its many e-learning courses.

To increase its training offer, the GAC has signed many Memoranda of Understanding (MoUs) with national and international bodies. Among the most prominent training, workshops and conferences organized in the last few months are:

- a regional workshop on data analysis and artificial intelligence which was organized with the WCO via its Regional Training Centre in Qatar;

- an International Conference on the UNESCO 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, which was organized with Qatar Museums. This event brought together representatives of international organizations, governments, academia, NGOs and other relevant actors.

As employees may find it difficult to focus on their job duties and complete them efficiently while sharing knowledge or undertaking training, time is set aside for such activities as part of their normal working hours.

Knowledge assets

Moreover, the GAC has developed a methodology for organizing and maintaining knowledge assets throughout the various Customs departments. "Knowledge assets" means all the intellectual resources an organization has access to, such as cognitive skills, databases, documents, guides, and the workforce.

To supervise the implementation of the methodology, the Administration has established a specialized team that includes employees from all departments to:

- identify and classify knowledge assets to establish what is already known;

- determine knowledge gaps (i.e., the gap between the required level of competencies needed to perform a job, and the actual level of the employee's knowledge, skills, capacity and attitudes). Many gaps were identified, particularly in areas such as valuation, tariff and data analytics;

- discover relationships between knowledge assets, such as dependency and relevance;

- exclude unused and expired cognitive assets, such as old and outdated legislation or procedure guidelines;

- determine external and internal knowledge sources,

- classify knowledge assets into explicit knowledge and tacit knowledge;

- identify the most important knowledge assets and prioritize them based on their relevance to Customs operations and procedures. The most important and frequently used knowledge assets identified were regulations, guidelines, research and studies, training curricula, annual reports, databases and Customs experts.

To collect this information, the team had to fill in a set of forms; for example, the "knowledge identification form" included data on the owner of a process, the purpose of the process, the knowledge required to undertake the process, the sources of knowledge (explicit/tacit), and how the knowledge is transferred, disseminated, formatted, stored and classified. The team

As employees may find it difficult to focus on their job duties and complete them efficiently while sharing knowledge or undertaking training, time is set aside for such activities as part of their normal working hours.

received specific training to ensure they could do the job properly and efficiently.

Tacit knowledge

The challenge for any organization is how to effectively exploit tacit knowledge to develop human capital. Tacit knowledge is knowledge that can only be transmitted via observation or gained through personal experience; it is, for example, the basis of apprenticeship programmes.

The GAC began by classifying knowledge assets into explicit and tacit knowledge. It then launched several projects and activities aimed at converting tacit knowledge into explicit knowledge. First, a database of trainers and experts was established, with information about their working experience, training delivery experience, qualifications, areas of interest, evaluation scores and participation in regional and international events. Second, training curricula were updated by experts to include information on practices and know-how. Last but not least, it was decided to provide detailed, written reports on all workshops and conferences, and make them available to all staff on the knowledge platform.

Knowledge threats

The GAC also developed a risk management strategy with the aim of identifying and mitigating the potential risks faced for the implementation of its Knowledge Management Policy. Risks included resistance to change, lack of experience in knowledge management, and unwillingness of some employees to share their success stories.

For each identified risk, a set of proactive preventive measures was developed. These measures included communicating with employees to mitigate negative attitudes towards knowledge management, providing training, and rewarding employees who had shared experiences and success stories by sending out letters of thanks and giving them financial rewards.

Lessons learned

The GAC believes that one of the key success factors when developing methodologies and tools for capturing, storing, sharing and effectively managing knowledge is the commitment and support of top management. The individuals in charge of managing the organization must therefore understand the importance of knowledge management, and what the implementation of the concept entails in terms of tasks and resources.

Once the support of top management has been secured, the successful implementation of knowledge management projects depends mainly on the level of awareness among employees and their understanding of what knowledge management means. One of the main obstacles faced by organizations during the implementation of activities related to knowledge management is a lack of clarity regarding its objectives and relevance.

The GAC hopes that its experience will inspire other Customs administrations, and would welcome enquiries from any administrations that would like to find out more.

More information
www.Customs.gov.qa
Trainingcenter@Customs.gov.qa

About the GAC

The General Authority of Customs (GAC) is the government authority responsible for monitoring the importation and exportation of goods in and out of the State in accordance with the governing legislation in this regard. Emiri Decree No. (37) of 2014 was issued on 20 February 2014, establishing the General Authority of Customs with a legal personality and a budget attached to the budget of the Ministry of Finance. The GAC is affiliated with the Minister of Finance and is based in Doha. The GAC is seen as having an important role to play in ensuring sustainable economic development and in achieving the Qatar National Vision 2030 and the Qatar National Development Strategy. This Strategy explores ways to improve the performance of public sector institutions, i.e., ways to be more efficient, innovative, relevant, transparent, accountable, results-orientated and customer-focused. It also underlines that Customs not only ensures traders' compliance with regulatory requirements, but also plays an important part in supporting inward investment and fostering international trade and travel.

Interesting trends in Customs university programmes

By Professor David Widdowson, CEO of the Centre for Customs and Excise Studies at Charles Sturt University and President of the INCU

The business of Customs is extremely complex, and yet, until very recently, there was no academic recognition of Customs as a profession. Unlike lawyers, accountants, engineers and others who are able to point to some form of diploma that indicates they are professionals in their field, no equivalent existed for Customs officials. This changed in the 1990s, thanks to three like-minded individuals[1] who had been developing Customs-specific curricula in their universities – Münster in Germany, Riga in Latvia and Canberra in Australia.

They created the International Network of Customs Universities (INCU) and worked with the WCO Secretariat to establish a framework which would enable the WCO to recognize Customs degrees, and to develop professional standards against which such academic programmes could be designed. As a result, in 2010, when the programmes offered by the three universities were certified by the WCO, Customs became an internationally recognized academic discipline.

Neither the INCU nor the WCO could have achieved this outcome in isolation. Universities are not in a position to independently determine the educational requirements of Customs officials; nor is the WCO able to develop and deliver higher education degree programmes. This cooperation is a win-win: universities are now able to expand their scope of curricula, and Customs officers have access to WCO-accredited programmes that are designed to meet international standards for the Customs profession.

The partnership between Customs administrations and academic institutions is going strong, with an increased number of administrations offering their staff continuous opportunities to further their education throughout their career, supporting them as they undertake more complex projects, seek new positions, or simply wish to be better

equipped to do their job. It is against this backdrop that the following trends are highlighted.

Focus on emerging technologies

The "Professional Standards for Strategic and Operational Customs Managers" were updated in 2019. Stronger emphasis was placed on emerging technologies, risk and compliance management, supply chain security and trade facilitation. Academic programmes are evolving to reflect the updated standards. Some curricula are being expanded to address topics such as the ability to interpret large data sets, to leverage and ethically apply artificial intelligence, and to apply the principles of machine learning in the context of operational decision-making. For example, work is underway in Australia to include courses on the foundations of big data analytics, artificial intelligence for business applications, data mining and visualization for business intelligence, and data management.

Learning models are evolving

Learning models are also evolving, with educational offerings being reimagined and packaged to satisfy the flexible needs and expectations of administrations and industry. Learning models such as lectures delivered in classrooms and lecture theatres through scheduled classes are becoming outdated, and learning is beginning to transcend its traditional boundaries – primarily through the use of technology.

While many organizations – including government authorities – have long embraced the benefits of online learning, others have been reluctant to do so, and in some instances have actively opposed the practice. However, we are now seeing an increasing number of administrations and national educational authorities change their attitude to qualifications that have been gained through online study. What was previously unacceptable in

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1   Professor Hans-Michael Wolffgang (University of Münster, Germany), Professor Aivars Krastins (Riga Technical University, Latvia) and Professor David Widdowson (University of Canberra – now Charles Sturt University, Australia).

some countries is now being actively encouraged and promoted as a legitimate and progressive form of training and education.

The focus on online learning is now well beyond the point of being a trend, with asynchronous platforms and synchronous virtual classrooms emerging as the learning models of the future. We are also witnessing a growing trend towards virtual internships which provide opportunities for students to undertake workplace projects within an administration as part of their university programme.

Short courses and studies

The traditional three- or four-year undergraduate degrees are disappearing, and an increasing diversity of qualifications is now being offered. Graduate Certificate and Graduate Diploma studies typically take just six months for full-time students, providing a valuable bridge to a new skill. Some universities also offer micro-credentials which certify the learning outcomes of short-term learning programmes that may be studied in isolation, or grouped together to form components of a formal qualification. In recognition of those changes, the WCO has authorized universities to promote such subjects or groups of subjects where they form an integral part of WCO-recognized academic programmes.[2] Such recognition is of growing importance to those administrations that are seeking to ensure that all education and training provided to their employees meets the standards that have been established by the WCO.

Maintaining currency, relevance and utility

The initial development of purpose-built programmes for the Customs profession was not without its difficulties, particularly in the absence of internationally recognized standards. Those with a knowledge and understanding of the breadth and complexity of the Customs mission could readily see the feasibility of constructing courses that would be both meaningful and credible in academic terms. However, the difficulty lay in convincing universities and national ministries of education – which were steeped in tradition – to invest time and effort into the

development of a new academic discipline. I vividly recall a university committee meeting in which a professor asked me why a Masters programme was required to teach people how to search bags!

With WCO-recognized programmes now available globally, the ongoing challenge is to maintain their currency, relevance and utility. This requires course developers and faculty who hold recognized academic qualifications, have a sound knowledge of the contemporary Customs environment, are proficient teachers, and have a practical understanding of how the theory translates to operational reality. Typically, such qualities can be found in experienced officers – both generalists and specialists – who have a passion for teaching and can successfully transition to academia. In some areas, however, it is preferable to engage an experienced professional or academic from another discipline (such as Computer Science), with an ability to apply their knowledge and skills to the field of Customs.

More information

www.incu.org

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2 *WCO Guidelines for the Recognition of University Customs Curricula (2019), Clause 15.*

© Shanghai Customs College

Providing diversified learning: some innovative practices of China Customs

By Dr. Hua TONG, President Secretary, Shanghai Customs College, General Administration of China Customs

In March 2018, the Chinese government decided to integrate China's entry-exit inspection and quarantine duties and workforce in 306 ports nationwide into China Customs. The former entry-exit inspection and quarantine officers then commenced working as Customs officers. This marked the birth of the new China Customs, which now counts more than 100,000 staff.

China Customs explained, back in October 2018, how it achieved the full integration of Customs and the inspection and quarantine services by developing completely new clearance procedures and information technology (IT) systems which enabled the digitalization of the clearance process and accurate data analysis,[1] among other things.

One issue which was not addressed at the time was how the administration dealt with the gaps in knowledge of Customs officers and of inspection and quarantine officers with regards to their respective procedures and working methods. Some of the measures taken to solve this issue are presented below, together with recent initiatives to identify, collect, create, share and transfer knowledge across the administration.

Training for all staff strategy

To guide its action, China Customs formulated a strategy called "Training for all staff" covering the 2018–2019 period. The objective was to enable staff to expand their professional knowledge and skills, to build a sense of group belonging based on shared principles and practices, and to learn from each other.

The National Education and Training Centre of China Customs was put in charge of implementing the strategy. This was done in two phases. Phase one was dedicated to formulating principles and values, developing a teaching syllabus and training materials with Customs experts from headquarters

and regional Customs houses, establishing teams of trainers, and setting up an online platform. The orientation training programme for newly recruited civil servants was also reviewed and updated. Phase two was dedicated to organizing online and in-person courses. In total, 261 training courses were conducted with headquarter staff and 5,598 with regional office staff. The latter had to follow a comprehensive curriculum covering relevant laws and regulations, supervision work, taxation matters, anti-smuggling working methods, and the drawing up of statistics. A specific focus was put on health and quarantine issues such as food safety and the supervision and inspection of imports and exports of animals and plants. The training laid the foundation for the use of a unified declaration, operating system, risk management system, instruction delivery, and on-site law enforcement.

All staff also undertook physical and team training based on military-style models. This included physical fitness training and behavioural training focusing on the importance of obedience to rules, teamwork and discipline. Senior officials also actively participated in this team training, which was designed to promote self-discipline and enable officers to better understand the administration's code of conduct, organizational culture and values.

Online training

As a result of the COVID-19 pandemic, the number of online training events and courses made available to staff has expanded sharply. China Customs has customized a training application on the DingTalk platform provided by Chinese retail giant Alibaba. This online learning platform for Customs staff offers more than 700 online courses and enable users to learn autonomously.

There are two kinds of courses: video courses produced by teachers from universities or institutes, and video courses produced by full-time or part-time trainers from China Customs. The courses are either recorded or live. Many trainers and teachers use blended learning, with officers being asked to take courses on their own and then to join a live online session dedicated to discussions and role-playing. It is worth noting that trainers are all experienced officers with expertise in specific subjects. Some are even accredited WCO experts. To enhance their training skills, China Customs has held several "Train the Trainers" workshops. One of the most recent focused on online presentation and how to develop interactive communication in a virtual classroom.

Knowledge credits

To record the time spent on learning, both in person and online, and to set goals for Customs officers, China Customs has established a knowledge credit management system. The time required to complete each course has been calculated in terms of learning hours (one learning hour equalling 40 minutes). Officers can accumulate knowledge credits by passing courses. Two learning hours count for one knowledge credit, but, in order to earn the credits, officers have to pass the test at the end of the course. In other words, not only do they have to take the course, they also have to prove that they have acquired the requisite knowledge and skill. All officers at or above division director level are required to accumulate no less than 110 learning hours per year of off-the-job training, plus no less than 50 learning hours of online training. All officers should therefore obtain no less than 100 knowledge credits per year.

Shanghai Customs College dual instructor system

Shanghai Customs College (SCC) was founded in 1953 to provide higher education in Customs techniques and management to China Customs staff. In March 2007, with the approval of the Ministry of Education, SCC started offering Bachelor's degrees, which typically take four years to complete and can be the first step to a higher academic degree, such as a Master's or a Doctorate. SCC subsequently designed a Master of Public Administration, too.

Today, SCC nurtures future Customs officials as well as Customs and trade professionals through three programmes at Bachelor level (Customs administration, entry-exit inspection and quarantine, and Post Clearance Audit). Graduates who then wish to join China Customs can then do so by passing the national civil service examination. The SCC currently has 2,823 full-time students, including 2,724 Bachelor students and 99 Master students. SCC also has 146 Master students following the part-time course of study, which takes three years to complete. The majority of these part-time students are Customs officers. They come to SCC for a full month every six months to take courses and conduct their

research thesis while working. They can benefit from different scholarship programmes which cover the bulk of the tuition fees.

In the past two years, SCC mainly delivered its courses online. To ensure that its programmes balanced theory and practice, SCC implemented a dual instructor system whereby each student was assigned two instructors: one from SCC focusing on academic knowledge and the other from the Customs administration focusing on practices and know-how. For its Master of Public Administration, SCC currently has 20 "practice" instructors who are all well-known experts who have held various important positions. They include senior officials at director and director-general level from headquarters and regional Customs houses.

Creating knowledge

A first-class academic institution cannot content itself with spreading knowledge through its programmes and teachings. It must go further by producing original and pertinent findings through research activities and subsequent scientific publications. SCC is set to celebrate its 70th anniversary in 2023 and is working on setting up a Doctorate programme that will enable students to reach international standards of research quality.

Think tank

A think tank is an entity which studies a particular subject (such as a policy issue or a scientific problem) and provides information, ideas, and advice. SCC has a research institute on Customs history which brings together historical scholars and experts from Customs across the country to undertake research with the support of the National Natural Science Foundation of China. To leverage this platform and provide advice on the complex issues linked with international trade, SCC also decided to set up a Customs, Economics and Trade Research Institute. With the contribution of students and of these institutes, SCC produces a Journal of Customs and Trade. It also participates in research projects and publishes papers and books – a total of 123 research projects, 47 papers and 14 books in 2021 alone.

Lingang international campus

Since 2004, SCC has been an active WCO Regional Training Centre (RTC), aiming to be a centre of excellence for the WCO Asia Pacific Region. Under the supervision of the WCO Secretariat and in cooperation with the Regional Office for Capacity Building, it develops and conducts training for all administrations in the region, as well as maintains trainer pools in cross-border e-commerce, human resource management, free zones, IPR protection, rules of origin, post clearance audit, anti-smuggling, Customs valuation and classification.

During the 2016-2020 period, SCC also received 55 groups, including six ministerial-level groups. It held 75 training programmes for 1,840 individuals representing more than 100 countries. SCC sent more than 130 teachers and administrative personnel overseas. It invited 80 experts from foreign Customs, universities and international organizations to give lectures at its premises. A total of 60 students were selected to participate in exchange programmes with three well-known foreign universities, and a total of 54 international students came to study at SCC.

To reinforce this policy aiming at building capacity in the region, SCC established an international campus which will officially open in the second half of 2023 and will welcome high-level Customs officers and trade professionals from the "Belt and Road" countries.[2] Moreover, the campus will be used when training officers under the WCO RTC banner. The Lingang International Campus is to be located near the Dishui Lake in Shanghai.

Professional standards

Universities that wish to have their Bachelor and Master degrees officially recognized as meeting "WCO Professional Standards" can do so by applying to the WCO Secretariat. SCC did this for its Bachelor degree course majoring in Customs management, in order to ensure that its curriculum was geared to meeting the modern human resource requirements of Customs administrations. Certification was obtained in 2018. In 2019, the College applied for its Master in Public Administration to be recognized as meeting WCO requirements, obtaining certification in 2022.

China Customs plans to connect the classrooms with Customs inspection premises via 4K high resolution cameras. Thanks to 5G, officers undertaking an inspection should be able to ask students and teachers for their assistance via a live video call. This would enable students to work on practical cases and better understand some of the challenges they will be faced with in the field.

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2   "Belt and Road" refers to the combination of two initiatives unveiled in September and October 2013 respectively: the Silk Road Economic Belt and the 21st-Century Maritime Silk Road. They focus on promoting policy coordination, the connectivity of infrastructure and facilities, unimpeded trade, financial integration, and closer people-to-people ties. China has signed Belt and Road cooperation documents with 150 countries and 32 international organizations.

SCC is likewise building a team with WCO accredited experts in human resource management, professors and faculty teachers to continuously update the content of the courses and the knowledge which is shared in line with the WCO PICARD Standards.

Customs Knowledge and Information Centre

The Customs Knowledge and Information Centre is an initiative that aims to offer a central point of access to Customs-related databases. Currently, it provides access to 74 sources of information, including:

- The Customs self-built information database which was created by SCC and is managed by a team which collects information related to Customs from all over the world, such as papers or books;

- Baichuan Information News, which is managed by a professional supplier of bulk raw material information;

- China Customs Digital Library which contains the entire catalogues of three journals, namely *People's Customs*, *China Customs* and *Customs Research*, with a total of more than 600 volumes and nearly 20,000 articles collected since 1950;

- China Old Customs Archives 1854-1949 which contain about 120,000 pages of original materials, including general information about China's domestic trade, taxation, overseas trade, inland tax, ships, passengers, gold and silver, medicine and soil;

- *Customs Gazette* 1869-1913 which was founded in 1869 and closed in 1913. It was published quarterly, entirely in English, and contained records of imports, exports, re-exports and payment operations, as well as other trade data;

- Customs Foreign Language Journals such as the *World Customs Journals* and the *Global Trade and Customs Journal*;

- UN Comtrade (United Nations Trade Commodity Statistics Database) which is managed by the United Nations Statistics Division and contains commodity trade statistics for nearly 200 countries and territories since 1962. It has accumulated nearly 7 billion records;

- WCO Data Model and WCO Trade Tools.

The way forward

China Customs has launched several initiatives which are in line with the theme chosen by the WCO Secretariat for 2023, "Nurturing the next generation: promoting a culture of knowledge-sharing and professional pride in Customs."

Knowledge management platform

One initiative is the development of a knowledge management platform designed to break down barriers to communication, allow the continuous updating of content, easily answer questions and share experiences. The system will not only capture what the administration already knows, but also dynamically collect new knowledge. It will make use of information technologies to analyse open-source information such as newspaper articles, web pages and publications on various topics. It is to become a free online encyclopaedia, similar to Wikipedia, for Customs administrations.

The first phase of the project has been successfully implemented. It consisted of agreeing on the top-level design, undertaking Customs

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knowledge mapping, developing contents and modules, and establishing the maintenance and collaboration mechanism. The work was supervised by the Department of Science and Technology Development of China Customs. The second phase of the project will be launched in 2023. It will consist of implementing pilot projects, conducting big data analysis and collecting information.

Immersive learning

Similarly, courses make it possible to acquire the knowledge required to exercise the profession and to explore the theoretical aspects of various subjects to be mastered. However, it is always a challenge for trainers to build skills, that is to say the ability to act effectively in a defined situation, an ability which draws on knowledge, but is not reduced to it.

To enhance learner engagement, enable operational know-how to be transferred and assess officers' skills and conduct, SCC turned to Immersive Learning, an experiential training methodology that uses Virtual Reality (VR) to simulate real-world scenarios. Some virtual reality courses were developed to complement existing courses and designed to train field officers in handling border security crises. Three modules are now available, one on the implementation of health quarantine regulations, one on the handling of explosions at ports and the disposal of dangerous chemicals, and one on the supervision and inspection of express mail items for security purposes.

VR technology allows 3D viewing through a VR headset, which enables the wearer to look around 360 degrees and have the image/video respond to the way they move their head. To generate a lifelike virtual environment in 3D that tricks the user's brain into blurring the lines between digital and reality, a number of components are embedded in the headset, such as a head tracking module, motion tracking module, eye tracking module, and the most important optical imaging module. A high memory computer, a TV screen, hand-held controllers and censors to track the devices are also needed to deliver the virtual reality courses. In addition, the use of VR requires access to high-bandwidth connectivity delivered through fixed networks. VR devices and equipment are available at the RTC premises and in some regional Customs houses.

The administration is now working to deploy the VR courses across the country via standalone VR devices, interactive large screens and streaming media servers. One of China's regional Customs, Huangpu Customs, is testing the introduction of VR devices, enabling officers to immerse themselves into real premises and situations when undertaking training, apply knowledge acquired in the classroom to the field, and improve their operational skills.

China Customs also plans to connect the classrooms with Customs inspection premises via 4K high resolution cameras. Thanks to 5G, the fifth generation of cellular technology, officers undertaking an inspection should be able to ask students and teachers for their assistance via a live video call. This would enable students to work on practical cases and better understand some of the challenges they will be faced with in the field.

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Knowledge transfer: Serbia Customs shares its experience

By Dragana Gnjatovic, Senior Customs Advisor, Customs Administration of Serbia

The Serbia Customs Modernization Plan covering 2019 to 2023 recognized that the success of its implementation relies heavily on having qualified and professional Customs officials. It therefore provided for the development of a Human Resource Strategy to manage its human capital in a way that aligns with the organization's overall mission, goals and future aspirations.

By adopting a clearly defined policy for managing people, based on principles such as equity and transparency, the Administration wished to ensure that staff motivation is high and to foster a work culture which offers support at all levels within the organization. The objective was to increase not only productivity, but also the quality of the service delivered.

The Human Resource Strategy defines four main areas of activity:

• Human resource planning, a process that aims at identifying current and future human resource needs;

• Professional and competency development, a process that aims at identifying and selecting resources for officers to build professional skills and competencies, such as a list of courses, training activities, and learning opportunities;

• Developing and strengthening the integrity of Customs officers; and

• Improving the working environment.

Demographics

Serbia Customs is ageing: around 23% of its employees are over 56 years old, around 69% are between 31 and 55 years old, and around 7% under 30 years old. As is the case with other public administrations in Serbia, many of our employees will retire in the coming two decades and, of course, will take with them the knowledge and experience they have acquired.

When the HR team started working on professional and competency development, they first analysed the demographics of the Administration, starting with the different generations present: Gen X (born in the 1960s and 1970s), Gen Y (millennials born in the 1980s and 1990s) and, lastly, Gen Z (born after 1995). The generations differ in their formative experiences, aspirations, attitude towards technology and career, level of loyalty to an employer, life priorities, and preferred modes of communication. They also differ in the way they learn.

Knowledge transfer and its challenges

The HR team soon identified the need to set up a knowledge management policy which would address issues such as how to facilitate the creation of knowledge, how to enable sharing and transfer of knowledge (especially between generations), and which tools could help such processes.

AGE STRUCTURE

< 30 y. **7%**

>56 y. **23%**

31-55 y. **69%**

GENDER STRUCTURE

Female **43%**

Male **57%**

AGE + GENDER STRUCTURE

4.2%

2.6%

10.1%

13.4%

40.1%

29.6%

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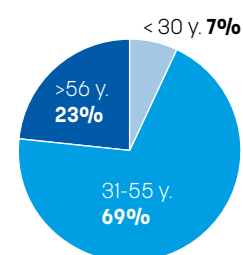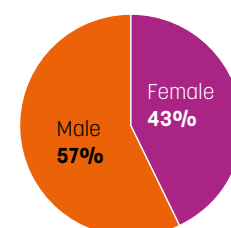
But they faced some challenges. On the one hand were senior employees, with a huge amount of experience and institutional memory, and forming a solid part of the organizational culture – but not so willing (or able) to share their knowledge. The reasons for this are various: they have no time, do not know how to go about it, do not want to speak in public, or feel that, if they reveal the tricks and secrets of their job, they will endanger their position. On the other hand were young employees, who are often impatient and believe that new times bring new ways, that loyalty is overrated, and that any working method unrelated to technology is old-fashioned.

Several initiatives were taken to overcome these constraints. They are described below.

Adapting training

The Customs Training Centre and the Vocational Training Centre play a key role in staff's professional development. There are three types of training: basic, advanced and specialized. Basic training focuses on Customs regulations and procedures. Training material is updated when needed (for example, when there is a change in regulations), but the scope of the programme does not vary.

In contrast, advanced and specialized training is designed and modified according to the needs of Customs officers. Trainers at the Vocational Training Centre are in direct contact with employees to develop the training content. Preparing such training requires, among other things, gathering the experience and knowledge of employees, and finding ways to translate tacit knowledge into explicit knowledge.

Trainers also adapt their teaching methodology in order to take into account the Administration's demographics – for example, the fact that younger colleagues like to use technology when learning, or to interact more.

Mentoring

In accordance with the Public Servants Law adopted in 2014, new recruits must go through a probationary period before becoming permanent employees. During this time, they must also have a mentor to support them by sharing knowledge and know-how, and by providing feedback and input which the employee can use to improve their job performance. The mentor is usually the new em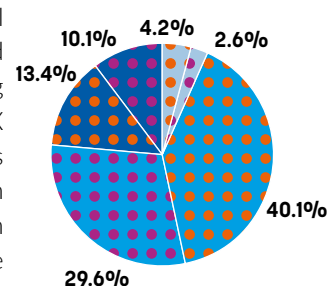ployee's line manager. He or she must keep a diary of the employee's work performance and behaviour. After six months, the mentor sends a report to the unit manager, who will then decide whether the employee should be hired permanently.

Regular meetings

Knowledge management has traditionally focused on capturing knowledge that already exists within an organization. But it is also important to mobilize employees across various departments and across generations, focusing on specific issues in order to create knowledge. With this in mind, regular meetings are held.

For example, if the Administration is confronted with a difficult case or has to implement a new regulation, solutions are proposed and discussed. More senior officers can explain how they handled similar situations or legal changes in the past, and younger officers can share their ideas. It is like a discussion among friends as there is no pressure of any kind to achieve a result. A very frequent topic is how to standardize practices at divisional and higher levels. Encouraging exchange between generations on the rationale behind their ways of doing things is critical here.

This dialogue is very satisfying for all participants. They feel connected and more engaged in their work. At the end of a meeting, a report is drafted to feed the documentation database of the Administration. The decisions or procedures emerging from the discussions are also shared with all employees via email, and we make sure that credit is given to the employees who worked on this.

Knowledge shared is knowledge squared

The title of this section is a slogan from an advertising brochure for Microsoft's Sharepoint, but that does not make the statement any less relevant to Customs administrations. If we are open about what we do and how we do it, we will all benefit.

By focusing on knowledge management, our new HR Strategy aims to connect employees, build their sense of belonging and pride, and create a knowledge culture. Experienced officials are recognized and their knowledge is valued. As for the new generations, they feel they contribute to the making of institutional memory. Together, they decide on what should be preserved and passed on to generations to come. The Administration's management must facilitate such interaction and collaboration to create new knowledge about how to get things done. This is not an easy endeavour, but Customs must keep creating new knowledge in order to keep pace with the changes in its operating environment, in the technologies it can leverage, and in the tasks assigned to it by government.

More information

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Knowledge management: interesting practices from brokers

By Enrika Naujokė, Director of the Lithuanian Customs Practitioners Association

Customs brokers and Customs administrations share many challenges when it comes to collecting and sharing knowledge. This article introduces some of the practices used in this domain by brokers based in Lithuania.

Managing knowledge in the supply chain and the role of brokers

To ensure the smooth cross-border movement of goods, Customs professionals need to understand the specifics of the supply chains they manage and the many actors involved, have an overview of the latest developments in the trade landscape, and maintain a high level of knowledge of Customs and trade-related regulations in the countries and regions they cover.

When doing so, they are faced with many challenges. The international supply chain is a complex environment for knowledge management, as it brings together multiple private and public entities which have no ownership relationship or hierarchy between them,[1] and have competing policies and missions as well as different resources. It is also a moving environment, where regulations and procedures change and new ones – including a growing number of non-Customs regulations – emerge on a regular basis.

In such a context, it is not hard to understand why companies often entrust their Customs and trade formalities to Customs brokers. In many countries, the latter play a key role as intermediaries between Customs and business; for example, more than 80% of import and export declarations in Lithuania and Bulgaria are lodged by brokers.[2] The brokers' role is diverse. As explained in the *WCO Study Report on Customs Brokers*,[3] "there is a wide range of models among countries regarding the use of Customs brokers. The function of a Customs broker also varies greatly, from the preparation of documents related to release and clearance, to the payment of duties and taxes, to providing assistance in post clearance audits, to representing clients in dispute resolutions, and to providing advice/consultancy services to traders aimed at helping them to meet various regulatory requirements".

1   Sartori, Jeanfrank (2021). 'Organizational Knowledge Management in the Context of Supply Chain 4.0: A Systematic Literature Review and Conceptual Model Proposal'. https://en.jeanfranksartori.com/km-in-sc40

2   Dr Momchil Antov (2021). 'The role and importance of customs representation in Bulgaria', Customs Compliance & Risk Management journal. https://www.customsclearance.net/en/articles/the-role-and-importance-of-customs-representation-in-bulgaria

3   https://mag.wcoomd.org/magazine/wco-news-81/customs-brokers-an-overview-of-the-outcomes-of-the-wco-study-report

About entry level requirements

Brokers navigate through the complexity of international trade thanks to information systems, but there is a limit to what the systems can do, in that they are only as good at problem solving as the people who operate them. As in other professions, knowledge, not just information, is a broker's most strategic asset.

If the role of a broker is so demanding and the stakes (compliance) are so high, one can wonder why the profession is self-regulated in most countries. According to a survey conducted on LinkedIn, the vast majority (89%) of the 97 individuals who participated in the survey believe that brokers should be licensed and that the licensing scheme should include an examination system for verifying/testing Customs brokers' knowledge of Customs and related laws and regulations.

In the *WCO Study Report*, it is stated that certain countries, including some which do not have an examination system, employ additional means for verifying the Customs knowledge of brokers. "A sample of the methods used to verify brokers' Customs knowledge includes: the conducting of interviews (Australia and the Democratic Republic of the Congo); the completion of an approved course of study (Australia); a Customs diploma programme (Fiji); a specific training programme (Malta); five years of work experience in Customs matters (Mexico); and a "fit and proper person assessment" based on education, work experience, and industry knowledge (Seychelles)." It should also be noted that in the many countries where the activity of Customs broker is not licensed, the obtention of a compliance programme certification (for example, an AEO compliance type status) is often the only formal proof of professional qualification.

Even where there are entry level requirements, or another type of knowledge assessment/verification system is in place, this may not be sufficient or relevant for a number of reasons.

First, to understand what level of knowledge is being validated by an examination, it is necessary to look at what is involved in preparing for the examination. This differs greatly from country to country. In Lithuania, for example, the training courses offered to prepare individuals who have no previous Customs knowledge take two to three weeks to complete. Obviously, in such a short time an individual can acquire some basic knowledge on how to fill out a Customs declaration, but he or she will be far from a professional in the Customs field.

Furthermore, holding a Customs broker licence does not necessarily mean that the knowledge acquired is up-to-date. In Lithuania, once the Customs broker's examination has been passed there are no formal requirements for regular reassessment of knowledge, nor is there any obligation to undertake ongoing professional development.

Finally, compliance certification schemes, such as compliance-oriented authorized economic operator (AEO) or trusted trader programmes, usually require the applicant to prove he or she has a "professional qualification", but there is often no clear definition of that term. This requirement exists in the EU, for example, but the Union Customs Code does not provide much explanation as to what it actually means. In Lithuania, the proof of "professional qualification" is the Customs broker's licence – so all that is required is to complete two-to-three weeks of training and pass the examination.

In the business community, there are several suggestions circulating with regard to this issue; two of these are of particular interest:

- to establish "Customs consultant[4]" as a licensed profession;

- to create a special compliance certification scheme for Customs representatives, which would assess the applicants' knowledge of Customs and trade matters.

Interesting knowledge management practices

Thankfully, many Customs brokers have adopted procedures and practices for collecting and sharing knowledge. Members of the Lithuanian Customs Practitioners Association (LCPA) range from very small companies (up to 10 employees) whose main activity is Customs brokerage, to large international ones whose main activity is

If the role of a broker is so demanding and the stakes (compliance) are so high, one can wonder why the profession is self-regulated in most countries.

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[4] Michael Tomuscheit (2022), co-author of 'Customs broker's profession: views and news', Customs Compliance & Risk Management journal. https://www.customsclearance.net/en/articles/customs-brokers-profession-views-and-news

logistics. We surveyed them on certain aspects of knowledge management, namely recruitment and onboarding of new staff, best practices related to knowledge sharing, evaluation of staff progress, and results. We also asked them for feedback on what the LCPA offers to its members. A short summary of their responses is set out below.

On-boarding new staff: mentorship, training and learning opportunities

Companies drew attention to the shortage of knowledgeable and skilled specialists in the market. They therefore prefer to look for people with the right profile among their current employees, and invite them to join the brokers team. When it comes to on-boarding new colleagues, all respondents indicated that they have a mentorship process in place to ensure informal transmission of knowledge, culture and values. All of them assign experienced colleagues to take care of a newcomer, and some companies have also developed training materials. Respondents emphasized how important it is for new brokers to understand not only their own area of work, but also the activities of the other departments in the company whose tasks will impact on their work as brokers.

The companies surveyed identified several challenges. Young people tend to change jobs, and even profession, frequently; to keep them curious and interested in what they are doing, some companies offer them opportunities to undertake activities such as participating in working groups, organizing events or creating newsletters. Another challenge is remote working, which makes it difficult to build team spirit. Some respondents emphasized the importance of creating a pleasant, positive working environment where colleagues actively exchange knowledge and experiences.

Brainstorming, developing case studies and team meetings

According to the respondents, the most effective way of learning is to analyse practical situations – discussing the issue encountered, the risks it presents, and the impact of non-compliance on all stakeholders. It is good practice to capture the content of such discussions in written form and upload it on the knowledge management system (one respondent called this the "experience capture tool"), so that all employees can have easy access to the information should they need it.

Many respondents also stressed the importance of regular meetings to exchange newly-gained experience and knowledge. One of them explained that he holds monthly meetings which always follow the same agenda. The meetings start with an overview of recent legal changes and a discussion about any mistakes or areas for improvement detected during internal auditing. They continue with presentations by one or two colleagues on certain topics (in the course of the year, everyone has to give at least one presentation). Finally, participants share what they have learned in between meetings, either while working on a client case or through reading specialized journals.

Reporting to colleagues on knowledge acquired while participating in a seminar or event was also deemed to be good practice. The idea is to make the sharing of information among colleagues a habit.

Reviewing work and organizing surveys

One way to measure the impact of knowledge management policies is to look at the quality of the work performed by employees, especially when tasks require a high level of knowledge. With this in mind, some companies review Customs declarations and analyse any errors made. One respondent also explained that his company has developed a questionnaire to find out how the employees evaluate knowledge sharing in the company, and what knowledge they would like to receive.

Joining a Brokers' Association

Small companies which do not have a formalized knowledge management process in place indicated that they delegate most of this task to their Brokers' Association. The LCPA organizes conferences, webinars and training, and publishes the *Customs Compliance & Risk Management Journal*. It makes sure that its members have access to information in a timely manner, and gives them the opportunity to deepen their knowledge of complex topics by working with experts from public and private entities. By fostering exchanges between brokers and representatives of Customs and other relevant institutions, the LCPA also aims to help trade stakeholders to better understand each other's views and challenges. The Association also actively manages a forum on its website which enables members to share solutions to any issues raised by one of them.

More information

www.lcpa.lt/en

Some guidance to Customs and trade practitioners on how to deal with the hugely complex, demanding and risky field of Customs knowledge

By Anthony Buckley, Chair of Customs Knowledge Institute

This article argues that a formal plan for building and managing Customs knowledge is necessary for a Customs brokerage to operate effectively. The components of such a plan are discussed, as well as the determinants that may affect the choices made. The discussion refers also to general issues of Customs knowledge acquisition, management and updating. The considerations apply to all Customs practitioners and trading businesses.

The number of possible games of chess is greater than the number of atoms in the observable universe according to Claude Shannon. In Customs, there are many more variables than the 32 pieces on a chessboard. In any transaction, we have the interested parties, the type of transaction, the goods involved, the route being followed, the intended procedure, the non-tariff controls, the rates of duty and the liability for payment, each of them with many possible variations, combinations, and types of supporting evidence. On that basis, it seems that every single movement of goods across a Customs border is unique, at least in some minor way. How does a Customs broker meet the expectation of a client, who expects the broker to be familiar with every possible variation?

As if the challenge of complexity is not enough, the broker is also expected to maintain records of all transactions and retrieve them in various formats as required by customers and Customs administrations.

In practice, of course, we find ways of doing things that are theoretically impossible. Most Customs movements fall into certain categories and are handled accordingly, by operators familiar with one or a few of the categories. High value complex transactions are handled by teams with a mix of expertise, at considerable expense. Low value consignments use simplified procedures and reduced checking. Significantly, evidence[1] suggests that many transactions proceed despite errors, sometimes of significant effect. Thus, when considering "Customs knowledge", we must distinguish between what is necessary for all, and what is essential only for certain functions.

All economic operators must have a general understanding of what Customs is, how it controls trade, what its legal structure is, what rights, entitlements and obligations attach to the operator and to the Customs authorities, the importance of compliance with legal requirements, and the costs of non-compliance. For many who buy and sell internationally, their knowledge does not proceed far beyond this

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1   *Putting more Union in the European Customs - https://taxation-customs.ec.europa.eu/system/files/2022-03/TAX-20-002-Future%20customs-REPORT_BIS_v5%20(WEB).pdf*

There are some Customs professionals who are able to acquire and maintain an astonishing level of expert knowledge through their personal working methods, but for the great majority of us, we must have structures and systems on which we can rely.

general understanding, except perhaps for some detail concerning the particular goods they trade.

For a Customs broker, this level of knowledge is only the beginning.

What is a Customs broker?

The most basic function of the Customs broker is to complete and lodge Customs declarations and other documentation. Associated with this is the ability to advise the client on the requirements for a compliant declaration – permissions, authorizations, licences, etc. – and this often extends to wider advice and possibly even training for the client to ensure that their understanding and behaviour supports compliance and minimizes the risk of problems with the authorities.

In addition, many firms offer brokerage in conjunction with transport, warehousing, storage and other services, including management of non-tariff obligations such as health and other certificates, and inspections at border control posts.

Very often, the client will seek to outsource Customs compliance to the broker, expecting the Customs broker to effectively manage the movement of the goods, and ensure that all goes smoothly. The broker may become the primary interface with the Customs authorities on behalf of the client. Deeper involvement/support by the broker entails risks, which the broker must provide for.

Different types and sources of knowledge

Most brokers develop their knowledge through practical experience, where they begin with guidance from experienced colleagues, and the solution to each new problem adds to their expertise. Before the move to electronic data handling by Customs, experience was paramount, especially local experience, where familiarity with the procedures and officers at a port could be far more important than a thorough grasp of Customs law.

Unfortunately, learning by experience alone often leaves lacunae in the broker's knowledge. S/he will be excellent on familiar ground, but may struggle when confronted with an issue that

requires a deeper understanding of national and international Customs law. In such situations, it is not uncommon for a broker to seek advice from a Customs expert or consultant. It is also not unknown for brokers to rely on practices "that have worked before", or even to use "trial and error" to identify codes that succeed in obtaining clearance for a consignment. These practices are very understandable in a busy Customs brokerage, where it is difficult and expensive to perform thorough legal research, but they may embed errors in documentation. The computer analysis by Customs will not capture all errors – the detailed checking of a Customs audit may be required – and the broker may thus inadvertently leave the client open to significant penalty and cost.

The migration to full electronic exchange of Customs data, together with the associated computerized risk analysis, is progressively restricting the scope for the traditional approach based solely on experience. For example, the European Union (EU) CERTEX project,[2] which will lead to a single window for Customs and non-tariff controls, requires complete accuracy and consistency across all declarations, authorizations and certificates, including those in parallel systems such as TRACES, the European Commission's online platform for sanitary and phytosanitary certification required for the importation of animals, animal products, food and feed of non-animal origin and plants into the EU, and the intra-EU trade and EU exports of animals and certain animal products.

Further, the avowed wish of Customs authorities to move compliance activity further from the border-crossing and to rely more heavily on risk-rating, post-clearance checks, audits and system checks, makes it dangerous to regard successful clearance as the end of the process. Errors that could be overlooked in the past are increasingly being identified by enhanced checking systems, and the broker is now challenged to get everything exactly correct the first time, or risk unpleasant surprises at a later date.

It remains possible and practical for a broker to restrict their activity to areas where knowledge and expertise is at a high level, and to refuse business with which they are unfamiliar. This is unlikely to be an attractive option for brokers who

2   https://taxation-customs.ec.europa.eu/eu-single-window-environment-customs_en

wish to expand and grow their business; and even for those without growth ambition, knowledge development is essential to remain competent in an ever-changing regulatory environment.

It follows from the foregoing discussion that a brokerage requires that at least some staff have formal training to a high level in the law of Customs (national and international), relevant taxes, and non-tariff controls. Depending on the nature of the business, they may also require training in the law and practices of international trade and in accounting and logistics. Very important components of the training are research training – how to find the solution to a problem – and awareness training – how to ensure knowledge is always up-to-date.

No level of experience will compensate for absence of training, but experience is of course also vital. It is only by seeing law and regulations applied in practical situations that a full understanding can be achieved.

So, the broker's knowledge comprises different types of knowledge, and comes from several sources:

- Formal training/education gives understanding, and the ability to further develop and enhance existing knowledge; trained operators are able to draw on a wide body of knowledge and sources to answer questions, solve problems, identify risks and anticipate issues.

- Experience gives assurance in dealing with familiar activities, and competence in the practical application of legal rules; experienced operators can draw on their store of knowledge to cut through technical complexity to the essentials of a problem, and provide a practical solution quickly.

- Information feeds from Government, online publications and other sources keep the brokerage knowledge pool up-to-date; they provide essential forewarning of policy developments and rule changes, and facilitate forward planning. They are also vital to ensure that advice given remains accurate and timely.

- Research activity is inevitably required where a new problem or challenge is presented. Properly documented research output is a precious asset for the brokerage, and over time leads to a

valuable archive that will expand the scope of the brokerage and enhance its capability.

Managing the knowledge

There are some Customs professionals who are able to acquire and maintain an astonishing level of expert knowledge through their personal working methods, but for the great majority of us, we must have structures and systems on which we can rely.

Knowledge-based systems are perhaps best seen through the eyes of a person newly recruited to work in a Customs brokerage firm. What is her ideal experience?

Induction

- The firm will assume that she has no prior knowledge and will need training or retraining.

- She will be introduced to her team leader and have the reporting hierarchy clearly explained to her, ideally in a written form.

- Her functions will be clearly described, with discussion about her level of knowledge/skill in different areas.

- She will be given or guided to work protocols and training materials, and told when and where she will receive formal training.

- She will be introduced to the team.

Working

- The recruit will be assigned work and will perform it under supervision.

- She will present her work for regular checking as directed.

- As she encounters problems, she will be

  - given direction,
  - shown reports of previous solutions to similar problems in the company's knowledge archive, and
  - given references to relevant online and written resources where she is expected to research the answers to her questions.

- When she has found the answer to her problem, she is expected to write a short account of the problem and solution and, after approval by the team leader, to add it to the company's knowledge archive.

Knowledge building

- Each member of the team will attend a weekly meeting to discuss progress and any issues arising.

- The team leader (at least) will attend regular (weekly/fortnightly) meetings of wider company management.

- A member of the team will have the responsibility of monitoring information feeds and circulating a precis each week or as often as necessary.

- The company knowledge archive will be maintained and indexed by a team member charged with that responsibility.

- Available seminars, webinars and training courses will be monitored by the team leader, who will inform staff and management of opportunities that in her view should be availed of.

- The team leader has primary responsibility for communications with the Customs authorities and industry colleagues. She will ensure that management and the team are aware of key contacts.

Recording/storage

- The team leader, in collaboration with company colleagues outside the Customs function (possibly in accounting/finance/IT) will ensure that quality checking is applied at least monthly to work done.

- The storage and retrieval of data, forms, etc. will normally be set up and managed outside of the Customs function, but is subject to quality validation by the team leader.

This is necessarily a summary treatment of a complex subject, but we hope it provides some guidance to dealing with the hugely complex, demanding and risky field of Customs knowledge.

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Knowledge-based systems are perhaps best seen through the eyes of a person newly recruited to work in a Customs brokerage firm. What is her ideal experience?
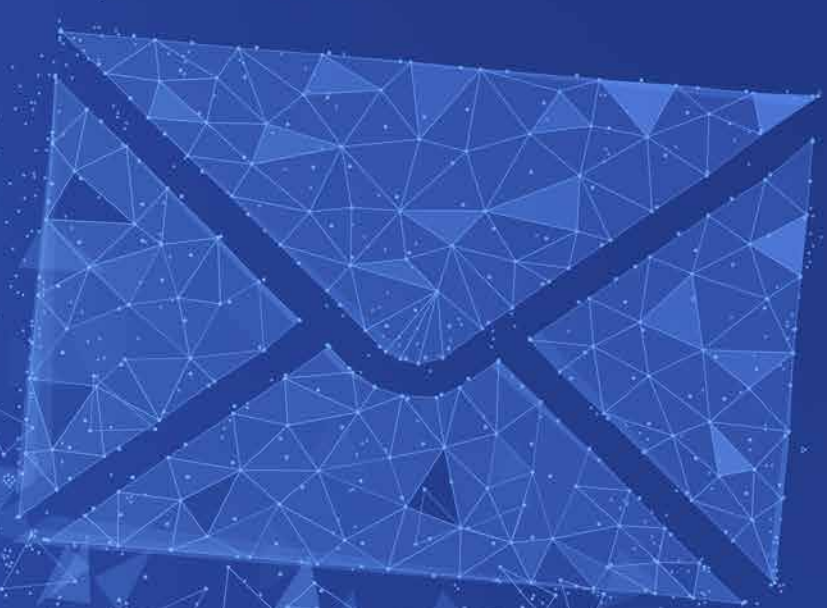
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Armenia Customs strengthen anti-counterfeiting enforcement thanks to high-performance analytical tools

By Ruzanna Kusikyan, Head of Risk Analysis and Management Division, IT Department, State Revenue Committee of the Republic of Armenia

This article gives a snapshot of the evolution of risk management within Armenia Customs. It looks in particular into the analytical tools developed to strengthen anti-counterfeiting enforcement.

The implementation of a risk management tool to manage the movement of goods in Armenia dates back to 1999, with the deployment of UNCTAD's Automated System for Customs Data (ASYCUDA), which included a selectivity module. ASYCUDA, and the selectivity module, was replaced in 2008 by an in-house information system which in turn gave way to the National Single Window for Foreign Trade (https://trade.gov.am) in 2015. In 2017, the selectivity module that had been developed as part of the 2008 in-house information system was replaced by a risk management system which is still used today.

The designers of this new system took into account international norms and recommendations established by the WCO, the World Bank, the United Nations and the World Trade Organization. They also gained insights working with experts from European Union (EU) countries within the framework of a "Twinning project", the EU instrument for cooperation between public administrations of EU Member States and of beneficiary countries.

Flexibility and continuous improvements

The tool built is flexible and undergoes continuous development and expansion. Like other automated systems, it collects, organizes and categorizes data from various IT systems on the basis of rules developed using machine learning methods. Besides targeting functions, it includes feedback mechanisms as well as activity monitoring and analytical tools. Specific classifiers have been developed to ensure that data related to control results is used effectively to enhance the risk

management policy. A classifier is an algorithm that maps the input data to a specific category. One such classifier focuses on risk mitigation measures, while another looks at the results of the implementation of such measures. There is also a classifier to examine the bases for a change of control procedures.

The National Single Window for Foreign Trade currently connects 30 systems or components, including the Customs automated system "eCustoms". The most recent components process the Transport Means Declaration and the Goods and Passenger Declarations for Express Cargo. The Integrated Border Control System was introduced in 2022, and ensures interoperability between the Customs systems and the IT system used by border guards working under the National Security Service. Other systems, such as the Unified Customs Offences Database and the PostClearance Control Analysis and Targeting System, are in the development phase. During the design and implementation of these systems, emphasis is laid on integration and interoperability with the risk management system, with functionalities extended to cover the specific risks attached to the processes managed by the newly added systems.

IPR

In 2018, a module for the identification of IPR infringements was developed. Risk profiles were established for each product registered by an IP rights holder with Customs. The IPR module is regularly assessed and analytical methods are enhanced to respond to specific challenges, such as attempts by traders to evade IPR control by

In 2018, the number of cases of suspension of release of goods based on IPR infringement increased 21 times compared with 2017. Since then, this number has grown continuously. In 2021, it was 68% higher than in 2020.

Four data analysis tasks

Predictions of future trends

Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be used to identify trends such as volumes, values, offences, etc.

REGRESSION

Classification of a collection of data based on different indicators and factors

Classification is the problem of identifying which set of categories (sub-populations) a new observation belongs to, on the basis of a training set of data containing observations and belonging to a known category.

CLASSIFICATION

Identification of anomalies based on indicators and factors

IDENTIFICATION OF ANOMALIES

The analysis of trends results in the identification of outliers, a data point that differs significantly from other observations. or other, without using known structures

CLUSTERING

Data distribution

Clustering is the task of discovering groups and structures in the data that are similar in some way in the data. Data distribution is the method of using graphical methods to organize and display useful information. Data distribution can be performed by industries, goods, purchase and sale prices, transportation means and other groups, varying depending upon the needs of the analysis.

miswriting brand names, false positives due to word similarities, the growing number of entities with the right to import or export branded products, and the existence of different products registered by different rights holders but bearing the same name. To overcome these challenges, risk profiles have been diversified and new selectivity rules have been established. One of the algorithms uses historical data to identify any potential matches for each registered product. Another identifies all of the possible ways of fraudulently writing product or brand names. As a result, if a cargo contains a product matching a risk profile, a warning is sent to a control officer as well as to employees of the State Revenue Committee involved in IP protection. If, after inspection, the product is still deemed suspicious, the release of the cargo is suspended and the legal procedure is triggered. In 2018, the number of cases of suspension of release of goods based on IPR infringement increased 21 times compared with 2017. Since then, this number has grown continuously. In 2021, it was 68% higher than in 2020. Increased efficiency in the protection of IPR translated into an increase in the number of requests for intervention registered with Armenian Customs, which have nearly doubled since 2018.

At the Georgian Cyber Security and IT Innovation Conference held in 2019, the IPR module developed by the State Revenue Committee of the Republic of Armenia won the prize for "Best Online Information Resource". During the event, the State Revenue Committee was also awarded "The Best IT Management Entity" prize for the completion of several IT projects in the field of Customs.

Way ahead: people, technologies and cooperation

The State Revenue Committee has adopted a strategy to embrace digitalization which impacts on how the administration manages risk and understands known and unknown risks. The strategy therefore goes hand in hand with the development of new analytical tools. If the administration has already proven its capacity to analyse big data, its next goal is the introduction of artificial intelligence to process large quantities of data very quickly using algorithms that change over time and get better at what they are intended to do. Realization of such an ambitious goal requires the mobilization of knowledge and expertise. Three main pillars have been established: people, technologies and cooperation:

People

Any innovation, advance or development is impossible without creative and visionary people who are professional in their fields and ready to expand their knowledge, learn and try new concepts. It is crucial to find and employ the right people, but even more important to continuously invest in their development, and provide opportunities for them to grow, learn and develop professionally and help put the vision into practice. The State Revenue Committee has this commitment and is developing training opportunities and experience exchange mechanisms with other Customs administrations. It also encourages staff to take online training, including those available on the WCO CLiKC! learning platform.

Technologies

Technologies are developing at an incredible pace and, therefore, serious efforts are required to not only catch up with new technologies, but also adapt them to the specific needs of the Customs administration. For this purpose, it is important for officers to constantly explore the field and be aware of the latest innovations. This means that they must dedicate time in their daily work to reading and researching.

Cooperation

It is practically impossible to work effectively in isolation, especially when resources are limited. Therefore, it is crucial for a Customs administration to develop effective mechanisms of cooperation with other Customs administrations, as well as international organizations. Such cooperation should include exchanges of experience and good practices, but also undertaking joint projects such as the development of analytical tools. The Armenian State Revenue Committee is ready to collaborate with other Customs administrations, both to exchange knowledge and to implement joint pilot projects in this area. Those interested in knowing more about the Armenia Customs risk management system, for example, are invited to use the email indicated at the end of this article. The system has been presented at a number of events and has received strong interest and positive feedback from experts and Customs practitioners. The State Revenue Committee believes that cooperation is key to innovation and that, although it requires planning and resources, Customs have a lot to gain from working together.

More information

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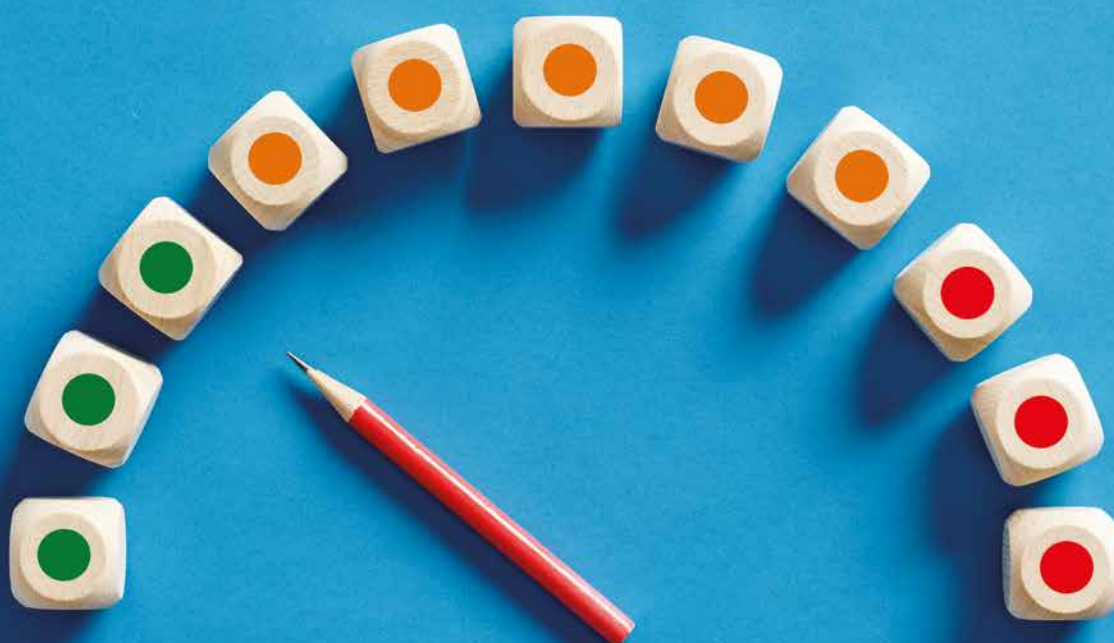
Abu Dhabi launches application for real-time measurement of the time required to release goods

By Mike Squirrell and Dan Rochon with Chris Thibedeau of TTEK Inc., Dr. Ali Makki and JP Simpson of Abu Dhabi Department of Economic Development, Eng. Khalid Hasan Ali Al Marzooqi and Brahim Tchina of Abu Dhabi Customs Administration, and Dr. Noura Al Dhaheri of Maqta/AD Ports Group.

Using data analytics, the Emirate of Abu Dhabi has developed an application automating the measurement of release and clearance times at the border. The result is an ability to measure time release dynamically and in real time, and to overcome the limitations of the traditional Time Release Study approach.

Abu Dhabi (the largest emirate in the United Arab Emirates) continues to promote and embrace international best practices to modernize border and trade processes. Many local and federal partners are involved, including Abu Dhabi Department of Economic Development (ADDED), Abu Dhabi Customs Administration (ADCA), AD Ports Group, and Etihad Airport Services Cargo. The collective effort aims to facilitate trade, increase security and controls, and enhance revenue collection and good governance, and falls within the framework of Customs, Trade, and Other Government Agency (OGA) programmes.

Reform and measure
In 2020, they set the ambition for Customs procedures to be so seamless and effective as to become invisible. Driven by a strategy of leveraging technology, ADCA has streamlined and fully digitized its services and procedures. It has developed an automated inspection system, supported by the adoption of a competency-based approach to human resource management and a new comprehensive competency framework.[1] In a record time of two years, Abu Dhabi has also developed its Advanced Trade Logistics Platform (ATLP),[2] an ambitious Single Window environment.

To measure the effects of tools and reforms, ADCA had been conducting Time Release Studies (TRS), the tool developed by the WCO to measure the actual time taken for the release and/or clearance of goods – from the time of arrival until the physical release of cargo – as well as the effectiveness and efficiency of border procedures relating to imports, exports and transit movements of goods.

As part of the ATLP project and under the leadership of ADDED, an Automated Time Release Application is being implemented to provide all partners with real-time visibility into time release measurements at the border. This is being achieved using the principles of Advance Commercial Information (ACI), by getting the right information at the right time. To better understand why Abu Dhabi has chosen this path, it may be important to discuss the limitations of the traditional legacy Time Release Study (TRS) approach.

Limitations of tradition al TRS
Legacy Time Release Studies are static (one time) and based on manual data collection, observation, and qualitative analysis. This lack of automation makes it difficult to repeat this activity, and generally requires the same time and level of effort to accomplish similar results. Legacy studies

START

are slow and ineffective, with the following issues often emerging:

- The Hawthorne effect: this is when individuals modify an aspect of their behaviour in response to their awareness of being observed. Often, when a team of monitors arrives at a checkpoint and commences the process of recording events, the process magically improves.

- Sample selection bias: in a traditional Time Release Study, "outlier" transactions are often excluded from the data set. The outlier transactions provide valuable insight into sometimes systemic issues, and should not be discarded. The lifecycle is also incomplete during the period of time the monitors were at the checkpoint. In addition, it is important that a wide range of commodities should be covered within a TRS. The ability to determine which commodities are cleared rapidly and which are slower to clear is important and can highlight issues with risk management or intra-agency co-ordination related to specific commodities that might otherwise go unnoticed.

- The risk management framework is not fully considered: it can be assumed that goods imported by an Authorized Economic Operator should be cleared in a shorter time than is the case for a first-time importer. In addition, goods marked for physical examination or scan should take longer to clear than those passed through the green channel. Validating this hypothesis is important, as we have discovered that in many countries this logic does not translate on the ground.

- Delays by other Government agencies: it is common for the assessment to be held up due to inspection processes mandated by other Government agencies. Co-ordinated inspections are sometimes overruled by Customs, or conducted at an importer's premises, and thus fall outside a standard TRS.

- Simplistic use of averages: taking a median average when calculating aggregate clearance times skews the results as it "hides" outlying transactions that took an abnormally lengthy period of time to clear. Similarly, using an arithmetic mean for an average can distort results due to those same outliers. Ideally, one should use a balanced approach that considers the entire distribution of data, including variances, means and medians.

- Human resource management and efficiency: a traditional Time Release Study typically does not include an analysis of individual officer process efficiency or determine which consignees often get their goods cleared quicker than others. Extending the study to cover these areas augments a TRS to uncover operational anomalies of many kinds.

Granularity with respect to Customs regimes and procedures should be analysed: for example, are imports to a free trade zone cleared faster than traditional imports? Is the in-bond movement of goods to an inland warehouse streamlined or cumbersome? Are courier packages or diplomatic goods held up at Customs? Does the processing of recently legislated quotas or exemptions slow down the movement of goods?

TRS and Single Window

Measuring time release in a manner that complements co-ordinated border management between Customs and OGA partners is critical to obtaining the insights necessary to inform border reforms and modernization. It was therefore decided to replicate the TRS via automation inside the ATLP platform.

International best practices and baselines were followed and adhered to, including the latest version of the WCO Data Model to standardize the modelling of data relationships and messages between trade, Customs and OGA partners. This approach creates uniformity between OGA partners and eases future system expansions as OGAs modernize their own internal systems over time. It also makes the collection, standardization cleansing, collation, fusing, and analysis of data much easier.

Manual ("clipboard style") Time Release Studies observe and collect information, but the data is generally not standardized in any meaningful way, which reduces the ability to replicate the TRS via automation inside a platform like ATLP. The solution which has been developed positions Abu Dhabi to use the "right data at the right time", and therefore the data ontology becomes critical for replication of the TRS measurement framework going forward into the future.

The WCO TRS Framework was developed at a time when advanced analytics were not readily available. Now that technology has advanced, we can use artificial intelligence, machine learning and predictive modelling to address timing gaps, resolve vague or egregious data and generate automatic insights.

Working closely with the expertise and guidance of a service supplier, the project is delivering an Automated Time Release Application (ATRA) that automates the WCO TRS Framework and aligns with international principles and best practices. The solution encompasses a number of trade programmes that interact with commercial trade processing, and accommodates a more advanced electronic approach to the collection, consolidation and analysis of trade data, both for the trading community and those in charge of trade-regulating programmes.

An Automated TRS provides a more fulsome view of border controls and their impact on trade. We believe this project will augment Abu Dhabi's Single Window capacity to provide the measurements and KPIs needed to reduce business costs related to the movement of goods for import/export and international trade, and improve integration with related agencies that involve legal and business partners in the trading community. The results can be used to improve release times, increase revenues, enhance security and enforcement, and ultimately realize socio-economic returns via the principles of collaborative border management.

About the automated solution

Abu Dhabi chose a dynamic and automated time release application designed to provide a holistic view of each step involved in commercial goods processing, from the time of arrival until entering the commerce of the nation. User dashboards identify baseline performance and determine gaps, inefficiencies and issues that can be addressed to improve border operations. Data from ports, OGAs and Customs are fused together with artificial intelligence models. These algorithms process the set of data and address timing data gaps that historically required manual intervention.

The screenshots of the solution used in Abu Dhabi demonstrate that transactional and temporal data extracts from local Customs, OGAs or trade systems can be used to configure the system, including manifests and bills of lading, vessel and aircraft arrival notifications, terminal movements and gate movements, Customs declarations, including item data and audit logs, OGA licensing and intervention records, Customs and OGA selectivity results, inspection activities and findings, as well as other reference data such as tariff and regime codes.

We should note that the WCO TRS Framework was developed at a time when advanced analytics were not readily available. Now that technology has advanced, we can use artificial intelligence, machine learning and predictive modelling to address timing gaps, resolve vague or egregious data and generate automatic insights. This ultimately meets the WCO TRS vision more closely than antiquated manual assessments done at long, sporadic intervals.

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Controlling inputs of cigarette production: rationale, challenges and recommendations

By Dr. Toni Männistö and Dr. Juha Hintsa, Cross-border Research Association (CBRA)

Cigarette factories need various raw materials, intermediate goods, and manufacturing equipment to operate. Controlling trade in such inputs should therefore be part of Customs' strategy in the fight against illicit cigarettes trade. This article presents the various types of inputs of cigarette production and lists some suggestions for Customs as to how to better control this trade. It features excerpts from a report entitled Key inputs of illicit cigarette production - A roadmap to controlling critical raw materials, intermediate goods, and manufacturing equipment.

Key inputs of cigarette production

A cigarette is the result of a complex manufacturing process. Whilst the whole bill for materials needed to produce a pack of cigarettes varies by brand, the main components are always the same: tobacco blend, filter rods, rolling papers, plug wraps, tipping papers, and various packing materials. These inputs can be readily observed by taking a close look at a standard cigarette.

A deeper analysis reveals that these observable inputs are themselves made of various raw materials and intermediate goods not readily visible. For example, tobacco blend is a mixture of processed tobacco varieties, reconstituted tobacco, casings, and flavours. Cigarette filters are made of acetate tow and triacetin plasticizer.

Besides the material inputs, cigarette production relies on specialized machines, which require a regular supply of production consumables – special tapes, bands, and blades – to operate. The cigarette-making machinery also requires regular maintenance and occasional repair, and these servicing activities rely on a reliable supply of spare parts.

Table 1 - Characteristics of some key inputs

	Criticality to cigarette production	Potential for substitution	Multipurpose	Number of suppliers	HS code
Raw leaf - entire leaves of tobacco plants stacked in bales	Essential	Low	Medium	High	2401.10 -Tobacco, unstemmed or unstripped
Acetate tow - the main ingredient of filter rods	Essential	Low	Low	Low	5502.10 -Artificial filament tow of acetate
Filter rod - a component used to form the filter mouthpiece of a cigarette	Essential	Low	Medium	Medium	5601.22 -Wadding of man-made fibres and articles thereof
Rolling paper - sheets of thin and lightweight paper used to wrap tobacco blend in a cigarette	Essential	Low	Low	Low	4813.20 - Cigarette paper in rolls of a width of <= 5 cm

Some key inputs may be substituted with alternative materials, while others may be used to manufacture products other than cigarettes. They also differ in terms of number of suppliers which produce them, and ease with which they can be identified referring to their trade names and WCO Harmonized System (HS) code.[1] Customs control could therefore focus on inputs that cannot be substituted with other materials, are exclusive to cigarette production, are produced only by a few suppliers, and are easily identifiable by their WCO HS code.

The nexus between illicit cigarette trade and key inputs of cigarette production

Uncontrolled access to key inputs of cigarette production fuels different branches of illicit trade, from genuine and counterfeit cigarettes to illicit whites. But, when it comes to extending Customs controls to cover the trade in critical production inputs, there is one problem: all inputs of cigarette production are legitimate and widely traded commodities. One solution would be to look at the material suppliers and determine risk profiles.

Figure 1 - Key inputs needed to produce a pack of cigarettes
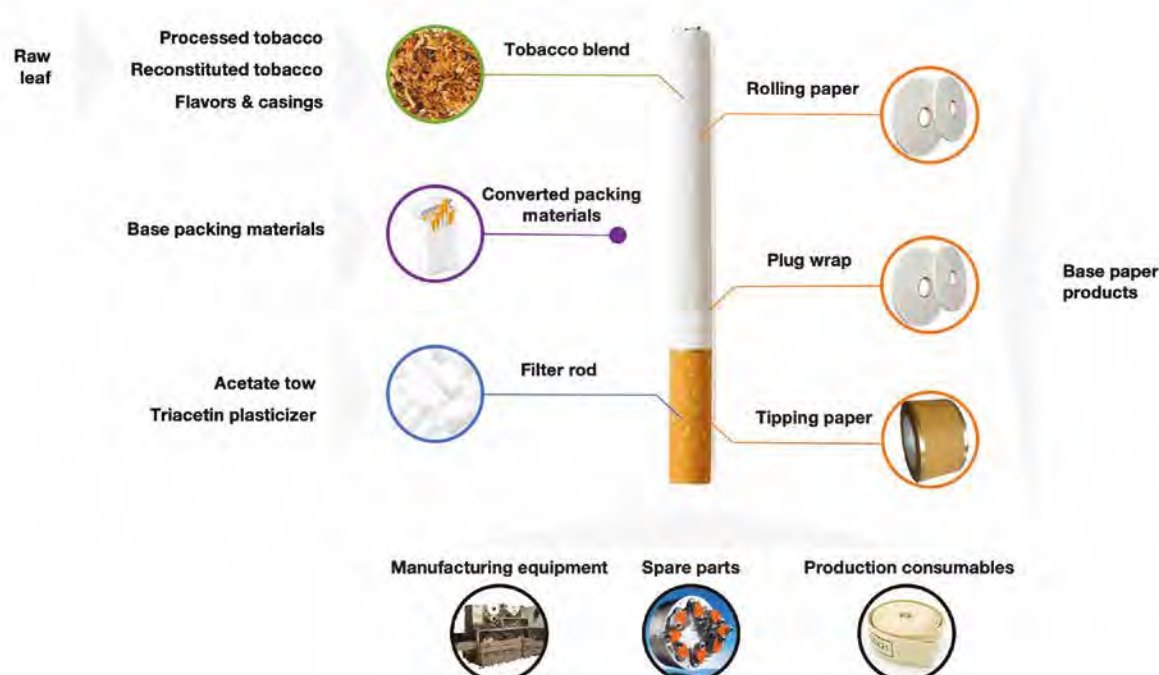
1 As a taxonomic hierarchy, the WCO Harmonized System (HS) creates an ordered system for the classification of goods by a six digit code, where more general classes of goods contain more specific classes of goods. Contracting Parties to the HS Convention base their domestic Customs tariffs on the HS, and dozens more use it despite not being signatories.

Sometimes, the illegal nature of a material supplier's activities is obvious. A supplier producing branded materials – especially packing materials and cigarette papers – without the brand holder's authorization would clearly know he is committing an offence. A supplier may also break the law by not having appropriate business licences (for example, growing tobacco without a licence constitutes a crime in many countries).

However, suppliers' activities may fall into the grey area where business practices are questionable yet not outright illegal. One example of such borderline activity is when a supplier sells materials to a factory that is probably producing counterfeits.

The case with illicit whites is even less straightforward. A producer of illicit whites may be a legitimate business in its country of operation. This producer may hold appropriate licences, respect the local law, and manufacture cigarettes to be smuggled abroad, all at the same time. As a *de facto* legitimate business, the illicit whites producer has typically no trouble dealing with material suppliers. At the end of the day, the suppliers would have technically no responsibility if the client factory or eventual distributor chose to engage in illegal activities later down the value chain.

The situation is even more complex with under-declared genuine brand cigarettes. A material supplier may or may not know about unauthorized off-the-books production that takes place inside the four walls of a client's cigarette factory. Many questions can be asked. Can the supplier be expected to conduct a thorough due diligence for every client and every transaction? What would constitute a reasonably thorough due diligence process that exempts the supplier from any responsibility in the event that the client factory chooses to engage in illicit production?

Table 2 - Definitions of some illicit cigarette types

Type of illicit cigarette	Definition
Counterfeit	Illegal copies of branded cigarettes that have been produced without the consent of the trademark holder and are often sold without the payment of appropriate duties and taxes.
Illicit white	Cigarettes legally produced in one jurisdiction, primarily to be smuggled into foreign countries where they have limited or no legal market and where they are sold without payment of applicable taxes.
Under-declared	Cigarettes may also become illicit when a manufacturer declares a production quantity that is lower than the actual production volume, and sells the undeclared part of the production without paying taxes and duties. Under-declared cigarettes are later diverted either to the domestic black market or smuggled abroad.

What Customs can do

To fight illicit trade in cigarette production, Customs officers should obviously verify whether the clients of material suppliers hold appropriate permits and analyse data related to the trade of such products. Most inputs are identifiable by their trade names and specific commodity codes under the HS, so this is for most of them a routine and basic task.

But there is more Customs can do. Some suggestions are as follows:

- **Make the control of such products a priority:** awareness-building efforts are needed to make the control of trade in input materials a point on the Customs enforcement agenda.

- **Upskill Customs officers:** it is important to train Customs officers on the identification of inputs of cigarette production during checks, especially as not all inputs have easily distinguishable physical characteristics. Customs officers should also know common routings, concealment methods, and fraud techniques used to smuggle such products.

- **Use detection technologies:** investment in detection technologies and the use of sniffer dogs can enable Customs officers to identify undeclared or mis-declared shipments of input materials, especially undocumented tobacco leaf. Laboratory analysis is also often required to identify forged packaging materials.

- **Ensure key inputs have specific HS codes:** accurate HS codes are essential for monitoring international trade flows in key inputs of cigarette production. With reliable trade data, one can observe if a country and a company are importing a certain key input beyond its legitimate demand. Quality trade data can also pinpoint the origins of materials that end up in illicit cigarette factories. A crucial shortcoming is that not all key inputs have specific HS codes today. For example, filter rods are commonly declared under HS code 5601.22, "wadding of man-made fibres and articles thereof", which encompasses many other fibre-based commodities, like swabs and special pulp products.

- **Assign more resources to controls and investigations:** the lack of enforcement deprives law enforcement from valuable insights that could help them to identify complicit individuals, dismantle trafficking networks, and confiscate criminal assets.

- **Participate in international law enforcement operations together with polices forces, and share data at the international level.**

The report *Key inputs of illicit cigarette production - A roadmap to controlling critical raw materials, intermediate goods, and manufacturing equipment* is available at ResearchGate.net. You can also request a copy of the report by contacting the authors. This study has been funded by PMI IMPACT, a Philip Morris International initiative, under the project *Precursors of Illicit Cigarette Trade* (PRECISE).

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Supporting mental and physical health: an overview of CBP resources and services

By Andrea Bright, Assistant Commissioner, United States Customs and Border Protection

With approximately 64,000 employees, U.S. Customs and Border Protection (CBP) is the largest law enforcement organization in the United States and one of the largest in the world. Eighty per cent of the workforce are geographically dispersed agents and officers who face unique pressures, stressors, and emotional demands during their duties.

On any given day, CBP's operators face a host of environmental challenges, long work schedules, remote locations, extreme weather, and exposure to a variety of ailments such as scabies, tuberculosis, rashes, and skin and respiratory infections. These conditions take a toll on employees' mental and physical health. To address the unique needs of the workforce and ensure they can perform optimally, CBP takes a holistic approach. From employee workplace safety to a variety of physical and mental health programmes, CBP provides resources early and often, and continuously reassesses the requirements.

Providing employee resources early and often

CBP considers the full employee life cycle and the demographics of the workforce to provide meaningful resources and services. Providing resources early at the onset of an employee's career is pivotal to their success in their current and future positions.

For example, CBP officers entering the training academy are immediately exposed to well-being practices. As employees advance in their career and become leaders, CBP builds upon this initial mindfulness training. This has been a recent change for CBP, but a critical one. Starting the conversation of mental well-being early in an employee's career is a significant tool in their coping toolbox.

Outside of incorporating mental well-being into mandatory training, CBP also regularly communicates the different work-life services and benefits available to the workforce. CBP has a robust and unique menu of services provided

to employees that sets them apart from similar organizations within the United States. This includes the following services:

- CBP Family Care Programs support employees in their caregiving roles. The Childcare Subsidy Program offsets childcare costs, and the Backup Care Program helps with temporary, short-term care when an employee's existing child, adult, elder, or even pet care is unavailable.

- CBP's Employee Assistance Program (EAP) is uniquely designed to locate providers for health and wellness coaching, financial wellness planning and support, and legal support services. This programme is an on-call, short-term support programme offering employees the opportunity to immediately call and engage in a confidential counselling session.

- CBP's Peer Support and Chaplaincy Programs are comprised of trained officers and professional staff. This cadre of employees are trained to provide confidential, peer-level support to CBP's workforce and their families, and are acutely aware of the work environment and local environment employees are operating in.

- On-site clinicians are trained professionals who employees see around the workplace. They provide immediate support if there is an incident at the workplace and are trained to spot concerning behaviours. Employees are familiar with these individuals, having interacted with them within the workplace, and are given assurance that the clinician is a professional.

- The Veteran Support Program provides special support for former military employees who have their own unique stressors. Veterans represent nearly 30% of CBP's workforce, and therefore it is important for them to be set up for success. The programme helps them navigate a complicated web of resources provided to them through various agencies, and connects them with each other.

- CBP's Employee Health Benefits Program includes access to long-term mental health care providers. Through the U.S. Federal Employee Health Benefits Program, CBP employees can choose a provider that meets their needs.

- Physical Health Programs encourage employee physical fitness from the beginning of CBP employment. All CBP operators must pass a medical and physical fitness examination prior to their final job offer and then again during their academy training. CBP takes this a step further by allowing *all* employees three hours of on-duty physical fitness activities each week. Additionally, CBP hosts fitness challenges throughout the year, and many of the larger CBP locations have on-site fitness classes and equipment for employee convenience.

- Workplace safety is a major component of caring for the physical and mental health of the workforce. CBP has safety experts located across the U.S. to support and aid employees with workplace safety. These safety experts work alongside CBP's operators to assess working conditions and determine what is needed to operate in a safe work environment.

Communication is key

The value of communicating workforce services and resources cannot be overestimated. For employees to use the proper tools to cope and thrive, they must know about them.

The majority of the CBP workforce is working the line, patrolling, and conducting operations – they are not behind a computer. To reach CBP's operators, CBP is creative in using multiple channels of communication to reach not only employees, but also their family members. These include traditional communication methods of email, staff meetings, and musters, but CBP intentionally extends beyond these modes of communication. By using public websites, mobile applications, social media, paper mail, electronic opt-in newsletters, and robotic automation, CBP is reaching employees in a more accessible way, and inviting family members to follow along.

Meeting employees where they are

Another critical component of stress management, mental and physical health is meeting employees where they are in their professional journey and acknowledging their value and needs. For CBP, this includes a national awards programme and the recognition of those employees lost in the line of duty. These robust programmes demonstrate CBP's deep commitment to the workforce and to their families.

All CBP operators must pass a medical and physical fitness examination prior to their final job offer and then again during their academy training. CBP takes this a step further by allowing all employees three hours of on-duty physical fitness activities each week.

As part of this, beginning in 2023, CBP is reinvigorating its outreach events. CBP's outreach events bring leadership along with resources and services directly to field locations across the U.S., culminating in a picnic-style event. Employees and their families are invited to participate in child-friendly activities while obtaining information on every programme and resource offered, including retirement, healthcare, financial wellness, parenting and workplace safety, among others.

Assess, adjust, repeat

Continually assessing the pulse point of the workforce, and staying in touch with what staff need and with the ever-changing work environment is key. To ensure CBP is in fact meeting employees where they are on their journey, several tools are used. In addition to using a U.S. government-wide tool, the Federal Employee Viewpoint Survey, CBP also recently initiated an Occupational Health Assessment. Unlike the government-wide survey, the Occupational Health Assessment is customized to the CBP workforce and aims to provide a more accurate measurement of CBP's employees' perceptions of their job demands and job resources, while providing insight into the areas impacting employee motivation and workplace stress.

CBP is also continuously leveraging and enhancing its data analytic capabilities, beyond simply counting how much a program is used, to find meaningful trends and determine the impact of its workforce programmes. Similarly, CBP regularly explores new and novel technology to support workforce needs, from heat stress detection to reducing anxiety.

There is no greater asset to any organization than its people – they are its heart and soul. Keeping the workforce physically, mentally, and emotionally healthy is essential to the success of CBP's mission.

More information

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Irish Tax and Customs Administration celebrates centenary

By Gerry Harrahill, Director General of Customs, Office of the Revenue Commissioners, Ireland

21 February 1923 saw the establishment of the Office of the Revenue Commissioners in Ireland, shortly after the fledgling new State gained its independence in December 1922. Almost one hundred years on, the Office, which answers to the Minister for Finance, aims to serve the community by fairly and efficiently collecting taxes and duties and implementing Customs controls. It has a Board of three Commissioners, one of whom serves as Chairman. The current Commissioners are Chairman Niall Cody and Commissioners Gerry Harrahill and Ruth Kennedy. Gerry Harrahill, Director General of Customs, is well known to Members of the WCO through his contributions to Council and other Customs-related fora. This article gives a flavour of the development of Irish Customs over the past one hundred years.

Customs controls on the island of Ireland

The island of Ireland comprises 32 counties (administrative divisions), 26 of which form the Republic of Ireland; 6 counties in the northeast of the island form Northern Ireland, which is part of the United Kingdom (UK). Customs controls were introduced along the land border on the island of Ireland on 1 April 1923. Customs controls on goods crossing the border continued until the end of December 1992, when both Ireland and the UK joined the European Union (EU) Single Market. There is no restriction on the movement of citizens across the border of Ireland and the UK thanks to a 1922 agreement between both countries on a Common Travel Area (CTA).

Evolution of Customs controls

In the early days of the Irish State, the internal economy was protected by a range of tariffs. From the 1960s onwards, followed by Ireland's membership of the European Economic Community (EEC) in 1973, Ireland transformed to an open economy. Many labour-intensive heavily mechanized industries such as car manufacturing and tyre manufacturing disappeared and, in later years, the clothing industry largely disappeared too. Instead, Ireland, given its location on the periphery of Europe, and at a remove from the densely-populated centres, concentrated on high-value, low-volume goods, such as pharmaceuticals, medical devices, and integrated circuits. The attraction of foreign direct investment was facilitated by the implementation of modern Customs control procedures, often in new and far-sighted approaches by Irish Customs.

The successful development of a major Customs free zone, the Shannon Free Zone (SFZ), on the west coast of Ireland, in an area where the attraction of industry was crucial to the economy, was in part facilitated by the post-hoc audit of

company records as opposed to the continuous physical checks usually associated with Customs controls. The control mechanism it employed was later integrated into the EU Customs Code.

Since its establishment, the Irish Tax and Customs Administration has had to adapt continuously to changing circumstances, not least of which was the aforementioned evolution of an economy protected by tariffs to an open economy. The creation of the EU Internal Market removed the internal border for economic purposes, leading to the redeployment of Irish Tax and Customs staff to areas such as Vehicle Registration Tax, VAT information exchange and mutual assistance. In general, the Irish Revenue Commissioners endeavoured to retain Customs staff in their location and transfer work to those locations.

The development of IT, the automation of the clearance process, the modernization of processes and procedures, the implementation of risk analysis and profiling techniques, international cooperation and the implementation of a common EU tariff, etc., were all part of the work in responding to the ever-changing and demanding environment in which Customs operated and continues to operate to this day.

Ireland introduced an Automated Entry Process (AEP) in April 1991. This system was an immediate success and, very soon, a high percentage of import and export declarations were being submitted electronically. In November 2021 the Automated Import System (AIS) was introduced to replace AEP and to comply with the updated provisions of the European Union Customs Code (UCC). AIS ensures that businesses can import goods legally from outside the EU using the most efficient process possible. AIS meets the requirements of industry for "just-in-time" deliveries.

Ireland as an external land border of the EU

Following the UK's withdrawal from the EU, Ireland now has a border with a third country. In the period from the mid-1960s until 1998 and the signing of the Belfast Agreement (Good Friday Agreement), there was significant turmoil in Northern Ireland, commonly referred to as 'the Troubles', during which over 3,500 people died and more than 30,000 were injured, many very seriously. During the period of the Single Market,

from 1993 until the UK's exit from the EU on 1 January 2020, the physical nature of the border had disappeared. The Northern Ireland Protocol (NIP), part of the UK's withdrawal agreement, aims to prevent a hard border on the island of Ireland yet ensure the integrity of the EU Single Market. In effect, Northern Ireland remains in the EU Single Market for goods, so goods can flow to and from Ireland to Northern Ireland, and vice versa, without checks and paperwork or tariffs. EU Customs rules and regulations applicable to food products continue to apply on goods arriving in Northern Ireland from the rest of the UK. Aspects of the implementation of the terms of the NIP are the subject of active engagement between the UK and the EU.

Drugs

Ireland's 3,000 kilometres of rugged coastline with numerous small coves and isolated locations provides drug smugglers with many opportunities to ply their trade. To prevent drug smuggling, Customs patrols coastal areas and seeks assistance from coastal communities, maritime personnel and the yachting fraternity through a Customs Drugs Watch Programme. In addition to excellent collaboration with Ireland's National Police and Security Service, An Garda Siochana, and the Irish Naval Service, an Irish Customs officer is assigned to the Maritime Analysis Operations Centre - Narcotics (MAOC-N) in Lisbon, Portugal. Ireland also shares information with other EU countries via the EU Customs Information System, and takes part in a number of WCO and EU initiatives to combat drug smuggling.

Ireland and the WCO

Ireland has played an active part in the WCO since the establishment of the Organization as the Customs Cooperation Council in 1952. Together with the other 16 countries that had acceded at that time, Ireland attended the first meeting of the Council on 26 January 1953. As readers will be aware, the WCO has now expanded to all continents and has 185 Members representing at least 98% of world trade.

Ireland has had two representatives elected to the important and prestigious post of Chairman of the WCO, Commissioner Bartholomew Culligan, who served from 1967 to 1969, and Commissioner Josephine Feehily, who served from 2011 to 2014. Ireland hosted a meeting of the Europe Region in 2008 and the Policy Commission in December 2013. Ireland participates in a wide range of meetings on a regular basis, including all the WCO Committees. Irish Customs legislation is aligned with the International Convention on the simplification and harmonization of Customs procedures (Revised Kyoto Convention) and reflects a wide variety of other recommendations of the WCO.

In 1998, recognizing the increasing demands and importance of attending meetings in the WCO and the European Union, the Irish Revenue Commissioners, with the agreement of the Department of Foreign Affairs, appointed a dedicated Customs Attaché based in the Permanent Representation of Ireland to the EU in Brussels. Ireland now has two Attachés in Brussels, Eoghan Ryan and Sarah Joyce, supported by a Deputy Attaché, Mark Newman, all experienced in Customs matters. This reflects Ireland's strong commitment to an effective input into, and collaboration in, the many fora in which Customs matters are discussed and decisions impacting on world trade and supply chain security are taken.

Ireland has had the honour of having its Customs expertise recognized by the recruitment of staff from the Irish Tax and Customs Administration to posts in the WCO. Over many years this has included the recruitment of a Deputy Director and two Technical Officers in the Trade Facilitation Directorate, a Technical Officer in charge of internal IT developments and, in more recent years, a Head of Administration and Personnel, Ray McDonagh, who will be well known to all WCO Members.

Ireland will continue to support the WCO and looks forward to continued cooperation at the highest level. In the words of the Director General of Customs, Commissioner Gerry Harrahill, "Ireland recognizes and appreciates the importance of the WCO not only for the important role it plays in setting standards for the conduct of international trade but also for the opportunities it presents to Members to meet, collaborate and share experiences, and to advance the objective of facilitating legitimate international trade and protecting citizens and society from prohibited, dangerous and illegal products and substances. Ireland will continue to play an active and positive part in the work and development of the WCO in the years ahead".

Conclusion

Irish Customs has changed a lot since the Office of the Revenue Commissioners was first established one hundred years ago. It played a critical role in the early days of the foundation of the Irish State by ensuring that its economic foundations were well grounded and effective and that the free flow of legitimate trade was enabled. The environment in which Irish Customs operates today is more global in scope with a much broader remit in terms of the role of Customs. The support of the WCO, through its focus on enhancing the effectiveness and efficiency of Customs administrations and the opportunities for, and encouragement of, collaboration between Customs administrations, will continue to be a very important input to the evolution of Irish Customs as it embarks on the start of the next centenary of its existence.

Ireland now has two Attachés in Brussels. This reflects Ireland's strong commitment to an effective input into, and collaboration in, the many fora in which Customs matters are discussed and decisions impacting on world trade and supply chain security are taken.

Moving from risk management to decision intelligence: what it means and where to start

By Tom Saltsberg, Product Manager, Cognyte

The delicate balance between facilitating legitimate trade and combatting illicit trade raises numerous challenges for Customs administrations. Three of these appear to be common to all administrations.

The first shared challenge is a disproportionate ratio of personnel to workload. This has always been a significant issue but now, with ever-growing e-commerce in cross-border trade, Customs officers need to track a significantly higher number of shipments, along with more paperwork and stakeholders.

This is amplified even more by the second common challenge: many administrations and Customs investigators need to analyse massive amounts of data, which is often scattered across disparate sources, making the efficient uncovering of Customs infringements extremely difficult.

The third challenge is that, even with a proportionate number of personnel and efficient handling of data, many Customs administrations still fail to share meaningful insights and information with other administrations, leaving room for breaches and inefficiency.

To overcome all of these, Customs authorities need to work smarter and more efficiently. They can accomplish this by shifting their focus from risk management to a decision intelligence approach. This approach consists of three layers: data fusion, advanced analytics, including machine learning-based models, and a decision support interface that allows review and collaboration using data viewed through a single pane of glass. Letting technology do the heavy lifting can ease the first two challenges and facilitate resolution of the third. This would ultimately give Customs organizations the ability to go beyond retrospective investigations to detect trends and patterns and, above all, make data-driven decisions at all levels of Customs operations.

Going beyond risk management

What does it mean to shift to decision intelligence? Rather than considering one container or shipment at a time, Customs authorities can use a variety of exploration techniques to unveil hidden insights in the big data. For instance, they could use link analysis (Figure 1) – sometimes called graph or network visualization – to reveal suspicious connections between shipments, consigners, brokers or even merchandise and past events that were captured by the administration. In this way, fusing, modelling, analysing and visualizing data could help the authorities derive actionable intelligence.
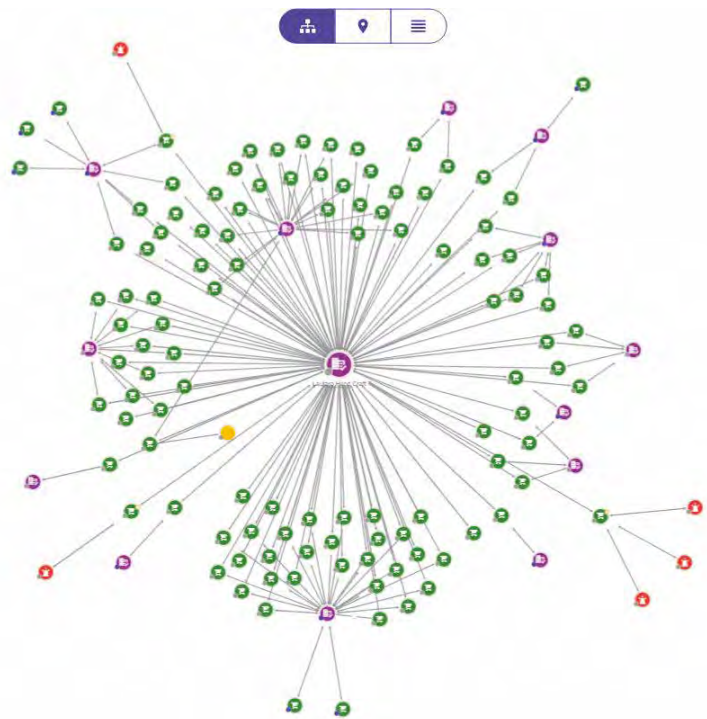

Figure 1: Visualization of Customs entities using link analysis

Many Customs authorities today commonly employ risk assessment IT solutions to prioritize which containers or packages to check. However, this exacerbates personnel issues, leaving

authorities with exceedingly long – though prioritized – lists of shipments to review. It is a tactical solution to a strategic problem that leaves Customs agents inspecting many single containers or packages or, to save time, randomly inspecting shipments.

In moving to a holistic decision intelligence modus operandi, Customs investigators look for time patterns or geographical patterns, as well as relationships that reveal insights into which containers to inspect, making better use of limited personnel. Instead of needing to inspect 200 containers, for instance, agents would receive a shorter list of shipments to inspect that would be more likely to be undervalued or contain contraband.

However, decision intelligence also goes beyond identification of short term-targets. It aims to reveal Customs fraud methodologies that cannot be easily identified from the agent's perspective. For instance, identification of a broker who repeatedly misclassifies merchandise with incorrect harmonized system (HS) codes. The decision that would be derived from an insight such as this is very different from the result of the tactical solution described above.

By using data-driven methods to uncover patterns of Customs infringements, Customs authority inspections can be more efficient, focused and effective, with a significant by-product being increased revenue collection and optimization of the clearance process.

Leveraging big data for decision intelligence

Implementing a data-driven approach is required to harness the power of big data. However, the scale of the big data problem that Customs authorities face is huge, even in the smallest of countries. For example, a country of only a few million people can have nine different databases and more than 4.5 billion records – an astonishing amount of data to handle manually or in disparate IT systems.
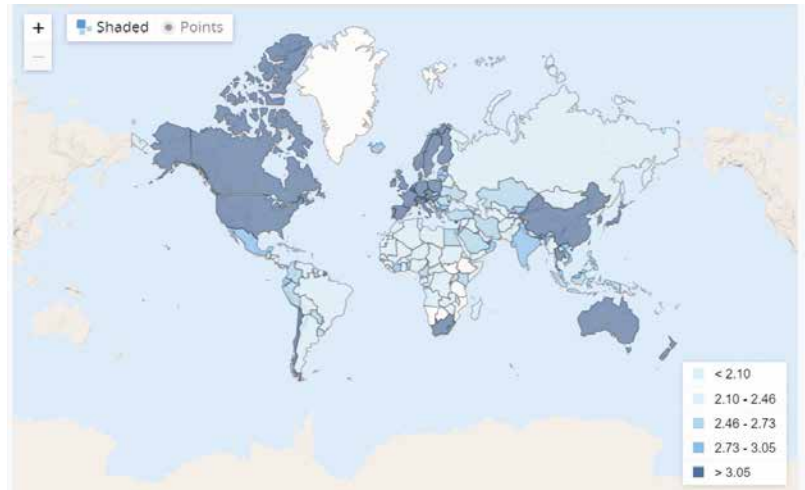

Figure 2: Logistics performance index: frequency with which shipments reach the consignee within the scheduled or expected time (1=low to 5=high). Source: World Bank

This is such a big problem that the World Customs Organization (WCO) has developed a Data Model that aims to facilitate electronic data exchange between authorities and trade stakeholders. In addition, the WCO Data Model enables Customs-to-Customs information exchange. As such, the model addresses the challenges of overwhelming big data and disparate IT systems, as well as information sharing to improve cross-border Customs intelligence and efficiency.

Data is, of course, crucial for decision intelligence and Customs processes. However, when it comes from disparate sources, is both structured and unstructured, and sits in separate IT systems, its usefulness diminishes. Customs authorities have access to many data sources, including company registries, reports (manifests, bills of lading, invoices), governmental databases, and other Customs organizations' databases. These sources provide different types of documents that may be cross-referenceable, but the databases may have different interfaces, networks or permissions that increase the challenges in accessing and using the data.

Unstructured data is a major challenge

Once a Customs authority manages to bring all the data into one IT system, the challenges of handling the unstructured data come into play. Unstructured data includes images, videos, multimedia, scanned handwritten documents, X-ray images and more. Some might reside in a computer, others on phones, or perhaps in an archive. This means this information cannot be easily correlated, insights cannot be extracted, and they cannot be cross-referenced with other

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databases. The objective is to fuse the data and extract metadata so it can be correlated, and insights can be brought to light.

Relying on internal sources is not enough

There are also external data sources that Customs authorities should consider using. Social media, for example, may help Customs investigators identify parties who are smuggling weapons. Some instant messaging apps are known platforms for selling drugs. Collecting data from these sources can provide more insight and identification of potential illicit actors. Online marketplaces are another good source for Customs to analyse – on a mass scale – the pricing of items coming into a country to verify the taxes due. Lastly, people and vessel movement trackers such as SITA, AIS and others can provide useful data for Customs authorities. This could allow the administrations to better prepare for incoming shipments or people, thereby prioritizing their resources accordingly. Additionally, trackers may allow the identification of suspicious movements of shipments, revealing infringements such as transhipment. These external data sources are not typically used by Customs authorities at the moment, but could improve intelligence and data-driven decision-making.

Data from other Customs agencies is also very useful for discovering Customs infringements on both sides of transactions, thus increasing efficiency. By sharing data with each other, Customs administrations can better prepare for incoming people and shipments, so they can be more strategic in allocating resources. The WCO already provides the infrastructure for potential collaboration using the Customs Enforcement Network (CEN). Such data, fused with other data owned by the administrations, could provide extremely important insights. For instance, one country can report that illegal activities have been detected in one of its ports, guiding other Customs administrations to review shipments arriving from that port more carefully. When combined with an administration's historical data, authorities could also act against already-cleared illicit goods or their consignees.

At the end of the day, uncovering the relevant information and gaining the most insights is a delicate balance between what data the Customs administration has access to and the way all of that data is analysed.

With so much data and so many sources, Customs authorities need to determine what new data is truly worth analysing, in addition to the data that is already being collected and analysed. Historical data can provide a retrospective and help to trace suspicious actors or locations that may eventually lead to more effective seizures. This type of retrospective can also highlight inefficiencies in a Customs administration. For example, if the data shows that a box was inspected three times by three different agents, then this process should be flagged as an inefficiency and streamlined in the future.

Low-quality data is often overlooked

Data quality is another big factor in leveraging the power of big data. Customs administrations need to handle low-quality data and unstructured data, as mentioned previously. Low-quality data includes fraudulent or inaccurate data, names spelled in different ways across different documents, incomplete declarations, and more. This type of data may be overlooked or excluded from the process if it cannot be easily upgraded

Many Customs authorities already have investigative units, intelligence analysts and data scientists. A shift to using decision intelligence will not replace the need for these or other categories of Customs personnel. In fact, in many cases, more intelligence analysts or data scientists may be needed.

or corrected. Unstructured data such as scanned documents, photos and videos requires an added layer of analysis using technology, as described.

Customs authorities need to find ways to mitigate these types of low-quality or unstructured data that may come from importers, exporters and other countries. These data types are not within the control of a Customs authority, so using technologies such as optical character recognition (OCR), fuzzy string searching (or approximate string matching) and object detection may improve the data quality, making it more useable on a mass scale and hence more effective. In addition, stepping back to look at the big picture after fusing the disparate data may reveal fraudulent or inaccurate data that would not otherwise have been identified.

Sensitive Customs data requires special care

In applying various technologies to the data collected, Customs authorities may encounter data ownership challenges. Countries have different regulations in place, such as the General Data Protection Regulation (EU GDPR), or other local/regional regulations, that require transparency about who owns the data, where it resides, who has access to it and how it is protected. Since Customs authorities are government agencies and have access to sensitive data, this is important. It is possible to obfuscate, pseudonymize or anonymize specific data or identifiers to protect sensitive data. Customs authorities can also compartmentalize data or hide specific identifiers for further protection. One more aspect to consider is that there may be additional requirements and/or regulations for applying analysis technologies such as machine learning (ML) to the data, and this may vary by country. Compliance, data security and data privacy are paramount, yet add layers of complexity to leveraging big data.

Decision intelligence is a force multiplier for Customs personnel

An important aspect of leveraging big data for decision intelligence is its impact on human resources. Many Customs authorities already have investigative units, intelligence analysts and data scientists. A shift to using decision intelligence will not replace the need for these or other categories of Customs personnel. In fact, in many cases, more intelligence analysts or data scientists may be needed. Elevating the use of decision intelligence will enable data scientists and others to provide much-needed higher level insights.

Decision intelligence can also make better use of existing personnel. Today, many Customs authorities struggle to manage and stay up-to-speed on multiple systems. A unified decision intelligence solution can increase the productivity of Customs agents and analysts with simplified training and a more intuitive user experience. In addition, intelligence analysts, agents and others may be redeployed to better suited roles to leverage their skillsets and improve the effectiveness of a Customs authority.

Is decision intelligence necessary or nice to have?

The prospect of implementing a decision intelligence solution may seem daunting, expensive and possibly out of reach. Implementation will include connecting the system to all relevant data sources, building a data model and applying pertinent integrations. Data scientists will need to build dedicated ML models to reveal valuable insights, and training on the system and on intelligence methodologies will be required. However, in the long run, the revenue benefits will likely far outweigh the costs of a system, its implementation and the personnel and training required.

Taking it a step further, the shift away from risk management and toward decision intelligence may help prevent the smuggling of drugs, weapons and other contraband that are a societal drain. Such contraband entering a country ultimately increases law enforcement caseloads and adds significantly to healthcare costs.

Modernizing with decision intelligence provides a holistic view for Customs authorities to uncover patterns and relationships. It prevents Customs agents from focusing on single elements, and instead may elevate more significant smuggling or tax evasion. It may also change the mindset of those within Customs administrations, from feeling overwhelmed by big data to embracing all types and sources of data, thereby obtaining more valuable insights that increase revenue, prevent fraudulent trade and facilitate more efficient legal trade.

Decision intelligence can also improve communications between the back-office

personnel and Customs agents within Customs authorities. Importantly, it can increase global collaboration with improved handling of data, automatically reveal insights relevant to other Customs administrations, as well as provide the ability to make data and insights accessible to them.

Getting started with modernizing Customs data analysis

The move to decision intelligence begins with mapping out a Customs authority's main operational challenges: those that prevent the authority from making effective decisions and achieving the insights that would improve decision-making.

The modernization process is never-ending (see Figure 3). The recommended steps for a Customs authority to take when starting on modernization include defining the goals of the organization, mapping and analysing all available data so decisions can be made, using the right decision intelligence platform to leverage the data and the analytics into actionable decisions, and dynamically defining new goals for the administration at any time.

Figure 3 – Lifecycle of Modern Customs Data Analysis
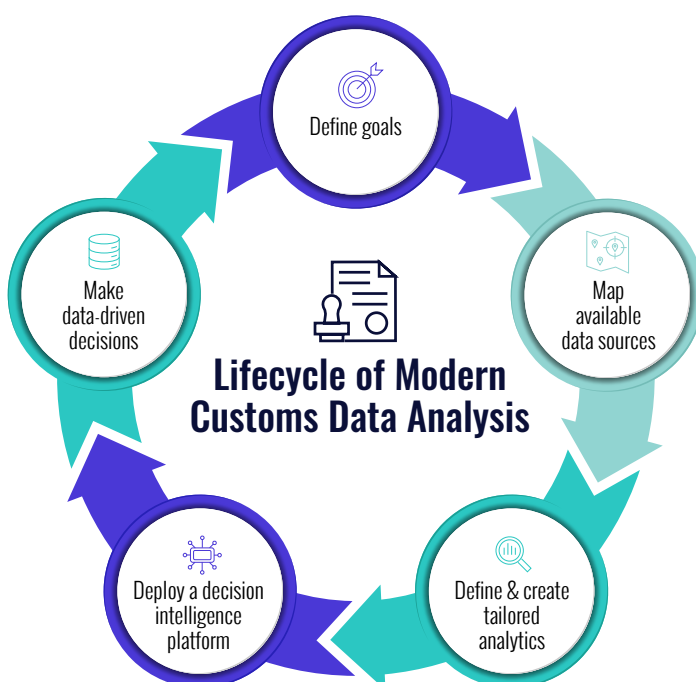
The conversion to a decision-intelligence approach can be achieved using the following step-by-step guide:

1. Define goals

   - What types of Customs fraud is it most important to prevent?
   - How can Customs operations become more effective at ___? (Fill in the blank)
   - What countries or contraband pose the greatest risk?
   - What contraband, uncollected revenues or people would the Customs administration like to find?

2. Map available data sources*

   - Customs declarations, bills of lading and manifests
   - Governmental repositories
   - Customs operations data
   - Data from other Customs administrations
   - GPS trackers
   - Open source: social media, marketplaces

*Data must be accessible and able to be used while adhering to different regulations

3. Define and create custom-tailored analytics

   - Custom-tailored risk scoring built upon real data samples from the authority
   - Customized Machine Learning and AI models that leverage the data for fast insights
   - Define and create big-data analytics and visualizations that provide a bird's-eye view of the data

4. Deploy a decision intelligence platform

   - Fuse all data in a single place
   - Define a data model relevant for the goals set
   - Apply the analytics to the data
   - View data and insights, including Customs operations, through a single pane of glass
   - Share, report and collaborate on insights

5. Make data-driven decisions, such as

   - Several packages at the warehouse were inspected multiple times in a week: automatically notify officers when this occurs
   - By reviewing the statistics, it looks like phones imported from country X are more

likely to catch fire: ban phones arriving from country X

- The risk-scoring model indicated that e-commerce transactions in the USD 350-600 range are often misreported and caused a significant revenue gap last year: further retrospective analysis and revenue collection is required

6. Return to step 1.

Data-driven Customs operations are a growing trend

Despite the challenges involved, many Customs administrations have already begun shifting their mindsets from risk management to decision intelligence, paving the way for the deployment and usage of such solutions by Customs administrations. The WCO has made a significant contribution to this shift – by emphasizing the importance of data-driven Customs operations, and even setting the 2022 theme as: *"Scale up*

Customs Digital Transformation by Embracing a Data Culture and Building a Data Ecosystem."

However, to truly leverage the power of data towards operational and strategic decisions, there is still much to be done. This includes applying tailored analytics, defining an appropriate investigative data model, and looking at the trends and patterns stemming from the data and analytics rather than potential seizures only. These measures, together with the tips provided above, should allow Customs administrations to handle the ever-expanding e-commerce trade effectively, and to collaborate more efficiently and successfully to address Customs infringements, while ensuring the free flow of legitimate trade.

More information

https://www.cognyte.com/nexyte/customs-investigations-risk-management

Open Architecture: what it means and how to make it work

by Kevin Davies, Global Director, Ports & Borders, Smiths Detection

Where are we today?

We are living in an age of increasing and evolving threats – from explosives and biological pathogens, to cyber-attacks. The technology to counter some of these threats is already in use: high penetration capability X-ray units using multiple screening angles, best-in-class image quality, object recognition algorithms, trace detection and networked alarm aggregation.

Increasingly, Customs services are also looking for and expecting lower False Alarm Rates (FAR), material specificity and a higher degree of assured detection for the items/cargo under inspection. Advancements in computed tomography technology offer a path to achieving this taking advantage of the increased accuracy of Diffraction X-Ray when determining material specificity, for example.

Additionally, the adoption of technology such as this, and therefore the increased accuracy and identification capabilities, into the "process flow" of inspections at a port or a border crossing is leading to increasingly automated screening solutions which not only advance screening procedures and detection capabilities, but also reduce the operator burden, create higher throughput, and maintain system uptime to help keep both people and property safer, without the need for large numbers of highly skilled and very costly security personnel.

The future: Open Architecture

This being said, what does the future look like for screening operations and their many suppliers? I believe the key change factor is Open Architecture (OA). It allows hardware, software and algorithms from different suppliers to be easily "plugged together" into one solution. The aim of OA is to make adding, upgrading and swapping components, or technologies, seamless. The future of Customs security will be driven by data informing risk-based decisions and using integrated sensors and devices from multiple providers. It will require open equipment interfaces and common data formats with an oversight mechanism to provide assurance on aspects such as technical standards, certification and liability.

Key drivers for OA adoption include the need to respond quickly to ever-changing threats; to leverage new and developing technologies such

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as artificial intelligence; and to produce detailed management information from an increasingly complex screening operation. It is perceived as a more flexible approach which would accelerate innovation and reduce time to market. It is already commonplace to integrate certain technology from different suppliers, and developing this further to incorporate software and algorithms is an exciting concept.

Smiths Detection, along with other vendors and governments, have been striving for an OA format for datasets relevant to High Energy Non-Intrusive Inspection systems. In recent years, globally, dozens of deployments using the WCO-sponsored unified X-ray file format[1] for non-intrusive inspection (NII) devices (UFF V2.0) have been achieved and this format is now widely adopted and often mandated. The next step towards closing the gap of true Open Architected Systems is by enhancing UFF V2.0 and widening its scope to include generic API for multiple asset access and integration to the specified standard. An example of this is inclusion of Radiation Portal Monitor data according to the American National Standards Institute (ANSI) 42.2 standard, but the breadth and depth of opportunity goes way beyond this, enabling true data integration and facilitating interoperability.

The competitive landscape is now fast evolving to the benefit of the industry. Concepts such as federated learning models, interoperability between competitors and geographies, learning gleaned from other industries, all mean collaboration between established and new players on centralized platforms. We are finally seeing a thriving, highly competitive marketplace which satisfies the requirements for data security and compliance, while simultaneously we are witnessing an exponential improvement in terms of performance and, therefore, our goal of a step change in operational efficiency.

With the transformation of Software Architectures away from monolithic to containerized structures, multiple solutions / approaches can be offered. These services take advantage of artificial intelligence and machine learning services solutions using "Software-as-a-Service" or "Platform-as-a-Service" models, and can be provided on-premises or in-cloud as needed, using and taking advantage of the latest in edge computing[2] capabilities, while maintaining cyber security.

Some areas where OA is a game changer

The use of Open Architecture is going to enable progress in a number of areas.

Detection capabilities

The first is detection capabilities. OA will advance detection capabilities through ever more accurate and effective algorithms. These algorithms are being developed from machine learning techniques, both by OEMs, as well as an endless supply of third-party developers. From start-ups to established players such as Google and Microsoft, this technology is expanding exponentially. Using such tools will without question mean step changes in the Customs capacity to fulfil its mission of promoting legitimate trade and safeguarding society.

Their value can be clearly seen in image analysis operations, where image analysts must match X-ray images of scanned cargo with original manifest reports while also looking for potential threats. Algorithms can automatically highlight only those X-ray images where suspicious items have been detected, such as cigarettes or even dangerous levels of radioactivity, speeding up the overall analysis process and supporting the secure movement of goods and free flow of trade. It is a new competitive landscape, and this is driving innovation and development.

Connectivity

The second is connectivity. Thanks to OA, competitors and partners are already linking new and legacy equipment and technology onto the same platform. It is relatively easy to link different brands of hardware, but we still need to explore and define standard interfaces, and this will come at a cost, with IT infrastructure generally requiring to be updated. With solutions already existing in other industries, there is no reason to have a bespoke security version and, in fact, a proprietary option could make solutions unworkable and unsupportable. Smiths Detection's Universal Checkpoint Interface was created with this

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1   For more information on the UFF, see https://mag.wcoomd.org/magazine/wco-news-89/customs-and-industry-collaborate-to-develop-a-unified-file-format-for-non-intrusive-inspection-devices.
2   Edge computing refers to processing, analysing and storing data closer to where it is generated, to enable rapid, near real-time analysis and response.

challenge in mind. It is open and available to allow the easy and reliable interoperability of scanners.

Operations

Thirdly, OA will enhance operations by increasing the ability to refine the process of selection on which cargo or bags are scanned using available NII techniques.

Centralized screening

Fourth, OA can facilitate the development of remote and centralized screening via a wide-area network (WAN), a connected collection of telecommunication networks distributed across a large geographic area spanning multiple cities, territories or nations so that the component networks can exchange data within the defined WAN group. WANs can facilitate the real-time sharing of images between different areas of a building or sites (or even countries and continents).

What are the remaining challenges to full adoption?

To ensure the result is versatile, enabling peak performing and highly secure screening solutions, there are some complex challenges to be addressed along the way. OA is an exciting, yet challenging, prospect for regulators. While there is a broad appetite to exploit the power of OA, there is a recognition that, while a new application may perform well and meet approval at a certain point in time, we need to ask how we assure this compliance over the lifetime of the system.

Beyond the assurance of performance, how do we ensure that third-party algorithms do not become invalidated if the OEM makes a slight change to the detector array due to the obsolescence of just one component? Equally, how does one assure the operator that a minor bug fix in the algorithm has not compromised the API or affected the cyber security of the interface and system?

How this is being solved, maybe inevitably, is for operators to have one entity as the single point of responsibility, whereby an integrator – often the OEM – assumes liability, guaranteeing that

any application that it hosts on its platform will operate not just with the performance, but also with the compliance required by regulators, over the complete lifetime of the installation. This is not without precedent – just look at the phone in your pocket – every app on Google Play or the Apple Appstore has to go through testing before it will be hosted. Just as you do not expect your device to slow down when you open multiple applications, as we approach a truly Open Architecture in screening goods, we have to ensure this data ecosystem works faultlessly.

While great progress is being made with the integration standard of the dataset format, is it time to level the playing field with performance? For example, rather than mandate the Image Quality Indicators and penetration performances on an NII system, why not standardize those, along with the testing regime in which they are met, for example? Instead of prescribing image quality and penetration of X-rays, why not guide member states to use the International Electrotechnical Commission or ANSI performance standards when procuring?

A transformational period at our fingertips

OA certainly has the potential to transform security screening, and collaboration is at its heart; only together can we make ports and borders safer and more efficient. The underlying goal will always be to improve operational performance, security outcomes and passenger experience – OA is a new means to that end. Similarly, the aim at Smiths Detection is to help solve business problems and meet operational requirements, plus shorten and maximize the return-on-investment period for customers. We are committed to OA and will continue to work with all stakeholders to address the challenges and risks and move it forward towards execution.

More information

www.smithsdetection.com

The future of Customs security will be driven by data informing risk-based decisions and using integrated sensors and devices from multiple providers. It will require open equipment interfaces and common data formats with an oversight mechanism to provide assurance on aspects such as technical standards, certification and liability.

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Effective enforcement of international trade regulations requires powerful data analytics

By Publican

New regulatory frameworks are constantly being introduced by governments with the aim of ensuring that the trading of goods remains compliant with their goals. While the regulators place the onus of compliance mainly on the importers themselves, Customs are also faced with the immense responsibility of enforcing these regulations effectively without stopping the wheels of the global economy from turning. The smart use of data and technology to provide Customs authorities with the necessary knowledge and tools represents the best way forward.

Proliferation of regulations pertaining to the international trade in goods

In recent years a unique set of new challenges has arisen in relation to trade, with regulators in Europe, the USA and the global community in general implementing a variety of new measures. Some are designed to address concerns connected to exploitative labor practices in developing parts of the world, while others have been introduced as a response to geopolitical strife – WTO sanctions targeting the ongoing situation in Ukraine being a notable current example. All of these measures impact thousands of individuals and companies around the world.

Now, countries are even beginning to take their own unilateral steps; supply chain due diligence laws recently passed in France, Switzerland, the Netherlands, Norway, Germany and even California, together with the UN's mandatory Human Rights Due Diligence Act which came into effect in late January 2023, will make companies legally more responsible for their own supply chains. These initiatives are justified and the intentions behind them are good, but in order to achieve true compliance both public and private players will need the requisite knowledge, tools and capacity to achieve real-time visibility and connect goods back to illicit practices, in order to deliver effectively on the expectations.

The sanctions surge will impact the public and private sectors alike

The role and responsibilities of importers in terms of remaining legally compliant is clear, albeit very difficult to implement. However, Customs – serving as the gatekeeper for goods moving into and out of the country – will also have a central role to play here, since they have both the mandate and the over-riding responsibility to ensure that the overall flow of trade remains compliant, safe and, ultimately, ethical. But how? Improving cooperation and knowledge exchange, and ultimately creating cooperation between the public and private sectors, will enable many new avenues to open up when it comes to achieving enforcement within the complicated maze of existing and new regulatory expectations.

Analyzing the regulators' datasets is no longer sufficient

More than 10,000 regulatory frameworks impacting international trade were introduced in 2022 alone, and it is no longer possible to manage trade flows without taking digitalization and the powers of automation to a conceptually new level. Technology and innovation are now providing us with credible new avenues for gaining actionable insight.

However, these technological advances cannot progress solely from within; in other words, digitalization cannot rely solely on the regulators' datasets. A novel and innovative approach to the digital inspection of goods and their origin is required, drawing on the wealth and breadth of global data which extends beyond the scope of a simple import declaration or goods manifest.

Implementation of data gathering and analysis techniques

One way forward for building Customs capacity in the area of regulatory compliance would be to implement and integrate technologies that achieve much greater supply chain visibility using

More than 10,000 regulatory frameworks impacting international trade were introduced in 2022 alone, and it is no longer possible to manage trade flows without taking digitalization and the powers of automation to a conceptually new level.

real-time and up-to-date data gathering and analysis techniques on the grand scale of Big Data, as well as presenting findings in a simple and digestible way.

Analytical tools that leverage current, multi-dimensional data opportunities are fast becoming an integral and irreplaceable component of the Customs data ecosystem. But in today's globalized world, models based only on local, historical and domestic data are limited, and therefore their use is limiting. Such models miss crucial information along the way, which hinders their ability to provide actionable insight. Global digital sources which reflect real-time market, regulatory and trade conditions are able to give rise to a new level of insight and automation.

In order to successfully maintain the delicate balance between maximizing the performance of Customs processes and ensuring their quality,

Customs authorities will need to identify and integrate the right tools that leverage data, working together with the private sector to achieve this.

This joint effort between the public and private sectors will be the next step in achieving a digital, data-driven approach to Customs processes.

As we transition from 2022, the WCO's year of digital Customs transformation and building data ecosystems, to 2023 when the focus will be on the sharing of knowledge, it is important that we fully understand how technology, which enables comprehensive data collection and analysis, can help to produce knowledge about supply chains and the related compliance issues.

More Information:

https://publican.ultra.global/
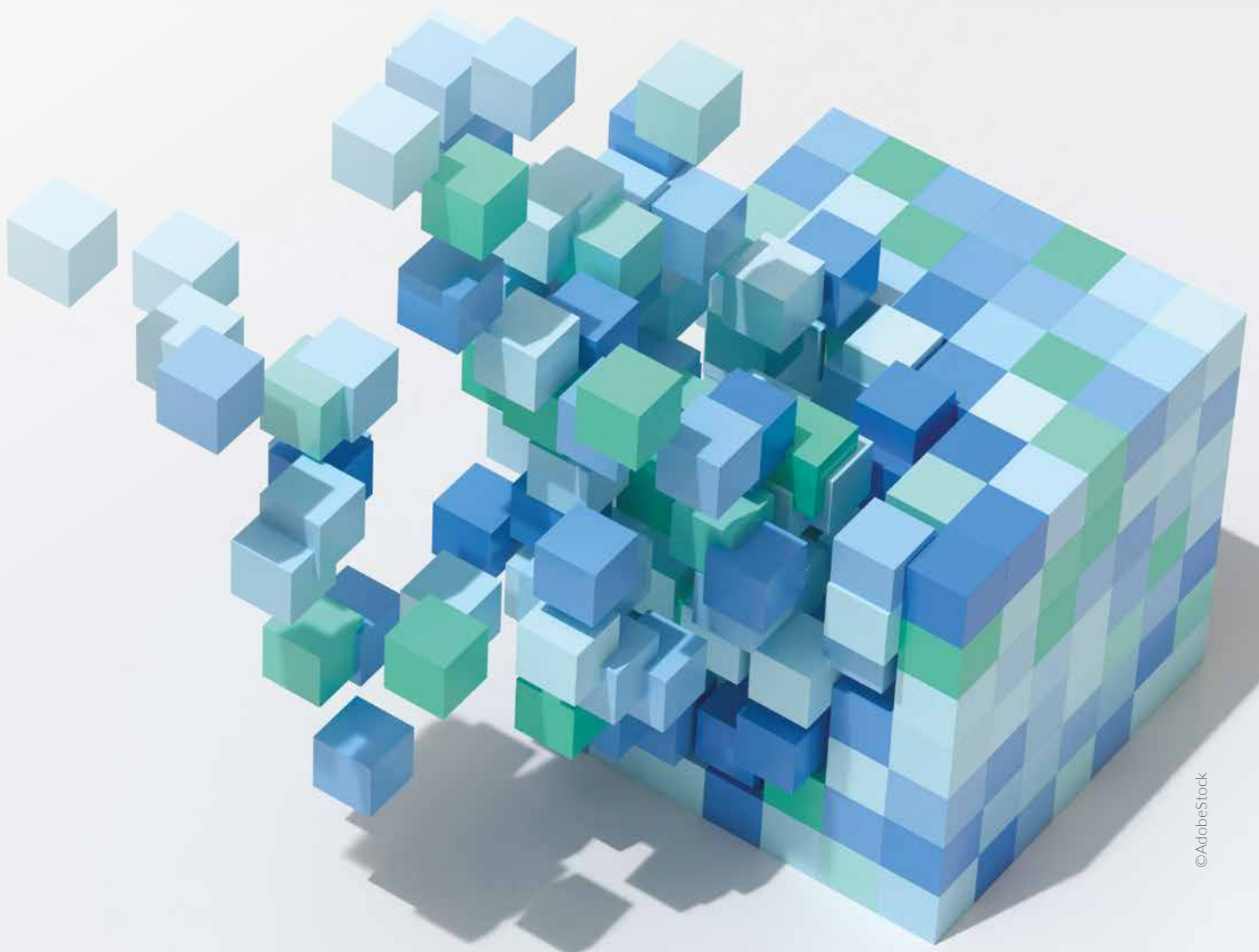
Key points from the 2022 WCO IT Conference and Exhibition

By Laure Tempier, WCO Communications Department

Every year, the WCO IT Conference and Exhibition brings together Customs, trade, transport and technology provider representatives to discuss matters relating to the various technologies used to manage flows of goods, people and means of conveyance across borders. Besides enabling participants to take a step back and look at things differently, it allows them to test and visualize how solutions and equipment work by visiting suppliers' exhibition booths. The latest such event took place in October 2022 in Maastricht, the Netherlands, and below are just some of the ideas and initiatives showcased by speakers and exhibitors.

Thanks to Open Architecture, collaboration between established and new players on centralized platforms is becoming a reality

Open Architecture allows hardware, software and algorithms from different suppliers to be easily "plugged together" into one solution. In a world

of screening technology for Customs authorities, talk of collaboration and data sharing to accelerate the development of OA-based solutions now translates into concrete IT solutions, with provider marketing platforms integrating other parties' applications and machine learning models.

Although discussions had been unproductive for a while due to concerns related to data security, intellectual property and the loss of commercial differentiation or advantage in a competitive market, advances in OA technology and new commercial models have enabled the industry to overcome these barriers. Federated learning (where multiple people remotely share their data to collaboratively train a single deep learning model), data trusts (where a steward manages someone's data on their behalf), and decentralized autonomous organizations (where a community, rather than a central authority, leads an entity) are some of the working models used by the industry to collaborate.

One of the results of such collaboration is the "unified file format" (UFF), which is the international standard for scanned images and associated metadata produced by NII equipment, and which has been developed by NII suppliers in cooperation with the WCO.

The next step should be to level the playing field with respect to performance. As one speaker asked: "Rather than mandate the IQI or penetration performances on an NII system, why not standardize those along with the testing regime in which they are met?" Similarly: "Instead of prescribing image quality and penetration of X-ray, why not guide States to use existing performance standards when procuring?"

OA requires a single point of responsibility

While there is a broad appetite for OA and for exploiting its power, there is also recognition of the need to ensure that all applications perform well over time and that one party's algorithm does not become invalidated if another party makes a change to the system and, vice versa, that a minor bug fixed in one party's algorithm does not invalidate another party's system.

Such a model requires one entity (the "integrator") to act as a single point of responsibility and to assume that liability, guaranteeing that any applications hosted on the platform will operate in terms of performance and of compliance over the complete lifetime of the system.

In the future, everything will be "smarter" thanks to AI

Artificial Intelligence (AI) and machine learning dominated the discussions.

The various types of AI were introduced, from reactive robots to self-aware entities:

- Reactive AI systems, which have the ability neither to form memories nor to use past experiences to inform current decisions.

- Limited memory systems, which are able to use information about the past to improve their responses.

- "Theory of mind" AI systems, which not only form representations about the world, but also about other entities. Called "theory of mind" in

psychology, this capacity to understand other people by ascribing mental states to them allows humans to have social interactions. This type of AI understands reasoning, motive and intent, and adjusts its behaviour accordingly.

- Self-awareness: systems that can form representations about themselves, know about their internal states, and that are able to predict the feelings of others.

It is still hard to gain a comprehensive perspective on the potential impact of AI in the future. AI "mainstream" systems which are in use today correspond to reactive and limited memory AI. They can enable Customs to make sense of images and data produced by NII systems, to cross-validate data flows, to analyse extensive sources of data to detect fraud, to search for all types of risk and to find anomalies. Ideally, in the future, machines will determine when to intervene, and decisions will be transparent and fair. There will be no disruption of legitimate and legal trade, and all transactions will be thoughtfully checked.

Application of AI in image processing requires a lot of data and more collaboration to be performant

NII systems providers explained that, while the quality and resolution of primary sensors were still vital elements of NII systems and areas which they continued to research and develop, the quality of the associated analytics was where they saw technology advancing the quickest. Accuracy and probability of detection by a human operator was still a function of the level of detail of the image itself, but algorithms were growing in sophistication, enabling machines to classify products, assess quantities, identify the presence of human beings, identify anomalies or objects of interest, and count the number of people in a car, etc.

One Customs administration, having completed a number of proof of concept activities to test algorithms applied to NII systems for the detection of hand guns and other weapons at the border, explained that, while these trials had shown promise, further work was required to achieve full automation for the detection of a broad range of border threats. According to the Australia Science and Technology Agency, development of such algorithms would still require significant efforts over 7 to 10 years.

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Many speakers agreed that one game changer would be to establish collaboration between Customs agencies, and especially, to ensure enough images and associated data were available to train the image recognition model. Collaboration on such projects meant agreeing on the threats to be addressed and the objective of the model. One question, for example, was whether you wanted to identify shapes or materials, or detect concealment methods.

One administration introduced the results of a research project to use machine learning to automate X-ray image analysis when screening postal flows. The model involved recognizing "paper products" (documents, letters, books, notes, etc.) in thin packages like envelopes. The main lessons learned were that it was necessary to set clear targets based on field operations analysis, that a lot of data was required to train a model, and that it took time (it took five years to finalize the project).

Another administration highlighted the limitations of doing things alone, and the need to standardize practices such as those related to image labelling or to the deployment and testing of algorithms to facilitate collaboration.

AI can take the fight against commercial fraud to the next level

AI and machine learning can enable Customs to identify cases of undervaluation, misclassification, misdescription and misdeclared country of origin. Experts shared analysis methodologies with participants, such as using exporter data where possible, as it generally exhibited less bias with respect to valuation; analysing Container Status Messages to identify irregular movements in the supply chain, such as uneconomic shipping routes, deviations, and long dwell times in ports with weak security; and looking for differences in documents or references to sanctioned operators or vessels.

How to ensure that you are getting the maximum value from machine learning?

Deployment of the technology requires more than the algorithms themselves – it also requires collaboration between technology providers and Customs. A lot of time needs to be spent discussing key infrastructure elements. For example, as AI requires access to large datasets, data storage and computer processing capabilities should be carefully planned.

Understanding what AI is and establishing governance rules is also critical, especially to minimize the impact of regulations on AI which more countries are developing. A governance framework would address issues such as how often policies and guidelines need to be reviewed and possibly replaced. It would also provide for an inventory of all AI models, identify risks with AI systems, and describe testing, evaluation and monitoring mechanisms.

Finally, best practices need to be followed when it comes to design and deployment. For example, performant machine learning models require curated datasets, with data scientists reported to be spending 60% of their time selecting and bringing together relevant data into structured, searchable data assets that are ready for analysis. Containerization, a means to deploy applications as modular software components, was also among the best practices mentioned to ensure good outcomes.

Some technologies enable material specificity to be identified

Two technologies enabling material identification were showcased at the Conference:

- X-ray diffraction (XRD), a method used for studying the structure, composition and physical properties of materials by analysing their crystal structures. It utilizes interference of X-ray waves diffracted on crystal planes to determine distances of the atoms.

- Atmospheric Ray Tomography (ART) applying only natural atmospheric radiation enables the identification of the chemical composition of scanned objects through any shielding.

In the future, everything will be shared

The idea was also expressed that, in the future, everything would be shared with the right parties, for the right reasons, at the right time. Whilst the technology enabled such cooperation, the legal framework in many countries still strictly limited automated exchange of information, especially at the international level.

A Customs administration provided an example of a government-to-government digital connectivity programme to exchange Preferential Certificates of Origin (PCOs) and Certificates of Non-Manipulation (CNMs).

A technology provider shared some of the insights gained from an international data sharing programme which tested the feasibility of creating a transparent supply chain for the trade of pineapples from Guatemala to the United States (US). The goal was to provide US Customs and Border Protection with everything they might want to know about a shipment of pineapples from Guatemala. The administration welcomed the idea, which would enable it to add a whole layer of security to the transaction and many additional data elements that it could mine two days before arrival.

Two shipping ports were selected:

- One on the east coast of Guatemala, which was being used to send a large amount of agriculture products to the US, had a well-defined security perimeter, had invested in scanning technology and data analysis training for all of its local users, and scanned everything at export to the US and to Europe as well.

- One in the US, where the majority of those agriculture products were unloaded and which welcomed the possibility of gaining an advantage over its competitors through the quicker release of such goods.

The proof of concept was completed in 2022. Data was collected along the entire import process: manifest, X-ray scan data, radiation profiles, and CCTV footage, and the company even captured electronically all the human interactions related to the shipment. The project brought together pineapple farmers, agricultural trade partners, Customs, shipping ports and the IT solution provider. At the time of the Conference, all were finalizing legal agreements for the project to go live by early 2023.

Some of the insights from the project are as follows:

- By their very nature, data sharing programmes have a lot of stakeholders and the project lead has to understand each of the stakeholders and adapt its IT platform to meet everybody's needs. Each stakeholder not only has its own established bureaucracy, but also several teams, each with its own mission within the same organization (IT, operations, legal and cyber teams in particular).

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- On-boarding IT teams is especially time-consuming but you should not fight them. Instead, build trust so that they let you try things.

- The technical challenge is getting the software approved by Customs administrations.

Cybersecurity is an absolute must

The bad news is that everything will be a target for hackers, and everyone will be hacked sooner or later. Ways to address cybersecurity risks efficiently were examined, including:

- Defining a clear security architecture for the IT solution.

- Implementing DevSecOps (Development, Security, and Operations), an approach which involves introducing security earlier in the software development life cycle and expands the collaboration between development and operations teams to integrate security teams in the software delivery cycle.

- Developing a contingency plan to respond quickly to incidents.

Cloud computing is the future and Government agencies should embrace it

A Customs administration reported having made huge savings after moving its data lake from premises (USD 12.3 million a year) to the cloud (USD 2.67 million a year). The infrastructure was not only cheaper, but also scalable and extendable, the time to market was shorter, and the security level was high. Another administration highlighted benefits in terms of safe and efficient data storage integration, potential integration across Customs agencies and partners, and the safe development and testing of new technologies without compromising the operational network.

But using the cloud has its challenges:

- Customs data must be protected.

- Data must be structured if it is to be shared.

- Individuals with specific skills and expertise may need to be hired, especially data scientists who can understand service providers and formulate the administration's needs.

- Compliance with existing cloud-related regulations and standards must be ensured.

- Existing government policies may not consider the use of the cloud.

You do not simply buy drones and let them fly; there is a whole organizational system needed on the legal side and the technical side

One administration explained in great detail its drone programme, which it launched in 2017. After extensive research, a pilot was run in 2020 in the Port of Rotterdam, with the objective of testing the use of drones to detect intruders and incidents while increasing the security of staff and reducing the time needed by intervention teams to do their job (every time Customs entered a container terminal, the cranes had to stop). Following the pilot, a team in charge of flying seven drones was established in the Port in 2022. New teams are to be created across the territory and the number of drones should increase to 25 in 2023.

There is a whole organizational system needed on the legal side and the technical side when carrying out such a project. This includes:

- Examining relevant regulations.

- Determining the type of operations to be conducted.

- Selecting the aircraft.

- Selecting and training the crew, as drone operators may be required to obtain a pilot licence and need radiotelephone training.

The administration is continuing to develop the programme and is considering the use of drones which can fly autonomously in certain demarcated areas; it also intends to introduce fixed wing drones.

Small island economies are pooling resources in terms of data collection and analysis

A Customs administration from a small island economy explained that it was challenging to acquire technology when financial resources were scarce. If it received donor funding for big projects such as its Customs automated clearance system, it also chose to develop in-house solutions utilizing secure open source applications. One of the tools developed by its IT team tracked revenue collection in real time, enabling it to compare collection performance over time, and making reporting easy. The tool was a game changer in a country where policy makers needed to know the size of the budget available to them at all times in order to be able to respond quickly to disruptions.

The administration also participated in developing the Advance Cargo Information System (ACIS), a project led by the Caribbean Community (CARICOM), an intergovernmental organization with 15 member states located throughout the Caribbean. ACIS allows for the collection of manifest data through the Electronic Manifest Management application. Data is then analysed by the Regional Intelligence Fusion Centre, and national risk analysis reports are sent to each country for action. Data related to a country is not shared with others, unless there is a formal request to do so.

Some Single Windows are connecting agencies at the national, regional and bilateral levels

Discussions around Single Windows focused on interoperability and interconnection, as well as best practices related to development and deployment. One country highlighted the need for all agencies involved to get a common sense of ownership of the project and to consider things from a user perspective when developing functionalities.

Two regional projects were examined:

- The East Africa Community Single Customs Territory (EACSCT), which connects each revenue authority's IT systems and port authorities to inform them of cargo movements across borders, and allows for the sharing of information (such as scanning results).

- The ASEAN Single Window, which connects national Single Windows and allows for the exchange of certificates of origin and the ASEAN Customs Declaration Document, and will soon cover the phytosanitary certificate from the exporting country to the importing country.

Participants also learned about the Singapore Trade Finance Registry, an initiative by the Association of Banks in Singapore (ABS) to validate the compliance of a credit request linked to a trade transaction and prevent trade finance

manipulations by drawing data from various sources, including Customs declarations.

Data extraction tools using AI and OCR technology are effective tools to support declarants

Trade operators using the services of specialists to declare goods provide data in paper or in separate electronic documents. The Conference showcased software using AI and Optical Character Recognition (OCR) technology to extract the data required in the Customs declaration from scanned or electronic documents. Such tools are not only used by brokers, but also by Customs.

A Customs administration explained how it decided to support exporters by enabling them to send invoices, bills of lading and transport documents to clear their goods. Customs officers would then use the data to issue a Customs declaration and a certificate of origin. They spent on average 20 minutes to issue a declaration (30,000 hours per year) and 10 minutes to issue a certificate of origin (3,000 hours per year). Four officers working full time were dedicated to assessing tax liabilities for transactions selected for a documentary check (yellow channel). To reduce the burden placed on the administration, it was decided to automate the work.

Robotic process automation (RPA), AI and OCR software were used to:

* identify the type of document being submitted
* extract the data from the documents and translate it into Georgian
* validate data input
* issue a Customs declaration for export
* issue certificates of origin
* assess tax liabilities.

It now took 3 minutes to issue a Customs declaration (27,000 working hours saved per year) and 1.5 minutes to issue a certificate of origin (2,500 working hours saved per year). The number of Customs declarations for export had grown by 27%. Documentary checks had been fully automated.

Some of the challenges identified during the implementation stage were related to ensuring compatibility between RPA and OCR software with existing systems; ensuring scalability; and converting "analog data" (in other words, paper documents) into digital data, as 70% of the documents submitted by operators in this country were on paper.

Next event

The 2023 WCO technology event will be held from 10 to 12 October 2023 in Hanoi, Vietnam. Keep checking the Events Section of the WCO website for further details, or contact the WCO Events Team.

More information

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