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Guidelines on Cooperation between Customs and Port Authorities

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Guidelines on Cooperation between Customs and Port Authorities

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Acronyms

4IR	Fourth Industrial Revolution
A2A	Administration-to-Administration
A2B	Administration-to-Business
A2C	Administration-to-Citizen
ACE	US Automated Commercial Environment
ACI	Advance Cargo Information
ADM	Italian Customs and Monopolies Agency
AEO	Authorized Economic Operator
AG	Agriculture Specialist
AgID	Agency for Digital Italy
AI	Artificial Intelligence
AIS	Automated Identification System
ANP	National Port Authority of Morocco
APHIS	Animal and Plant Health Inspection Service (US)
API	Application Programming Interface
ASYCUDA	Automated System for Customs Data
ATA	Actual Time of Arrival
ATD	Actual Time of Departure
B2B	Business-to-Business
BAD	Bon à délivrer
BCO	Beneficial Cargo Owners
BHT	Bremer HafenTelematik
BIC	Bureau of International Containers
BPMN	Business Process Modelling Notation
BRA	Border Regulatory Agencies
BS	Bureau de sortie
CBM	Coordinated Border Management
CBP	US Customs and Border Protection
CBRA	Cross Border Regulatory Agency
CBRSW	Cross Border Regulatory Single Window
CCS	Cargo Community System
CCTV	Closed-circuit television
CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
CES	Centralized Examination Station
CFS	Container Freight Station
CII	Critical Information Infrastructure
CINO	Chief Innovation Officer
CRC	Cyber Resilience Center
CT	Computed Tomography
DCSA	Digital Container Shipping Association
DO	Delivery Order
DPI	Digital Port Infrastructure
DRaaS	Disaster Recovery as a Service

EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
EGDH	Expert Group on Data Harmonization, IMO
EIF	European Interoperability Framework
EMSW	European Maritime Single Window
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
EU	European Union
FAL	IMO Convention on Facilitation of International Maritime Traffic (FAL Convention)
FoS	Framework of Standards
GACC	General Administration of Customs of the People's Republic of China
GdF	Guardia di Finanza, Italian law enforcement agency
GMDSS	Global Maritime Distress and Safety System
GPA	Georgia Ports Authority (USA)
IAPH	International Association of Ports and Harbors
ICS	Import Control System
ICT	Information and Communication Technology
ID	Identity
ILU	Intermodal Loading Unit
IMO	International Maritime Organization
IoT	Internet of Things
ISA	Interoperability Solutions for European Public Administrations
ISO	International Organization for Standardization
ISPS	International Ship and Port Security
ITB	Bandung Technology Institute
ITPCO	International Task Force Port Call Optimization
ITU	Intermodal Transport Unit
JCA	Jamaica Customs Agency
JIT	Just-in-Time
LPI	Logistics Performance Index
MAFF	Ministry of Agriculture, Forestry and Fisheries, Japan
MARPOL	International Convention for the Prevention of Pollution from Ships
MIG	Message Implementation Guide
MRA	Mauritius Revenue Authority
MRN	Movement Reference Number
MSC	Maritime Safety Committee, IMO
MSW	Maritime Single Window
NLE	Indonesia National Logistics Ecosystem
NPCC	National Port Community Council
NPCS	National Port Community System
OCR	Optical Character Recognition
OCU	Operational Coordination Unit
OGA	Other Government Agency
PA	Public Administration
PAJ	Port Authority of Jamaica

PCO	Port Call Optimization
PCS	Port Community System
PMIS	Port Management Information System
PSA	Italian Port System Authority (Italy)
PTA	Planned Time of Arrival
PTC	Permanent Technical Committee, WCO
PTD	Planned Time of Departure
QR	Quick Response
RDF	Radio Direction Finding
RDM	Reference Data Model
RFID	Radio Frequency Identification
RKC	Revised Kyoto Convention
RTA	Required Time of Arrival
RTD	Required Time of Departure
SAD	Single Administrative Document
SAJ	Shipping Association of Jamaica
SAT	Superintendency of Tax Administration, Guatemala (Customs administration)
SIDS	Small Island Developing State
SOA	Service Oriented Architecture
SOLAS	International Convention for the Safety of Life at Sea
SSM	Single Submission
TOS	Terminal Operating System
TSW	Trade Single Window
UML	Unified Modelling Language
UN	United Nations
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNECE	United Nations Economic Commission for Europe
USCG	United States Coast Guard
USDA	United States Department of Agriculture
UUID	Universally Unique Identifier
VAT	Value-Added Tax
VGM	Verified Gross Mass
VTMIS	Vessel Traffic Management Information System
VWG FC	Virtual Working Group on the Future of Customs
WCO	World Customs Organization
WTO	World Trade Organization

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Foreword

Ian Saunders, Secretary General, WCO

I am pleased to present this updated edition of the WCO–IAPH Guidelines on Cooperation Between Customs and Port Authorities, which reaffirms our commitment to strengthening collaboration at the border in an increasingly complex and data-driven trade environment.

Since becoming Secretary General of the World Customs Organization (WCO), I have emphasized the importance of partnerships among various agencies and stakeholders that support both trade facilitation and supply chain security. These Guidelines, developed jointly with the International Association of Ports and Harbors (IAPH), reflect that vision. They remain grounded in the principles of Coordinated Border Management and draw on key WCO instruments and tools such as the Revised Kyoto Convention and the SAFE Framework of Standards.

This joint document reflects evolving priorities, including digitalization, coordinated risk management, and joint enforcement efforts. Recent contributions - particularly from private sector actors actively engaged in port operations - have helped enrich sections on data exchange, the use of digital platforms, and cooperation to address challenges such as illicit trade and abandoned containers.

I encourage all Customs administrations, port authorities, and their partners to use these Guidelines not only as a reference, but as a catalyst for meaningful dialogue, trust-building, and collective action to achieve more resilient and efficient border operations.

Dr. Patrick Verhoeven, Managing Director, IAPH

Welcome to this significant tome, which sets out to bring port authorities and their Customs administrations closer together. By collaborating on these Cooperation Guidelines with our colleagues at the WCO and the wider industry including the liner container shipping sector , our former chair Pascal Ollivier, deputy chair Gadi Benmoshe, and our other International Association of Ports and Harbors data collaboration committee members have achieved another important milestone on the journey to accelerate digitalization in the maritime transport chain.

In our own “Closing the Gaps” project to identify gaps in global port infrastructure, our principle finding on trade facilitation was the issue of trust and the challenge of sharing data in a collaborative manner between port community stakeholders to optimize a vessel Port Call and minimize berth waiting time. Customs have a pivotal role in that process, as efficient clearances are required to keep ships and cargo moving, with a port authority, its visiting shipowners and service providers connecting all stakeholders on land and at sea.

By adopting a common agenda with a solid, sustainable governance structure in place to exchange “single truth” data, ports, liner shipping and Customs authorities can ensure supply chain security, improve trade facilitation in their respective countries, and help to achieve our mutually beneficial goal of a more resilient maritime supply chain.

Executive Summary

Executive Summary

1. The first version of the Customs and Ports Authorities Cooperation Guidelines outlines best practices between Customs and Port Authorities from advanced, emerging and developing countries over the last decades. Specific attention has been paid to Small Island Developing States (SIDS) to review their journey in the field of cooperation to accelerate digitalization and sustainability.

2. Existing instruments such as the SAFE Framework of Standards (SAFE FOS) have been leveraged to design and implement the regulation of Customs and port digital systems, and both port and Customs authorities have amended Port Acts and Customs Acts to comply with data harmonization requirements to facilitate trade.

3. Intergovernmental and bilateral agreements for collaboration on such interoperability frameworks have been established between authorities to set out the digitalization agenda.

4. The institutionalization of the cooperation between Customs and Port Authorities could take place through the establishment of a National Port Community Council (NPCC) to close the gaps and establish trust between both sides, as well as with other government agencies and private stakeholders to facilitate trade and secure the supply chain.

5. Data collaboration between Customs and Port Authorities will be beneficial to both sides to drive trade facilitation and supply chain security. The convergence of digital platforms will generate a vast amount of new data which, once mined, will generate new advanced analytics and insights into cargo flows throughout the trade and transport continuum.

6. The benefits of cooperation will range from combatting corrupt practices, reducing costs and bureaucracy, reaching high levels of service efficiency, increasing supply chain predictability, and improving policy decision-making.

7. A common understanding of Customs and Ports business processes and systems will drive the development of interoperability between Customs digital systems and port digital systems, such as Maritime Single Windows (MSW) and Port Community Systems (PCS), demonstrating the need for a collaborative cyber resilience centre (CRC).

8. A shared review of emerging technologies use cases, such as digital twins, the Internet of Things (IoT), artificial intelligence (AI), and drones, should drive coordinated operations and knowledge towards a common reference architecture of selected and combined technologies.

9. Aligning security programmes, such as the Authorized Economic Operator (AEO) and International Ship and Port Facility Security (ISPS) programmes, could enable coordinated risk management. Supply chain security and resilience could be enhanced through the availability of advance cargo and vessel information through Port Community Systems and the Maritime Single Window.

10. Finally, the contribution of ports and Customs authorities from Australia, Bulgaria, China, Germany, Guatemala, Italy, Indonesia, Jamaica, Morocco, and the United States of America have been the driving forces of the Guidelines on Cooperation between Customs and Port Authorities.

1 Introduction

1. Introduction

1.1. Purpose

11. In the context of their long-standing memorandum of understanding on cooperation, in 2022 the World Customs Organization and the International Association of Ports and Harbors (IAPH) set up a joint working group for the development of Guidelines on Cooperation between Customs and Port Authorities to strengthen trade facilitation and supply chain security. The objective of the Guidelines is to address a number of challenges in establishing cooperation between Customs and Port Authorities, especially in digitalization.

12. Throughout the world, particularly in emerging and developing countries, there appears to be a lack of sufficient trust and cooperation between Customs and Port Authorities, which often stems from their different roles and functions at the border, and a low level of awareness of the actual benefit to be gained from collaboration between the two agencies. In this context, there is a clear need to address the challenges of cooperation between these two separate authorities.

13. The WCO and the IAPH believe that the Guidelines are important to promote cooperation between the two authorities at national level, by building trust, identifying operational and governance issues, and compiling good practices and lessons learnt, so as to provide greater clarity in terms of policy and implementation, making use of existing instruments and tools to support this cooperation and developing a roadmap for cooperation.

14. The core element of cooperation between Customs and Port Authorities is a focus on accelerating the digitalization agenda, in line with the WCO approach to Coordinated Border Management and Digital Customs. Such cooperation could be used to address shared Customs strategic objectives in trade and transport facilitation, compliance and supply chain security.

15. Several additional areas of cooperation that could be considered include the establishment of a governance structure, coordinated border control and performance measurement.

16. Some of the WCO instruments and tools that are particularly relevant to the Cooperation Guidelines include the Coordinated Border Management Compendium, the Single Window Compendium, the WCO Data Model Maritime Single Window/IMO FAL Compendium Derived Information Package (DIP), and the SAFE Framework of Standards.

17. Relevant IAPH publications include the urgent call to action to accelerate digitalization (the joint report by the World Bank and IAPH on the resilience of the maritime supply chain), the IAPH and World Bank Report “Closing the Gaps”, the survey report on the implementation of electronic data exchange to conform with the IMO, the Port Community Cyber Security White Paper, the IAPH Cybersecurity Guidelines for Ports and Port Facilities, and the IAPH Innovation at Ports White Paper.

1.2. WCO policy

18. The WCO is an intergovernmental organization specialized in Customs matters. It has 185 Members divided into 6 regions. WCO Members are responsible for processing 98% of international trade (this is counting the European Union which, since July 2007, has had status akin to WCO membership for matters falling within its competence on an interim basis). The WCO's main activities include developing standards for Customs procedures, providing capacity building for its Members, and promoting international cooperation.

19. As stated in the WCO Mission statement, the WCO develops international standards; fosters cooperation and builds capacity to facilitate legitimate trade, to secure a fair revenue collection and to protect society, and provides leadership, guidance, and support to Customs administrations.

20. The WCO is of the view that cooperation between Customs and Ports is in line with the WCO's Coordinated Border Management (CBM) approach. The CBM provides overarching principles on the importance of collaboration between Customs and partner government agencies, including port authorities. CBM refers to a coordinated approach by border control agencies, both domestic and international, in the context of seeking greater efficiencies over managing trade and travel flows while maintaining a balance with compliance requirements. These Guidelines could help Members to establish a better working relationship with port authorities with a view to accelerating the digitalization agenda and improving the security of global supply chains.

21. The WCO embraces the use of information and communication technologies (ICT) and digitalization to enable Customs to improve the quality of their control activities while, at the same time, enhancing their level of trade facilitation. Digital Customs is consistent with Chapter 7 of the General Annex (GA) of the Revised Kyoto Convention (RKC) on the "Application of Information Technology"[1], which requires Customs to use international standards when introducing computer applications, i.e., the WCO Data Model[2].

22. The WCO raises the awareness and knowledge of its Members of the use of disruptive technologies[3] (e.g., blockchain, the Internet of Things, big data, data analytics, and artificial intelligence) in international trade, and particularly in the border management environment.

23. The WCO promotes digital collaboration between and among Cross-Border Regulatory Government Agencies (CBRA) through a Single Window Environment, and an inclusive intelligent collaboration platform that allows parties involved in trade and transport to lodge standardized information, mainly electronic, at a single entry point to fulfil all import, export and transit-related regulatory requirements.

24. The WCO is helping Customs and businesses to secure supply chains by creating a single set of international standards that will lead to uniformity and predictability, resulting in benefits to both Customs administrations and AEOs. Five core elements for securing supply chains, as outlined in the SAFE Framework of Standards (FoS), include: Harmonizing Advance Electronic Information requirements, Risk management, Outbound inspection, Customs-business partnership, and Customs-Other Government Agencies (OGAs) collaboration.

25. The WCO is embracing a data culture to prioritize data-driven decision-making and empower people, supported by a high-performing data ecosystem, to ask questions, challenge ideas and rely on concrete insights, not just intuition or instinct, to make decisions. To that end, the WCO strategy was developed around three building blocks, namely data sharing, creating communities of practitioners, and assisting Members with their transition to data-driven organizations.

1.3. IAPH policy

26. Founded in 1955, IAPH is a global alliance of ports, representing today some 160 ports and 120 port-related businesses in 87 countries. IAPH represents the interests of port authorities and operators at regulatory level at UN agencies and other international organizations. IAPH concentrates its activities in three main strategic focus areas, namely climate and energy, risk and resilience, and data collaboration, addressing the acceleration of digitalization in ports.

27. IAPH has taken a lead role in a joint industry call to accelerate digitalization, issuing a policy document on this in June 2020, co-signed by leading maritime industry associations and endorsed by the IMO Secretary General. This document outlines a concrete plan to (i) assess the industry status of digitalization, (ii) incentivize and encourage ports and their stakeholders to commit to the required change management and public-private partnership

[1] https://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv/kyoto_new/gach7.aspx
[2] http://wcoomd.org/DataModel
[3] https://www.wcoomd.org/en/Topics/Facilitation/Instrument%20and%20Tools/Tools/WCO%20WTO%20Study%20Report%20on%20Disruptive%20Technologies%202022

actions needed as well as to capacity building at ports, (iii) achieve true efficiencies in the way port stakeholders communicate between each other and how they interact electronically with ships calling at their ports.

28. By the end of 2020, IAPH had obtained a clear indication on the industry status, having initiated and completed a global survey on the status of implementation of the IMO facilitation requirements on Electronic Data Interchange (EDI) at the world's ports. It is now well into the second phase, having developed guidance with the World Bank on concrete steps that ports can take to accelerate digitalization.

29. The IAPH Technical Committee on data collaboration also actively participates in policy formulation on several influential committees at IMO level, including submissions to, and interventions in, the IMO Facilitation Committee (FAL) which focuses on trade facilitation, and the IMO Maritime Safety Committee (MSC) on issues related to cybersecurity and automation. In 2022, FAL 46 and MSC 105 endorsed the IAPH Cybersecurity guidelines for ports and port facilities[4] and referenced these in the Guidelines on Maritime Cyber Risk Management MSC-FAL.1/Circ.3/Rev.2[5]. FAL 46 further endorsed the inclusion of the Port Call Process in the Guidelines on Maritime Cyber Risk Management.

30. IAPH experts are involved, alongside WCO experts, in the IMO Expert Group on Data Harmonization (EGDH) responsible for the technical maintenance of the IMO Compendium and for further expanding its data set and data model to areas beyond the FAL Convention, including the exchange of logistics and operational port and shipping data.

31. IAPH Experts are also engaged in ISO Technical Committee 8 on technical standards for administrative and operational data[6], with the aim of achieving true industry standards for Electronic Data Interchange (EDI). Following the inaugural meeting of that Committee, the International Taskforce Port Call Optimization, which brings together stakeholders from the public and private sectors, started work on mapping out the process of a Port Call and establishing common shared initiatives to standardize the approach to synchronizing nautical and end-to-end supply chains for cargo and passengers.

32. The IAPH has joined forces with the IMO to co-organize the Maritime Single Window Symposium to drive the mandatory implementation of Maritime Single Windows (MSW) as of January 2024.

[4] https://sustainableworldports.org/wp-content/uploads/IAPH-Cybersecurity-Guidelines-version-1_0.pdf
[5] https://wwwcdn.imo.org/localresources/en/OurWork/Facilitation/Facilitation/MSC-FAL.1-Circ.3-Rev.1.pdf
[6] https://sustainableworldports.org/major-step-forward-for-standardization-of-ship-shore-data-exchange-the-next-step-in-port-call-optimization/

2

Strengthening cooperation between Customs and ports

2. Strengthening cooperation between Customs and Ports

2.1. The need for cooperation

33. Since maritime transport is growing exponentially in terms of volume, as a result of the increased demand for goods and commodities, the huge impact it generates on global supply chains throws a focus on ports as critical national infrastructures. The popular idea is that ports are sites located at the national borders where a huge number of complex activities occur incessantly. In fact, the providers of port services, be they government or private, have to navigate a seamless flow of maritime trade between divergent, sometimes opposing interests. On the one hand, they maintain the law enforcement measures imposed by the cross-border regulatory agencies, and on the other they have to avoid obstructions for businesses in terms of costs and border times for cargo clearance. Port operators bridge the interests of both sides by providing connectivity between them through Port Community Systems (PCS) and cargo handling.

34. The successful and sustainable partnership between Customs and Port Authorities is embedded in their roles and legal obligations, as set out in sections 2.1.1 and 2.1.2 below.

2.1.1. Role of Customs

35. Customs administrations are obliged to check whether the goods conform with the relevant legislative requirements and border control measures. During Customs formalities they request and collect documentation on the consignments, decide on inspections and examinations, carry out controls, take samples of the goods, and enforce restrictions on compromised freight. Customs communicate their decisions to the port authorities to keep them informed in their areas of shared responsibility.

36. Customs administrations carry out their functions and the related obligations to enforce:

a. security and safety measures before the goods enter or exit the Customs territory;
b. regulatory restrictions and prohibitions, phytosanitary and veterinary requirements, compliance with safety and health standards;
c. revenue collection;
d. intellectual property rights;
e. controls on drugs, precursors, weapons;
f. actions to counter money laundering and terrorist financing; and
g. interventions relating to environmental restrictions, waste control measures.

37. This list of responsibilities is not exhaustive, but such complex actions require trustworthy cooperation with port operators and port administrations.

38. Customs administrations act as liaison border control offices with respect to cargo clearance formalities. Customs coordinate the notifications to the respective institutions responsible for enforcing specified regulatory measures, such as phytosanitary, veterinary and health inspections, border police controls and tax revenue collection. Customs communicate the final decisions on whether or not inspections are required to the port authorities and the holders or representatives of the cargo, and synchronize the efforts of all involved in the consignment. The preferred approach is to conduct joint inspections at a single fixed place so as to impose the requisite border control measures efficiently and effectively.

2.1.2. Role of ports

39. Port authorities are public bodies responsible for managing the port as a whole, and providers of infrastructure and port facilities, either directly, or indirectly through their concessionaires: terminal operators, gates, storage premises, warehouses, inspection facilities, harbourmasters, port safety and security services, border control and inspection services, and providers of all attendant services.

40. Port authorities are providers of digital systems for processing, transmitting, and communicating information on vessels, barges, trucks, trains, inbound and outbound cargo, transit, and transhipments.

41. Port authorities provide support for the inspections that need to be carried out at designated control areas - areas that are set aside and certified for Customs, agriculture, veterinary, waste, or dangerous goods controls. Port operators must abide by the restrictive and prohibitive measures related to plant protection and phytosanitary controls, animal and veterinary controls, and food safety and sanitary measures when operating at their premises. Ports are required to ensure a coordinated and preferably simultaneous way of conducting regulatory inspections - controls in a single place provide a better alignment between the cross-border regulatory agencies. Joint inspections reduce the cost for the holders of the cargo, as well as the time needed for handling and clearance of the goods.

42. Terminal operators are the holders of the cargo and thus responsible for the proper storage, security, surveillance and preservation of the integrity of the cargo and the seals; the port terminals safeguard the cargo while it remains on their premises, securing it against unauthorized access, tampering or movement until it is given Customs permission for release from required regulatory controls.

43. Terminal operators manage the inbound, outbound and transit shipments and transhipments at the port premises, and are responsible for:

    a. entering detailed information in the required documentation, diligently and duly signed, digitally or otherwise, and submitting this documentation to the authorized officers (Customs officers or other regulatory officers); these formalities oblige port operators and terminals to take responsibility for the cargo from the time of unloading and stuffing until confirmation that all Customs formalities and clearance procedures have been successfully completed,
    b. noting on the cargo documentation, and electronically, any discrepancy found in the condition of the containers and the identification number on the seals,
    c. promptly reporting any discrepancies found to the law enforcement agencies and holders of the goods, such as: differences between the number on the seals and the number recorded in the documents, damaged seals, traces of seal tampering, damage detected on the goods or conveyances, unauthorized or illegitimate interference with the cargo, suspected or verified Customs offences.

2.1.3. Potential areas of cooperation

2.1.3.1 The need for mutual exchange of information

44. Customs administrations focus on the supervision of goods being carried by different means of transport; while the port authorities focus on the supervision of the vessels being used as the means of transport. As Customs and Port Authorities have different responsibilities at the border ports, they each focus on the specific information that they need, and may therefore have an incomplete picture of the situation. The two sides should strengthen their exchange of information in order to exercise their regulatory functions in a more effective manner.

2.1.3.2 The need for mutual recognition of supervision

45. Close supervision requires cooperation and collaboration between Customs and Port Authorities. If repeat checks are required, mutual recognition of this kind of supervision can reduce the number of repeat checks required for one item of goods or one enterprise, minimize the disruption to that enterprise and reduce its operating costs. It can also reduce the staff and equipment required by both Customs and Port Authorities and reduce their administrative costs if they negotiate to carry out checks at their own convenience and inform the other side of the outcome.

2.1.3.3 The need for mutual assistance in law enforcement

46. Both Customs and Port Authorities are responsible for carrying out law enforcement in the port, and doing so separately is often not as effective as coordinating and carrying out law enforcement together. Coordinated efforts can promote mutual assistance in law enforcement, which can effectively integrate the strengths of the two agencies, so that both sides can learn from each other, give full play to their strengths, form a stronger law enforcement force, and judge the results of law enforcement more comprehensively so as to avoid the potentially adverse consequences of unilateral law enforcement.

2.1.4. Challenges

2.1.4.1 Challenges to the digitalization agenda

2.1.4.1.a. Need for streamlined adoption of the digitalization agenda

47. Information forms the basis of the risk-based border control model - deemed an indispensable solution to the efficient coordination and securing of sustainable and resilient international supply chains. Given its significance, the digitalization of maritime cargo information is the ultimate common goal of law enforcement agencies, providers of port services and economic operators. While the various public institutions and business organizations have their own specific functions and competences, it is acknowledged that the process of digitalization rests on solid, trusted and longstanding relationships, mutual understanding and respect for each other's responsibilities. It is further acknowledged that legislative requirements and restrictions, frequently supplemented by stringent national rules, may challenge the development of the digitalization agenda. Consequently, a group of conditions needs to be assessed first in order to prevent complex and extended stages during the implementation, integration, management and maintenance of digital infrastructure and systems. Many factors influence the process of evaluation. The main ones relate to the organizational, technical and financial resource requirements.

2.1.4.2 Requirements, weaknesses and potential solutions

2.1.4.2.a. Procurement or improvement of the digital infrastructure; investments and financial planning; allocation of financial resources

48. Digitalization projects are expensive and time-consuming, given the sheer range of legislative and institutional requirements: prior high-level approvals, signing-off on arrangements and trade contracts, and the time needed for the development and establishment, integration and safeguarding of the IT systems. These projects are financed, or co-financed, through public funds. Government expenditure therefore needs to be accountable, and covered by annual budgets with a presumption of plausible time periods and financing. Obtaining the financial resources requires sufficient institutional willingness, and public and business awareness, followed by further recognition and approval. Technical equipment and digital systems are liable to become obsolete, reflecting the development of digital technologies and innovations. The digitalization agenda needs to be accelerated in terms of appropriate timeframes for: enacting legislation, signing intergovernmental arrangements and agreements, negotiating trading contracts, and financial and investment plans for the following periods, allocating public budgets and/or private investment funds, implementing and integrating electronic systems, and carrying out further synchronization between the systems used by the different regulatory agencies, ports, port administrations and economic operators.

2.1.4.2.b. Compatibility of different digital systems and compliance with government policies

49. Regulatory agencies, port operators and economic operators use and communicate through corporate digital systems and cybersecure networks. To secure technical interoperability between diverse electronic interfaces, they need to be adapted and synchronized. To ensure the efficient submission and exchange of information and prompt communication between the parties in the supply chain, interoperable digital systems are essential, as is the convergence of the relevant security policies levied by government agencies and business organizations.

2.1.4.2.c. Data confidentiality and privacy protection policies

50. Government agencies and business organizations have implemented their own internal cybersecurity policies. Alignment of the differing security rules between government and private organizations relating to their electronic systems, and their legal and internal requirements, is a complicated and time-consuming process, which can be an additional impediment to the digitalization agenda, if not lead to a stalemate. Consensus among a range of authorities and economic operators needs to be reached to achieve compliance in cyber-security requirements and standards. Occasionally, this might require additional actions such as legal approvals, formal agreements, or instructions to guide the cooperation.

2.2. The path towards strengthening cooperation

2.2.1. Legal and regulatory framework

2.2.1.1 Leveraging the SAFE Framework of Standards

51. In 2005, the WCO issued the first version of the Safe Framework of Standards[7], introducing provisions on Authorized Economic Operators (AEO) and Advance Cargo Information (ACI), and establishing in section 2.6 "Standard 6 – Advance Electronic Information". Section 2.6.3. on the "Use of economic operators' systems" states that "The ICT Guidelines also recommend the possibility to use economic operators' commercial systems and to audit them to satisfy Customs' requirements. In particular in the context of the Authorized Supply Chain, the possibility for Customs to have online access to the commercial systems of the parties involved, once any confidentiality or legal issues have been resolved, would provide enhanced access to authentic information, and offer the possibility for far-reaching simplified procedures. Another example is Cargo Community Systems (CCS) where in ports or airports all parties involved in the transport chain have established an electronic system by which they exchange all relevant cargo and transport related data. Provided that these systems contain the necessary particulars for Customs purposes, Customs shall consider participating in such systems and extracting the data required for their purposes."

52. Cargo Community Systems are commonly known as Port Community Systems when they manage not just cargo information but also information on equipment and means of transport such as vessels, barges, trucks, and trains. Cargo Community Systems have been implemented at ports, and at airports in particular, over the last few decades. Different WCO Members have leveraged the SAFE Framework of Standards by introducing regulations; in Mauritius, for instance, MRA Customs adopted the Customs (Cargo Community System) Regulations 2008[8], combining the role of the Authorized Economic Operator, Advance Cargo Information, Port Community System and Risk Management into one regulation as an opportunity to enforce the convergence of Customs and port digital systems.

2.2.1.2 Port Acts and Customs Acts

53. In the last two decades, good practices have improved in emerging and developing countries where Port Acts and Customs Acts have been amended to facilitate the establishment of Port Community Systems and complete data harmonization, so as to assist the seamless integration and exchange of advance maritime cargo information via the Port Community System. For instance, the Port Authority of Jamaica amended its Port Act[9] to establish the Jamaica Port Community System (Jamaica PCS) and Jamaica Customs Agency designated Jamaica PCS as an authorized Customs electronic communication system pursuant to Section 206A of the Customs Act (as provided by

[7] https://www.wcoomd.org/en/media/newsroom/2018/july/wco-publishes-2018-edition-of-safe-framework-of-standards.aspx
[8] https://www.mra.mu/download/CargoCommunitySystemRegulations2008.pdf
[9] https://www.portjam.com/paj-act/The-Port-Authority-Port-Management-and%20Security-Regulations-2015.pdf

Section 11 of the Customs (Amendment) Act 2014[10]), and thus the single point of submission of maritime cargo manifests prior to the arrival and departure of the vessel.

2.2.1.3 Intergovernmental and bilateral collaboration agreements

54. Intergovernmental or bilateral collaboration agreements present formal binding agreements between regulatory authorities. They generally implement the legislative base, the framework, and the policy of the collaboration, and define the obligations, responsibilities and functions of each contracting party. Collaboration is a preferred approach as it normally enjoys a higher degree of approval and government commitment to the action needed to set out the digitalization agenda.

55. In 2020, the Italian Customs and Monopolies Agency (ADM) entered into agreements[11] with all 16 Italian Port System Authorities (PSA), the Italian Coastguard and the Italian law enforcement agency Guardia di Finanza (GdF), in order to boost the competitiveness of the national port and logistics system and facilitate the development of traffic in ports, thanks to the use of advanced technologies inter alia. The objective was to standardize and speed up import and export procedures, and Customs formalities related to the entry and exit of goods, embarkation and disembarkation, and the conditions related to the payment and collection of port and anchorage fees. This was to be achieved through the interoperability of Customs systems with the Port Community System and the Maritime Single Window.

2.2.1.4 Instructions for mutual assistance and instructions for cooperation

56. Instructions for mutual assistance or for cooperation present comprehensive written instructions based on bilateral agreements. They establish the guiding principles for mutual collaboration, contain a detailed description of the expected responsibilities and necessary actions of personnel involved in the process of digitalization, as well as appoint coordinators for the process, and include a list of contacts.

2.2.2. Institutional and governance framework

2.2.2.1 National framework

57. As digitalization is a strategic priority for both parties, it is recommended that the cooperation between Customs and Port Authorities be institutionalized through the establishment of a National Port Community Council (NPCC). In emerging and developing countries, the NPCC could be implemented within the framework of the National Trade Facilitation Committee recommended by the World Bank-IAPH Report “Accelerating Digitalization”[12]. In other countries it could be implemented as part of the Port Community System Steering Committee, which already exists in some countries (e.g. Israel). The strategic objective of the NPCC will be to close the gaps and establish trust between both agencies as well as with other government agencies and private stakeholders, so as to facilitate trade and secure the supply chain.

58. The NPCC should be based on a two-tiered institutional governance framework to move the cooperation agenda forward. The governance framework should be composed of a steering committee and a business process committee. Additional working groups may be created on specific subject matters such as congestion, risk management, and just-in-time arrival. The roles and responsibilities of the steering committee and the business process committee are outlined below.

59. The NPCC should lead data collaboration at the Port Community level and drive the five principles of public-private data collaboration: (i) stakeholder engagement, (ii) data

[10] https://www.jacustoms.gov.jm/sites/default/files/docs/Legislation/339_THE%20CUSTOM%20(AMENDMENT)%20ACT%202014.pdf
[11] 69ed5990-30fd-454d-989d-48285e76405a (adm.gov.it)
[12] https://thedocs.worldbank.org/en/doc/773741610730436879-0190022021/original/AcceleratingDigitalizationAcrosstheMaritimeSupplyChain.pdf

governance establishment, (iii) inter-organizational data orchestration, (iv) change management, and (v) long-term financial sustainability.

60. The NPCC could be chaired by the national port authority and co-chaired or vice-chaired by the Customs administration. The objective of the chair should be to demonstrate the joint leadership of the two sides with respect to trade facilitation and supply chain security, and their neutrality vis-a-vis public and private stakeholders.

61. The NPCC should be included in Port Acts and Customs Acts as a key instrument to facilitate and secure the maritime supply chain.

62. The initial role of the steering committee will be to lead the maritime supply chain trade digitalization roadmap and the role of the business process committee will be to lead, in the short to longer term, the analysis, optimization, automation, and reengineering of business processes and drive the evolution of the legal framework in the age of digitalization. The role of the steering committee could be extended to other strategic objectives of the port community in the medium to long term.

63. The NPCC steering committee should be comprised of directors general of government agencies and presidents and/or secretaries general of trade associations. The NPCC business process committee should be comprised of business process and legal experts from all Members.

64. The suggested participants in the NPCC are:

- Port authority
- Customs authority
- Maritime authority
- Foreign trade authority
- Department of immigration
- Department of health
- Department of agriculture
- Department of national security
- Terminal operators association
- Shipping lines and agents association
- Freight forwarder association
- Customs brokers association
- Truck operators association
- Rail operators association
- Waterways operators association
- Importers association
- Exporters association
- Insurance association
- Banking association
- Any additional authority involved in the country's trade procedures (e.g. environmental protection authority, etc.).

65. The scope of responsibility of the steering committee could be to:

- Initiate and launch any port community digitalization initiative and continue to support the never-ending journey of covering new areas of improvement
- Drive change management
- Lead the evolution of the legal framework
- Build the workforce of the 21st century
- Review the project status report
- Follow up on milestones
- Follow up on deliverables
- Address risk management
- Address change management
- Improve security
- Drive supply chain security programmes
- Follow up on action items
- Follow up on issues
- Review outstanding problems
- Review proposed actions to be taken
- Resolve deviations from schedule
- Take corrective actions.

66. The scope of responsibility of the business process committee could be to:

- Review the project status report
- Follow up on milestones
- Follow up on deliverables
- Review As-Is business processes
- Develop and review To-Be business processes
- Focus on inter-organizational business processes
- Integrate coordinated border management as a principle for To-Be business processes
- Review and drive the evolution of the legal framework of any business process
- Reengineer and reinvent all business processes as needed
- Digitize all manual processes within the port community
- Implement standardization
- Implement cybersecurity
- Improve trade facilitation and supply chain security
- Foster best practices
- Foster innovation and use cases and proof of concept for 4IR technologies.

67. The steering committee could meet on a monthly basis during the critical implementation phases and a quarterly basis beyond the implementation phase. The business process committee could meet could take place on a monthly basis, while working groups should meet on an ad-hoc basis.

2.2.2.2 Customs and Port Authorities framework

2.2.2.2.a. Strengthening business exchanges

68. Customs and Port Authorities often work at the same port, but with different responsibilities and duties. To strengthen closer cooperation between the two sides, and to achieve better collaboration and convergence of responsibilities, and better serve the purpose of law enforcement and services, both sides need to strengthen their understanding of each other's business through training, meetings, visits and research, etc. Both sides should be as familiar with each other's business processes and services as possible and should consider port issues on the basis of joint supervision and the common external services of the two agencies.

2.2.2.2.b. Strengthening information exchange

69. Information must be exchanged between Customs and Port Authorities. Swift communication of information can enable each side to understand the other's conditions and measures in a timely and proper manner, and strengthen comprehensive understanding of the goods being supervised and the economic operators involved, resulting in more scientific and reasonable supervision decisions, which can be more conducive to strict and efficient supervision.

2.2.2.2.c. The strengthening of personnel exchange

70. If necessary, and if conditions permit, the Customs and Port Authorities could carry out exchanges of personnel to give their staff the opportunity to engage in mutual supervision and service work, so that they can look at the problem from a different angle and have a comprehensive overview of the business processes and services at the port. Based on business exchanges and information exchange between the two sides, staff exchange can combine theory with practice, and also combine the key points of knowledge with subjective feelings, so as to achieve the purpose of learning and mastering the required skills and knowledge more quickly.

2.2.2.3 Customs and port operators

71. Port operators, both public and private, fulfil a key role - the management of the exchange of maritime cargo information. This stems from their implicit responsibility to interrelate and

coordinate the seamless flow of inbound, outbound, transit and transhipped consignments and transport types. Constructive models of cooperation between providers of port services, Customs administrations and business stakeholders in the digital transmission, dissemination and communication of decisions incorporate the pursuit of common objectives, such as:

a. Establishment of reliable partnerships to adopt and enact the appropriate legislative framework, further enhanced by intergovernmental bilateral and multilateral agreements, arrangements, and instructions for cooperation. A designated competent government authority, such as the NPCC, as referred at the beginning of this section, should be responsible for the coordination, communication, and establishment of the procedures to enhance and facilitate a smooth and unobstructed digitalization process;
b. Concentrated efforts are required to identify the prerequisites, and assess and agree the technical needs, specific requirements, and existing legal restrictions. It is useful to first research the expectations of the private sector. Diverse organizations can find convergence in their mutual interests to accelerate and successfully accomplish the digitalization agenda. It is desirable that priority be given to knowledge, experience and expertise during the overall process of assessing and deciding on the genuine needs. This process cannot be an isolated action but rather must be an insightful, perceptive activity. Specific expectations of the digital model and of its outcomes should be reached with the constant participation of experienced risk management teams and border controls experts;
c. Enhanced communication and constructive dialogue, preferably with an emphasis on the involvement of expert personnel. Although the leadership should be made up of top-level executives, the practical implementation is to be supported by expert knowledge. A graduated dialogue at both levels is useful, and hence the designation of competent, experienced and dedicated personnel is crucial to respond correctly and successfully to the previously identified needs in the establishment of an operative digital environment;
d. Enduring will and persistence to instigate, accelerate and finalize the digitalization agenda. Assuming that the development and establishment of the digital environment is a highly demanding project , inducing a longstanding collaboration and trusted partnership between port and Customs administrations alongside their everyday work is expected to yield the desired outcome.

3

Accelerating the digitalization agenda

3. Accelerating the digitalization agenda

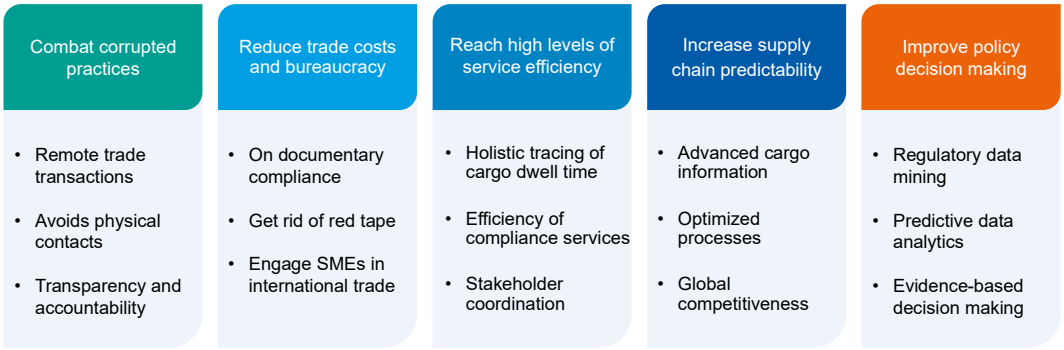
3.1. Benefit of digital collaboration

72. For Customs authorities, digital collaboration will make the cross-border flow of goods efficient, where manual processes are no longer possible. The use of electronic data and automated processes will enable inter-agency cooperation with seamless data exchange.

73. For port authorities, digitalization will enhance global competitiveness, performance and trade facilitation. Digitalization will connect public and private stakeholders within port communities to make processes more efficient.

74. Data collaboration between both authorities will be beneficial to both sides, driving trade facilitation and supply chain efficiency. The convergence of digital platforms will generate a vast amount of new data which, once mined, will in turn generate new business intelligence and insights about cargo flows throughout the trade and transport continuum.

Figure 1 - Benefits of digital collaboration (source: World Bank)



75. Digitalization will give full play to data benefits. Digitalization can help to bridge isolated information islands formed by some government agencies, make it easier to collect, summarize, analyse and use data, give full play to the value of data elements, and better serve the supervision of government agencies and trade facilitation for enterprises.

76. Digitalization will reduce costs and improve efficiency. Digital technology can improve communication efficiency between government departments, and between government agencies and the private sector, and reduce business operating costs and the cost of government supervision.

77. Digitalization will strengthen business collaboration and process optimization. Digital systems can help to simplify the workflow, change the relevant business process from offline to online, and change the business process mode from serial to parallel, thus optimizing the process and making the cooperation smoother.

78. Digitalization will improve service quality and user experience. An obvious advantage of promoting digitalization and carrying out digital cooperation is that it can provide more personalized services through digital means, so that enterprises can handle processes through one window using the Single Window system, and the service response is faster and more accurate, which can greatly improve the user experience.

3.1.1. Sustainable Customs and Ports ecosystem

79. The collaborative co-existence of Customs and Port Authorities could provide new opportunities. Compatible goals for Customs and Ports with respect to digitalizing information are designed to bolster the development of sustainable Customs - ports ecosystems through:

a. Streamlined processing and dissemination of cargo information and regulatory decisions, with specific attention to pre-arrival cargo information in terms of precise application of the security and safety standards;

b. Facilitated and simplified Customs formalities, improved clearance times and faster border release procedures;
c. Efficient risk models enabling clear and sophisticated decisions on the need for controls plus the type of control, including scanning procedures, and prompt reactions in the event of incidents or untoward disruptions in the international supply chains;
d. Secure borders, especially at the border crossing points, in terms of public health and safety, environmental and fair-trade issues, and national security;
e. Accelerated but consistent controls, including improved interactions in terms of joint targeting, joint decision-making and joint controls with the cross-border regulatory agencies involved, resulting in synchronization of the multiplicity of inspection procedures;
f. Optimization of the ratio of positive inspections, with the added value of cost savings, optimal use of infrastructure and staff, expeditious release of the goods, and minimal disruptions to the international supply chains;
g. Enhanced cooperation between private and public sector stakeholders in the sense of simplified and rapid release procedures, priority notification for controls granted to certified AEOs (Authorized Economic Operators), further mutual recognition of AEO status in the global cargo trade, and proliferation of trusted trade lines.

3.2. Understanding Customs and Ports business processes and systems

80. As a border crossing point, multiple government authorities, including Customs and Port Authorities, are normally present at the port undertaking regulatory control and providing day-to-day services to the relevant economic operators. Each government agency has its own role, function and responsibility and operates in accordance with its respective legal frameworks. In line with their roles and responsibilities, the officers of each government agency are equipped with specialized competencies.

81. Traditionally, each government agency works in silo in undertaking their processes and providing their services; this self-reliance misses the potential benefit of collaboration. Economic operators are the parties which are mainly impacted by such silo approaches as they often have to go through redundant, repetitive and inefficient processes at the border.

82. The bright side is that redundancy and inefficiency is a good indication of room for improvement. A comprehensive understanding of the overall service processes provided and taking place at the port border, beyond those processes involved in their own roles and responsibility, is critical for government agencies to help identify bottlenecks and overlaps in the current services and processes (As-Is), with the aim of streamlining and improving the experience of port users (i.e. economic operators) in crossing borders (To-Be).

83. Even though there is a high degree of commonality in the roles and responsibilities of Customs and Port Authorities around the world, which translates into a high degree of commonality in the services and processes they provide, specific variations on how Customs and Port Authorities operate at the national and local levels are to be expected, taking into account various aspects of the national context.

84. Documenting the existing services and process is the critical first step for starting a modernization journey. Service and business process documentation enables the relevant parties involved in the modernization project to understand the existing landscape and helps them be prepared for conducting analysis, and for re-engineering, streamlining and orchestrating the processes.

85. The use of known and proven business process documentation methodology and tools (e.g. Unified Modelling Language – UML or Business Process Modelling Notation – BPMN) could help consistent interpretation of the existing landscape and avoid ambiguity and misunderstanding by all parties involved in the port process modernization journey.

3.2.1. Customs business processes and systems

86. Customs services and processes at the border are derived from its core functions as the frontline government agency at the borders. These core functions include the facilitation of legitimate trade, securing fair revenue collection, and protecting society[13]. Customs is part of, and plays an important role in, the end-to-end cross-border supply chain processes to control and administer the international movement of goods[14].

3.2.1.1 Customs clearance

87. Customs lays down formalities for the collection of duties and taxes, and for the application of other laws and regulations relating to the importation, exportation, movement and storage of goods. Goods crossing the border must be cleared by Customs. Customs clearance means the accomplishment of the Customs formalities necessary to allow goods to enter domestic use (i.e. import clearance), to be exported (i.e. export clearance) or to be placed under another Customs procedure.

88. Any person with the right to dispose of the goods, i.e. the declarant, is responsible to Customs for the lodging and accuracy of the information given in the Goods declaration and for the payment of the associated duties and taxes[15].

3.2.1.2 Cargo report

89. Prior to the lodgement of the Goods declaration, Customs lays down other formalities for the submission of Cargo declaration, i.e. information submitted prior to or on arrival or departure of a means of transport for commercial use that provides the particulars required by Customs relating to cargo brought to or removed from the Customs territory.

90. The carrier is the actor transporting goods or in charge of or responsible for the operation of the means of transport who is responsible to Customs for ensuring that all goods are included in the cargo declaration or are brought to the attention of Customs in another authorized manner[16].

3.2.1.3 Identifying legitimate parties to the process

91. In the first step, we have to identify legitimate parties who could participate in the process of sharing data between officials and companies and who would benefit from this process.

3.2.1.3.a. Customs administrations

92. Customs authorities in each country receive data from multiple sources, such as Customs declarations, shipping information, their own risk analysis, and even law enforcement. Customs administrations may be able to provide a large variety of data but, because they are bound to the specific data protection laws in their country, not all the data they obtain should or can be shared. The question is – “What data can be shared?”, rather than “What data is available for sharing?”

93. It is, of course, not in the interest of any Customs administration to share their risk analysis parameters, for instance, or any information which they may have received during operations by their law enforcement units. Companies would also be upset if any confidential company data were to be shared with their competitors.

3.2.1.3.b. Shipping agencies

94. Shipping agencies offer the transport of cargo for their customers. This often includes multiple legs of the transport route, which have to be coordinated, so that ships and shipments are not delayed. To fulfil these operations, shipping agencies need a variety of data, beginning with the weight of the cargo for stowage, information about dangerous cargo, and so on.

[13] WCO Strategic Plan 2022 - 2025
[14] WCO SAFE Framework of Standards: Introduction
[15] General Annex Revised Kyoto Convention, Chapter 2 and 3
[16] Chapter 1 of Specific Annex A to the Revised Kyoto Convention

95. In some cases, shipping agencies have to issue Customs declarations for the cargo they transport, so they must have the required information from their customers to allow them to issue a correct declaration. For example, in Europe the shipping agency has to issue an Entry Summary Declaration for each shipment entering the European community from abroad.

3.2.1.3.c. Port Authorities

96. During their usual business procedures, port authorities also gather large amounts of data, e.g. shipping information, shipping routes, and estimated times of arrival and departure of shipments.

97. The corona crisis and the blockage of the Suez Canal in 2021 demonstrated that port operators also need to keep the cargo rolling, otherwise they could be in danger of running low of available storage space. This might end in ship traffic jams, like the one in the North Sea or in front of the Port of Shanghai in 2022. This affects everyone in the supply chain, from the forwarding agencies to the receiving parties of the goods. With this in mind, it could be in the best interest of port authorities to participate in data exchange to keep the cargo rolling and the ports busy.

3.2.1.3.d. Forwarding agencies

98. Whilst shipping agencies provide coverage for the sea transport, forwarding agencies are mostly tasked for the in-country parts of the transport of goods to their destination.

99. For this purpose, forwarding agencies receive information from their clients to fulfil the task.

100. As already mentioned, nowadays many goods are received “just-in-time” to keep the need for storage capacities low. To achieve this timely delivery, forwarding agencies have to deal with a number of circumstances that could delay the delivery, such as traffic jams, accidents or even strikes. Therefore it is not in the interest of these companies to deal with even more delays in their service that cannot be planned for.

101. Forwarding agencies are therefore very interested in knowing about any delay of the shipment in advance, so that they can plan their delivery capacities accordingly and divert these capacities where needed. Such hold-ups may occur due to delays during the shipment of the goods (shipping delay), problems with the handling of the container (damaged containers), examinations not being completed within time (e.g. delays in border veterinary or Customs controls), or other incidents.

3.2.1.3.e. Other authorities, e.g. border veterinarians

102. Depending on the laws of the different countries, other authorities may also have to perform checks on incoming cargo during the importation process. These could include, for example, border veterinarians, pest control, plant protection services, regional nature-conservation authorities, weapon offices or even police forces. Not all of these authorities may exist in all countries, so this list may be amended according the individual laws of each state.

103. What these authorities have in common is that each and every one of them has to receive all the necessary information and documents that they need to carry out their given tasks.

104. In return, other authorities may need information from these authorities to understand whether the shipment can enter the country legally. With this in mind, a swift and reliable exchange of data between all authorities is desirable.

3.2.1.3.f. Importer

105. Finally, the ultimate consignee of the goods and shipments – the importer – is an entity that is able to share data with the above parties and also has a very strong interest in receiving information as soon as possible.

106. Will the shipment arrive in time? Can I deliver the goods to my customer at the desired day and time? Do I have to arrange a place to carry out a Customs control? Do I need additional staff, due to the delay in my order, to unload more containers than originally planned on

that day? Do I have to adjust my prices because the goods are now more expensive than first calculated? These are all questions that an importer has to take into consideration and that are much easier to answer when data is exchanged.

107. A digitized data exchange may also make the life of an importer much easier if documents are provided digitally, and if permissions are visible the second they are granted, and are visible and available to anyone who needs this information.

3.2.1.4 Risk management

108. All goods, including means of transport, which enter or leave the Customs territory, regardless of whether they are liable to duties and taxes, are to be subject to Customs controls. Customs controls are undertaken to ensure compliance with Customs Acts and applied risk management. Risk analysis is conducted first to identify the threats, evaluate the risks and determine which persons and goods, including the means of transport, should be examined, and the scope of the examination. In addition, a compliance measurement strategy is to be established to support risk management[17].

109. Risk management is a tool to ensure that the balance between intervention and facilitation has been viewed as a "zero-sum" game where an increase in one would necessarily imply a decrease in the other. Control and facilitation are not mutually exclusive goals. On the contrary, they are mutually reinforcing objectives and it is possible to achieve optimal levels of both. Risk management allows Customs administrations to move from traditional 'gate-keeper' style controls towards a risk-based operating model.

110. Risk management helps Customs address the emergence of global value chains, disruptive technologies, trade-based money laundering and terrorism financing, as well as the increasing complexities of international trade agreements which have all impacted on the way in which Customs fulfil their responsibilities[18].

3.2.1.5 Single Window Environment

111. The Single Window Environment aims at modernizing cross-border regulatory processes by highlighting digital collaboration. The Cross-Border Regulatory Single Window (CBRSW) examines the regulatory procedures through the eyes of the economic operator and views all interaction between it and regulatory agencies without regard for the internal divisions within the government. This approach aims at eliminating procedural redundancies, duplication of information and wastefulness in the overall effort to move goods across borders.

112. Customs normally act as the lead agencies on the establishment and operation of the cross-border Single Window, i.e. a Customs-led Single Window, usually known as a "Customs Single Window" or "Trade Single Window", which focuses on trade facilitation. However, the WCO promotes the term "Single Window Environment", which emphasizes the inclusiveness of the Single Window and its interoperability with other Single Windows such as Maritime Single Window, Port Community System and Trade Single Window, to reduce the phenomenon of a multitude of national Single Windows.

3.2.2. Understanding port business processes and systems

3.2.2.1 Automated systems

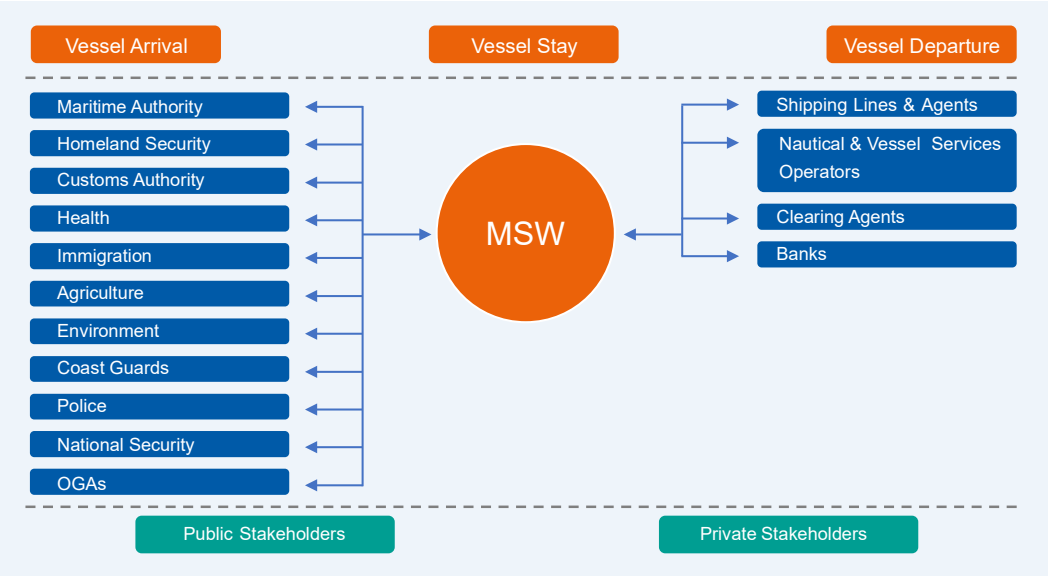
113. Digitization and digitalization of ports started more than three decades ago in advanced countries to provide safe, secure, and efficient operations to the port communities. However, in the 21st century, there is a significant digital divide between advanced countries and emerging and developing countries where the need to close the gaps is paramount. Closing the gaps is a priority for IAPH, the World Bank and other financial institutions. The digital divide also exists due to the lack of interoperability between government agencies, including Customs, and with private stakeholders in many emerging and developing countries.

[17] Chapter 6 of the General Annex to the Revised Kyoto Convention
[18] WCO Risk Management Compendium, Volume 1

3.2.2.2 Maritime Single Window

114. On 1 January 2024 the Maritime Single Window (MSW) will be mandatory in ports around the world, following the recent FAL 46 amendments to the IMO FAL Convention. The MSW is a public-private data collaboration platform that allows the submission to a single entry point of standardized and harmonized information, and is to be used for the electronic exchange of information required on the arrival, stay and departure of ships in ports and harbours. It covers maritime regulatory procedures, but could be extended to other administrative, nautical, and operational procedures and other related information between private-sector and public authorities in the port related to the vessel clearance process and the Port Call process.

Figure 2 - Maritime Single Window (source: World Bank - IAPH)

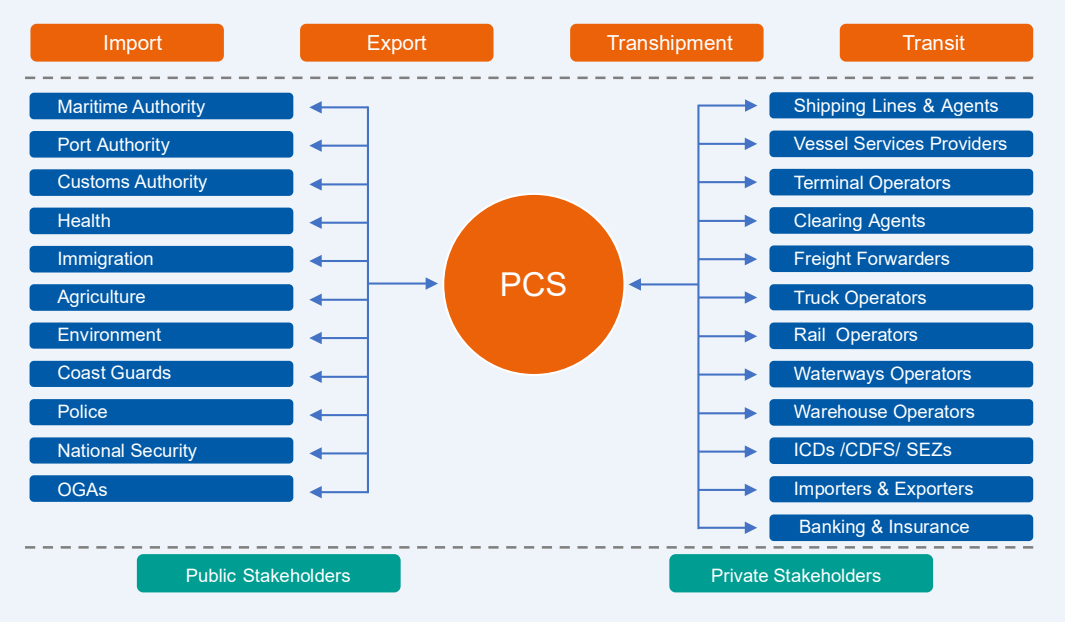


115. The MSW may include the Port Call Optimization module for just-in-time arrival of ships to optimize speed, draught and port stay, leading to lower costs, a cleaner environment, and more reliability and safety for shipping, terminals and ports.

3.2.2.3 Port Community System

116. A Port Community System (PCS) is a neutral and open electronic platform enabling intelligent and secure exchange of information between public and private stakeholders to improve the competitive position of seaports and airport communities. The PCS is intended to optimize, manage and automate port and logistics processes through a single submission of data and by connecting transport and logistics chains. PCS have been implemented since the late 1970s in Europe and today are found in more than 50 countries worldwide. PCS include Cargo Community Systems.

Figure 3 - Port Community System (source: World Bank - IAPH)



3.2.2.4 Port Management Information System

117. A Port Management System, also known as a Port Management Information System (PMIS), enables the port authority to control traffic and manage port infrastructure, such as Port Calls, dues, journals, incidents, waste, dangerous goods, planners, cargo, inspections, permits, services, security, safety, environment and assets.

3.2.2.5 Terminal Operating System

118. A Terminal Operating System is employed in maritime, waterway, rail-to-rail and intermodal rail terminal operations to provide visibility, control, optimization, scheduling, planning, analytics, and automated handling of maritime containers, rail containers, and break bulk.

3.2.2.6 VTMIS

119. A Vessel Traffic Management Information System (VTMIS) integrates and interconnects all the relevant assets to manage maritime operations safely and securely. This includes management of maritime operations ranging from marine environmental protection to traffic management, law enforcement and security at sea, by integrating a wide variety of sensors such as radars, AIS, CCTV, RDF, GMDSS, weather and hydro sensors. VTMIS is a critical harbour master infrastructure, as stated in IMO resolution A.857(20) and regulation V/12 of the SOLAS Convention.

3.2.2.7 Key port business processes

120. Business processes at ports are three dimensional, embracing the vessel side, the port terminal side, and the hinterland side. Figure 4 illustrates business process domains at ports.

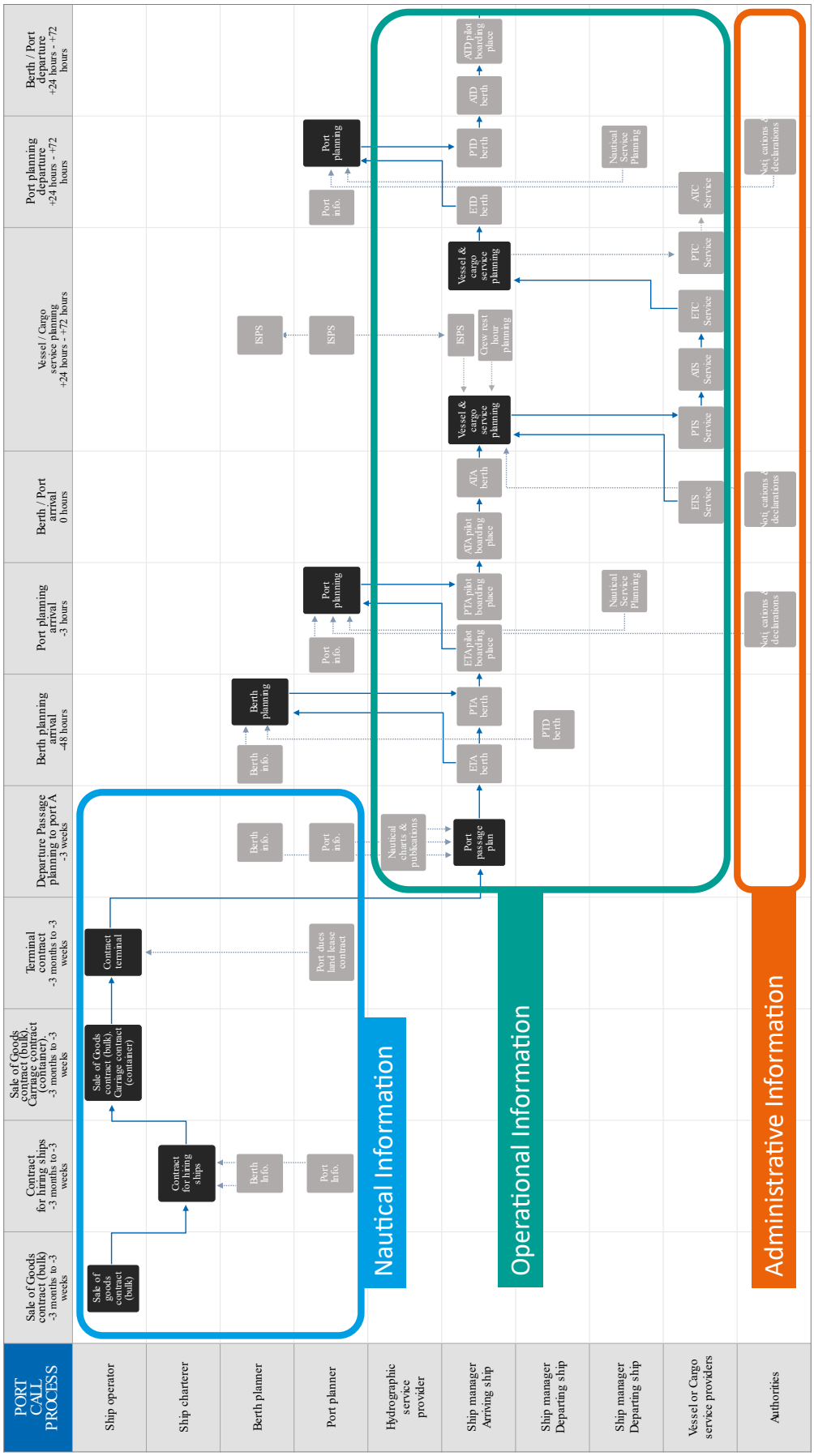
Figure 4 - Business processes at ports (source: IAPH)

3.2.2.8 Port Call process

121. The Port Call is defined as the arrival of a ship at, the stay of a ship in, and the departure of a ship from, a maritime port in a state. The Port Call process is a standard developed by the International Taskforce on Port Call Optimization and is included in IMO FAL.5/Circ.42/Rev.2 and IMO GloMEEP JIT Guide[19]. It includes the nautical, operational, administrative and regulatory requirements. The Port Call process is a complex process involving government agencies, shipping agents and vessel services providers. In several countries, the Port Call process is a cumbersome and inefficient process as it relies on paper transactions (forms, documentation and certificates), human interaction, email and applications such as WhatsApp.

[19] https://wwwcdn.imo.org/localresources/en/OurWork/PartnershipsProjects/Documents/GIA-just-in-time-hires.pdf

Figure 5 - Port Call process (source: IMO FAL5.Cir42/Rev 2)



3.2.2.8.a. IMO FAL

122. Special attention should be paid to the IMO FAL mandatory requirements as laid down in the FAL 46 amendments to the Annex to the FAL Convention related to the regulatory data requirements on the arrival, stay and departure of ships in ports, including: (a) General Declaration; (b) Cargo Declaration; (c) Ship's Stores Declaration; (d) Crew's Effects Declaration; (e) Crew List; (f) Passenger List; (g) Dangerous Goods Manifest; (h) the special declaration for postal items as described in the Acts of the Universal Postal Union currently in force; (i) Maritime Declaration of Health as required under the International Health Regulations; (j) Ship Sanitation Control Exemption Certificate or Ship Sanitation Control Certificate or extension as required under Article 39 of the International Health Regulations; (k) Security-related information as required under SOLAS regulation XI-2/9.2.2; (l) Advance electronic cargo information for Customs risk assessment purposes as set out in the WCO's Safe Framework of Standards; and (m) Advanced Notification Form for Waste Delivery to Port Reception Facilities.

3.2.2.8.b. Vessel Clearance

123. The vessel clearance process includes the maritime and port authorities, and border agencies such as Customs, health, immigration, biosecurity and environment, and port terminals. The process could start from the monthly schedule provided by shipping agents either at vessel pre-clearance, or clearance at anchorage or pilot boarding place, or at berth after random boarding and inspection of all required agencies for incoming vessels. The vessel clearance process should require coordinated border management at ports, but this is not a common a practice and is part of the digital divide.

3.2.2.8.c. Port Call

124. The Port Call process is a very important element in a safe and efficient port operation. It consists of a physical execution part, involving the navigation of the ship and the handling of cargo, supplies and services; and a business process part that, among other things, includes the digital transfer of information related to the Port Call.

125. The Port Call business process has two main phases: one related to the contractual part, and one related to the operational part. The contractual phase includes contract information for the sale of goods (bulk) or carriage (container), contract information on hiring ships, and the contract information for hiring the terminal service. The operational phase includes passage planning, berth planning arrival, port planning arrival, vessel and cargo service planning, and port planning departure.

126. A holistic integration of the Port Call is bringing administrative, nautical and operational information and data into the common port environment, including Port Community Systems, Maritime Single Windows, terminal operating systems and others (see other parts of section 3.4 for descriptions of these systems), which will ensure the quality of information provided and delivered.

127. The common Port Call environment includes three types of data as described in Figure 5: (i) Nautical data: data that are provided by hydrographic offices or similar service providers that is used in safe navigation; (ii) Administrative data: data that are submitted by ships or other non-authority parties to authorities based on legislation or regulations; (iii) Operational data: data that are submitted to non-authority parties as part of the planning or execution of certain operations.

128. The Port Call Optimization process introduces the notion of Estimated-Planned-Required-Actual time of arrival and departure, known as ETA, PTA, RTA, ATA, ETD, PTD, RTD, ATD, for all events related to the Port Call to foster Just-in-Time Arrival of ships, increasing the safety, environmental and efficiency of the Port Call.

3.2.2.9 Port Community system processes

129. Port Community Systems provide a public-private data collaboration platform for the orchestration and optimization of inter-organizational business processes; from Port Call, to terminal operations, to hinterland inbound and outbound multimodal logistics, enabling

visibility and predictability in the national supply chain. The highest level of efficiency is achieved when the PCS is implemented as a National PCS; nevertheless, in some countries, the PCS is regional (several cities in the country) or local (only one city or even one port/terminal).

130. The scope of a National PCS could include seaports but also airports, border ports, hinterland inbound and outbound multimodal logistics and corridors. National PCS services could include domain processes for any type of cargo (container, general cargo, bulk, roro) and any mean of transport (sea, air, rail, road, river) such as (a) Cargo Manifest, (b) Shipping Instructions, (c) Temporary Storage and bonded warehouses (d) Container depot, (e) Loading and discharge, (f) Rail Cargo, (d) Barge Cargo, (f) Air Cargo, (g) Container, General Cargo, Bulk and Passenger Terminals, (h) Hinterland Terminal, (i) CFS, (j) Dangerous Goods Service; (k) Authorization Services (l) Inspection Services (m) Track and Trace Services (n) Billing services (o) Data Analytics Services.

3.3. Convergence in Customs and port processes and systems

3.3.1. Opportunity to harmonize processes and systems

131. The opportunity to harmonize processes and implement interoperability between the two authorities' automated systems is related to Maritime Single Windows and Port Community Systems on the one hand, and on the other to Customs management systems on the other.

132. Harmonization and interoperability related to Customs management systems and Maritime Single Windows is related to the vessel clearance, advanced vessel information, coordinated border management, risk management domains.

133. Harmonization and interoperability between the Customs information system and the Port Community System is related to the single submission of logistic and operational data sets, which are required by mandatory regulations from the International Maritime Organization and Customs, such as:

- Cargo information (e.g. manifest, Advance Cargo Information, cargo preclearance, AEO status, tracking and tracing of equipment),
- Ship inventories (e.g. waste, fuel oils, lighting, ballast, dangerous or polluting goods, bunkering, supplies),
- Crew and Passengers,
- Vehicles, including cars, trucks, rail wagons, tanks on board,
- Customs formalities and cargo clearance details (e.g. entry or import SADs, exit Customs declarations, storage declarations.

134. As the Single Window is a common practice, there is an opportunity to build a Single Window Environment[20] together at the national level. Due to the important role of the Customs in the port sector, the implementation of the Cross-Border Regulatory Single Window is in some cases led by Customs, jointly with maritime and port authorities and other relevant border agencies. The Maritime Single Window can be led by the port or maritime authority in cooperation with Customs, and the Port Community System may be led by port or Customs authorities.

135. Within the framework of cooperation between Customs and Port Authorities, the inclusiveness of the Single Window Environment could be used to bridge the duality of Customs and the Maritime Single Window, through interoperability between the Customs Single Window and Port Community Systems, leading to convergence of the Single Window platforms. Beyond the digital systems, joint forces established by Customs and the port authority would be the driving force for establishing coordinated border management for vessels, cargo, crew and passengers.

[20] https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/single-window/compendium/swcompendiumvol1parti.pdf

136. From the process perspective, the Customs – Maritime Single Windows and the Customs Single Window – Port Community Systems could streamline the shared process around the requirement for a Cargo report/manifest submission by carriers or their agents and full trade logistics visibility from vessel to hinterland.

137. The benefits of jointly building a Single Window Environment are obvious. It can promote the reduction in the number of documentary submission, optimization of processes, efficiency improvement and cost reduction in ports and international trade, which is beneficial to both private sector and government regulators, thus contributing to the overall improvement of trade facilitation.

Jamaica Business Case

Overview

As a result of the increasing volumes and complexities of maritime transport in recent years, the need for flexible and efficient means of data exchange has become a key competitive factor. The role of Customs authorities and other logistics partners needs to be supported by a wide range of advance border management and communication tools to provide reliable and cost-effective services to shipping agents, traders and other business interests. Modern logistics chains are therefore demanding efficiency at each step of the process as port and Customs operations are no longer isolated elements.

Jamaica Customs Agency (JCA) made significant strides in furthering its digital agenda towards full automation of services through the acquisition and implementation of the Automated System for Customs Data, ASYCUDA World. This was a major initiative to improve efficiencies and achieve interoperability between Customs, the port authority and the cross-border regulatory agencies (CBRA). The aim is to enhance the country's trade facilitation measures and competitiveness through simplified and efficient means of processing declarations for doing business across Jamaica's borders.

JCA was also keen on reducing its carbon footprint through the reduced use of paper for cargo processing and clearance procedures. Much has been achieved with the implementation of ASYCUDA World; however, JCA observed that a relatively significant amount of paper was still being used to complete cargo clearance. This was especially noted for port-related processes, including issuing Customs releases and gate-in/gate-out formalities. The role of ports, as intermodal and distribution centres, is crucial to the cost and reliability of the whole logistics chain. Shippers and carriers select individual ports based not only on their cargo handling capacity but also on the value-added services being offered.

Inconsistent data and excessive use of paper

In reviewing the previous formalities, it was realized that agents, freight forwarders and consolidators were submitting cargo manifest data to Customs, the port authority, terminal operators and public bonded facilities in both electronic and paper formats for transit, transhipment and clearance formalities. The proliferation of paper and semi-automated services in some instances resulted in inconsistent data and poor quality of service. The detachment and lack of integration between the port and Customs for several intertwined processes for the delivery of international trade gave way to an abusive use of paper as a means of instituting control and for confirmation.

JCA and the Port Authority of Jamaica partnered and facilitated joint discussions with the Shipping Association of Jamaica, which represents terminal operators, public bonded warehouse operators and Customs brokers, with the single objective of increasing efficiency and transparency through the implementation of a Port Community System (PCS). A PCS can be defined as "a facility that allows all parties to lodge standardized information and documents at a single entry point to fulfil all trade and transit-related regulatory requirements".

Cooperation between Jamaica Customs Agency and the Port Authority of Jamaica
In 2016, the Port Authority of Jamaica (PAJ) and Jamaica Customs Agency (JCA) solidified their partnership for the implementation of the Port Community System (PCS) with the Shipping Association of Jamaica (SAJ) as a major stakeholder. The PCS was fully integrated with the Customs ASYCUDA World system with the development of new interfaces to provide a modern and complete trade platform for Jamaica in establishing a single point of submission for all import, export, transit and transhipment manifest data.

In completing the data harmonization to satisfy the requirements for Customs, the terminal operators and public bonded warehouses, new APIs were developed for the seamless integration and exchange of advance maritime cargo information via the PCS. To ensure full compliance with these requirements, the Jamaica PCS was designated an authorized Customs electronic communication system pursuant to Section 206A of Jamaica's Customs Act (as provided by Section 11 of the Customs (Amendment) Act 2014) for the single point of submission of the maritime cargo manifest prior to the arrival and departure of the vessel. The formalization of Electronic Data Interchange fosters compliance and enables a more robust environment for risk assessment prior to the arrival of goods to aid the JCA in facilitating legitimate trade.
The ASYCUDA/PCS integration also includes the real-time transfer of Customs and cross-border regulatory agency approvals to effect clearance at the port or public bonded warehouse facilities.
The PCS is further integrated with each of the Terminal Operating Systems (TOS) of the respective ports for further data exchanges such as loading and discharge details for transhipment and/or transit of domestic cargo, the provision of B2B services such as the trucker appointment system, agent authorization and verification of gate-in/gate-out details.

Benefits to trader and logistics and supply chain
Among the benefits introduced by the implementation of ASYUCDA World in Jamaica, was the standardization of processes and adherence to the Revised Kyoto Convention and the WCO Data Model which enabled consistency in service delivery and predictability of processes to local and international trading partners.
The JCA-PAJ partnership, through the phased implementation of joint services, has realized more reliable and efficient processing of goods at Jamaica's ports. Key benefits include enhanced visibility, predictability and transparency as stakeholders are now able to track/trace the movement of containers and cargo from arrival to departure from terminals. The automation of once manual services has also enhanced oversight, review and decision-making through the use of data analytics to ensure optimal efficiency at all points of interaction within the Customs, CBRA, and port/warehouse operations.

Establishing and maintaining integrated services and a consistent set of requirements has improved the efficiency and the competitive positioning of Jamaica's maritime ports through the reduction of time, cost and complexity.

3.4. Harmonized data requirements

3.4.1. 3.4.1 Harmonization and standardization

138. The capability to interoperate between different systems is a prerequisite for data collaboration. Interoperability enables the orchestration of different processes which are critical to streamline redundancy and overlaps.

139. In the context of the traditional 'silo and self-reliance' approach, cross-border regulatory procedures using non-standard, country-specific and/or agency-specific data are highly inefficient in terms of cost and accuracy, both for government and trade. Regulatory

authorities are required to maintain or develop agency-specific systems in this case, and trade must operate and maintain interfaces to meet these redundant and duplicative reporting requirements. This level of duplication is also evident in non-automated, paper-based systems where trade is required to provide highly redundant forms.

140. The use of international standards in data and messaging with regards to export, import and transit transactions, where the same data and messages can be submitted to all government agencies, including Customs and Port Authorities, is the main foundation of a Single Window Environment.

141. Data harmonization and standardization is a key pillar for both Customs and Port Authorities, engaged with UN Agencies such as IMO and UN/CEFACT. The main standards commonly use are (a) IMO Compendium, (b) WCO Data Model, (c) UN/CEFACT, (d) UN/EDIFACT, (e) ISO, (f) ITPCO, (g) PROTECT, (h) SMDG, and (i) DCSA.

3.4.2. Data compliance with the WCO and IMO reference data models

142. Interoperable digital systems, and unified texting format and contents of the reported data sets, decrease the possibilities of incomplete or inaccurate information being lodged and exchanged with the cross-border regulatory agencies. The WCO Data Model enables timely transmission of "structured, harmonized, standardized and reusable sets of data definitions and electronic messages designed to meet operational and legal requirements of cross-border regulatory agencies (CBRAs), including Customs, which are responsible for management". The WCO Data Model outlines the process of defining, analysing, compiling and aligning a broad range of data elements to achieve thorough harmonization, standardization and implementation of digital information.

143. The IMO - in partnership with the WCO, UNECE, and ISO - has developed the IMO Compendium[21] on Facilitation and Electronic Business that includes an IMO Data Set and an IMO Reference Data Model (IMO RDM). The Compendium provides a common definition and representation for all data elements related to ship reporting requirements, allowing interoperability of standards between stakeholders' information systems. Since July 2019, the IMO Expert Group on Data Harmonization (EGDH) has been responsible for the technical maintenance of the IMO Compendium and for further expanding its data set and data model to areas beyond the FAL Convention, including the exchange of logistics and operational port and shipping data.

144. WCO and IAPH experts are participating in the EGDH. The WCO participation in the EGDH aims at ensuring the alignment of the IMO RDM with the WCO DM. The WCO DM complements the IMO RDM. The IMO RDM is focused on defining and high-level modelling of data requirements pertinent to maritime/ship-to-shore processes, while the WCO DM provides technical layers for implementing the data sets for data exchange solutions using WCO-supported electronic message formats, e.g., XML, OpenAPI, and JSON. To support the implementation of the IMO RDM using the WCO DM, the WCO publishes a Message Implementation Guide (MIG) on the WCO DM App[22].

145. The alignment of the IMO RDM and the WCO DM lays down a robust foundation for interoperability between Customs and Maritime authorities and facilitates the convergence of Customs and the Maritime Single Window.

3.5. Business continuity and cybersecurity

146. As Customs and Port Authority systems converge, a cyberattack on either system may simply stop any transactions at the port. Considering that port is a critical national infrastructure, both authorities team up to ensure to cyber resilience, they should also have a joint and coordinated disaster recovery plan and business continuity plan.

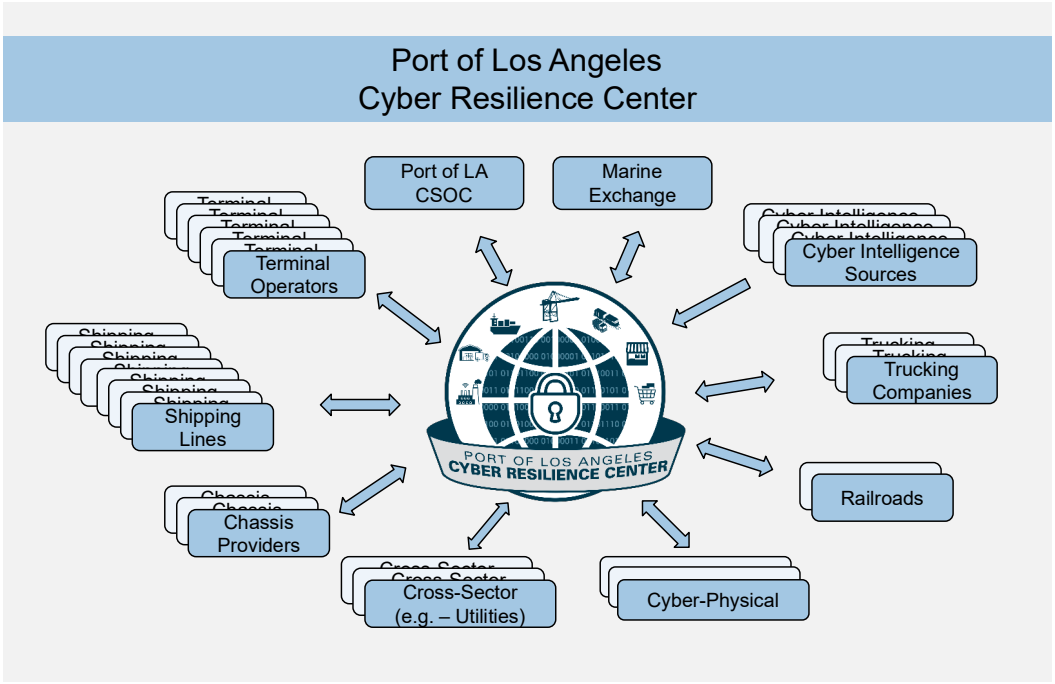
[21] https://www.imo.org/en/OurWork/Facilitation/Pages/IMOCompendium.aspx
[22] https://datamodel.wcoomd.org/#/infopage/mig/imo.mig.v1.0.0 (Login / registration is required)

147. Port authorities have been leading the way since 2016 in moving to cloud services to provide up to 99.99% availability in service level agreements through the Port Community System. Jamaica is one country that has moved its system to cloud services for PCS. In addition, the country has utilized cloud bases disaster recovery, i.e., Disaster Recovery as a Service (DRaaS) to ensure business continuity.

148. As cybersecurity has been ranked the number one risk for port authorities, the IAPH has been working on cybersecurity together with the IMO. In September 2021, it released the first ever cybersecurity Guidelines for Port Authorities and Port Facilities. These have been endorsed by the IMO MSC and FAL committees and included in the Guidelines on Maritime Cyber Risk Management MSC-FAL.1/Circ.3/Rev.2 in June 2022. Digital Port Infrastructure (DPI) is considered to be National Critical Information Infrastructure (CII).

149. In 2021, the Port of Los Angeles launched the first ever Cyber Resilience Center (CRC) to reduce the port-wide risk of a cyber incident that could disrupt the flow of cargo at the Port of Los Angeles. The CRC enables key stakeholders from the Port of Los Angeles ecosystem to share cyber threat indicators and defensive measures with each other to reduce the impacts of a cyber incident experienced by one of the Port's stakeholders and the possibility of such an incident disrupting multiple operations within the Port of Los Angeles. In addition to defensive measures, the CRC serves as an information resource: stakeholders may use to help restore operations following an attack. The CRC receives, analyses and shares information to and from direct stakeholders and cross-sector stakeholders.

Figure 6 - Cyber Resilience Center (source: Port of Los Angeles)



3.6. Innovative technology

150. June 2022 marks the second anniversary of a joint call to action coordinated by the International Association of Ports and Harbors (IAPH) with other industry partners to accelerate digitalization in the maritime supply chain. Raising awareness, avoiding misconceptions, standardizing, and promoting best practices as to how port communities can apply emerging technologies is part of that call to action. Succeeding in putting a smart idea into practice not only accelerates digitalization - more importantly, it can shift port executives' mindsets towards innovation.

151. In June 2022 WCO and WTO issued a study report on disruptive technologies, in which technologies such as blockchain, biometrics and artificial intelligence are considered more than business enablers, they set expectations for Customs clients and change how Customs work. It is essential, however, to focus technological changes on those that are key to an organization's mandate, as otherwise there is a risk of overcommitting. Options for the implementation of emerging technologies must be evaluated based on the services required and the needs of the Organization.

152. The Guidelines on Cooperation between Customs and Port Authorities are an opportunity, as a first step in a series of actions to support cooperation in innovation at Customs and Ports.

3.6.1. Innovation at ports

153. Innovative technologies today offer Customs and Port Authorities an important tool to enhance their efficiency and security in the challenging and constantly changing supply chain domain. For that reason, both sides are increasingly involved in innovation and beginning to test and implement innovative technologies such as AI, IoT, digital twins, drones and 5G, to name a few. The more advanced port authorities already have a dedicated Chief Innovation Officer (CINO) position to speed up the innovation process, while others have just started the process through involvement in hackathons, for instance. It is important to note that innovation is not just about technology, but can be applied to products and services, processes, organizational structures, and business models, with technology enabling innovation rather than being a solution. To encourage innovation, the WCO and WTO together published the WCO/WTO Study Report on Disruptive Technologies, with the second edition launched on 3 October 2022, and in October 2022 the IAPH published "The mindset shift towards innovation," a set of guidance fact sheets for ports.

154. Customs and Port Authorities are already implementing innovation. A few examples are described in this section, but there is almost no example of innovation implementation in Customs<>port authority processes. Innovation can be a fruitful field of cooperation between Customs and Port Authorities helping each other to implement innovation faster and more efficiently while reducing costs. Some of the cooperation opportunities are to perform mutual hackathons, challenges, pilots or proofs of concept, and to share information about various aspects of innovation such as technology, solutions, startups and evaluation results, and finally, to set up mutual innovation hub. The following are a few examples of implementation of innovation by Customs and Port Authorities.

3.6.1.1 Digital Twin

155. Leading port authorities such as Busan, Hamburg, Rotterdam, and Antwerp have been developing and implementing digital twins. As seen in the analogue scale models, the digital twin replicates actual physical assets, with the added functionality of integrating processes, people, systems, and devices. Digital twins have three important characteristics:

- the physical model and corresponding virtual model are connected;
- this connection is established by generating real-time data from multiple sources, using sensors to represent the near real-time status in working condition or position; and

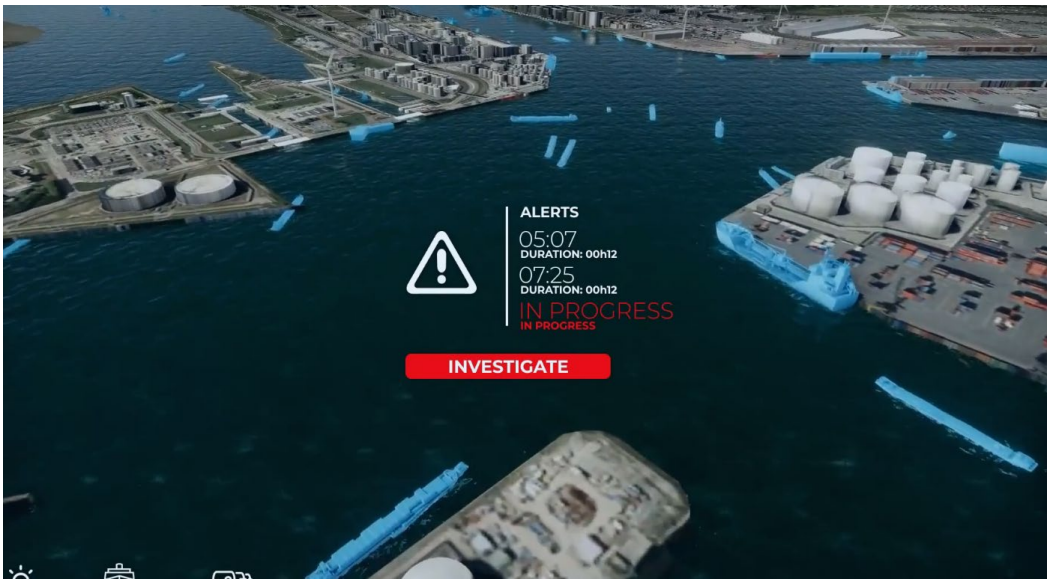
- the digital visualization provides both the elements and the dynamics of how an IoT device operates and lives throughout its life cycle.

156. These digital twin system characteristics can be represented in five technical dimensions:

- Data and analytics - forming the core of the system,
- Visual interface - ranging from simple 2D to full-blown 3D models,
- Simulation and physical modelling - replicating the physical model in detail,
- Situational awareness - providing real time feed on events happening at a certain location,
- Automated systems - ensuring all model processes are automated.

157. Customs and Port Authorities could assess use cases of enabled situational awareness provided by the Digital Twin, such as join inspection by aerial or submarine drones.

Figure 7 - APICA Digital Twin (source: Port of Antwerp)



3.6.1.2 Autonomous underwater robots

158. Realizing that innovation is essential, the Port of Hamburg has developed and implemented "homePORT[23]" as a test area, dubbed a "makerspace", within the port limits to serve as a real maritime laboratory. The Hamburg Port Authority is a partner of the EU-funded SeaClear[24] project which aims to deploy autonomous underwater robots to detect and clear marine litter. The project won in the category "Environmental Care" at the IAPH 2022 Sustainability Awards. Customs and Port Authorities could collaborate on underwater robot use cases in domains such as supply chain security.

3.6.2. Innovation at Customs

3.6.2.1 WCO Study Report on Disruptive Technologies 2019

159. Based on the proposal submitted by the WCO Permanent Technical Committee (PTC) delegates, the Future of Customs topic was launched at the 207th/208th Sessions of the PTC in March 2015. This followed discussions of the role of the PTC, in which it was agreed

[23] https://sustainableworldports.org/project/hamburg-port-authority-homeport/
[24] https://sustainableworldports.org/project/port-of-hamburg-seaclear-project/

that the Committee would take a more active role in discussing strategic matters and future-oriented topics.

160. The March 2015 PTC discussed new and emerging threats, and how these would affect the roles and responsibilities of Customs in the future. The discussions resulted in the establishment of a Virtual Working Group on the Future of Customs (VWG FC) under the PTC, consisting of Customs administrations, the private sector, international organizations and academia. Consequently, and bearing in mind the importance of exploring new and emerging trends for successful policy making, the PTC decided that the Group would, amongst other things, focus on exploring disruptive technologies, which were gradually becoming part of people's lives. The aim was also to take into consideration the interlinkages between the different technologies and to gain a more holistic picture of how they impact or support Customs work.

161. The PTC moved on to the development of the Study Report on Disruptive Technologies, collating all the work already carried out, including papers developed by a number of its members, and, more broadly, bringing together relevant open-source information, as well as the outcomes of discussions in the PTC and other WCO working bodies and meetings, including the WCO IT Conferences.

162. The first version of the Study Report was published in 2019 and had the objective of raising awareness within the Customs community of the latest technologies and their potentials, providing practical examples and case studies, but also sharing some more aspirational and innovative propositions on their use in the future. Bearing in mind the fluidity of the topic, the Study Report is intended to be a living document, to be updated on a regular basis to include lessons learnt and recommendations stemming from ongoing discussions.

3.6.2.2 WCO/WTO Study Report on Disruptive Technologies 2022

163. In early 2021, the WCO partnered with the World Trade Organization (WTO) in the work on disruptive technologies, which resulted in the collection of survey results on the use of disruptive technologies by Customs and the development of a joint paper, "The Role of Advanced Technologies in Cross-border Trade: A Customs Perspective"[25]. During 2021 and 2022, two TECH-CONs and a number of WCO regional workshops on disruptive technologies were held with the aim of further raising awareness of the possibilities these technologies offer in facilitating and better controlling the cross-border movement of goods through the sharing of recommendations and lessons learnt. The results of the survey, the paper, and the regional workshops have been incorporated into the update of the Study Report, which has been carried out jointly by the WCO and the WTO. Lastly, the case studies from the 2019 version were updated, where relevant, or removed if considered redundant. New case studies that describe some of the latest projects using disruptive technologies were provided by Members and other stakeholders and annexed to the Study Report.

164. On 3 October 2022, the Secretary General of the World Customs Organization (WCO), Dr. Kunio Mikuriya, and the Director-General of the World Trade Organization (WTO), Dr. Ngozi Okonjo-Iweala, launched the second edition of the WCO/WTO Study Report on Disruptive Technologies[26].

165. The WCO and the WTO Secretariats jointly presented the key findings of the Study Report. The first part of the Report focuses on seven technologies, namely: blockchain and distributed ledger technology; Internet of Things, big data, data analytics, artificial intelligence (AI) and machine learning (ML); biometrics; drones; virtual, augmented and mixed reality; and 3D printing. The second part includes forty-two case studies from Customs administrations, the private sector, international organizations and other stakeholders. The Study Report also provides recommendations and lessons learnt, as well as WCO and WTO initiatives in this area.

[25] https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/wco-wto-paper/role-of-advanced-tech_en.pdf?la=en

[26] https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/wco-wto-joint-report/wco-wto-study-report-on-disruptive-technologies-en.pdf?db=web

3.6.2.3 Lessons learnt

166. Technologies such as blockchain, biometrics and artificial intelligence are more than business enablers, they set expectations for our stakeholders and change how we work. It is essential, however, to focus technological changes on those that are key to an organization's mandate, as otherwise there is a risk of over-committing.

167. Innovation is key to developing and implementing new technology and can include:

- Reviews of the latest technologies
- Establishing partnerships with the private sector, between countries and with academia
- Considering the global ecosystem
- Keeping people, processes and change management at the forefront.

168. Innovation initiatives require a clear process to properly review and assess the ideas. Some initial ideas will be of low value, unfeasible or already in the works. The process must allow for the appropriate gating and filtering of ideas to allow the "right ones" through to pilot and potentially full production/implementation.

169. The high rate of failure in large, multi-year IT-enabled projects has resulted in organizations moving away from large IT system development and instead selecting technologies that can easily migrate to new hardware in the future. Organizations are looking to aggressively standardize on key platforms by buying the software once and using it multiple times. Furthermore, system dependencies are being decoupled and large monoliths broken down into small sub-systems to allow for scaling, enhancement and re-use of individual components. Where possible, organizations have moved or are moving away from waterfall approaches to project management and towards more rapid prototyping and design thinking. These iterative approaches are focused on understanding the problem from the point of view of all stakeholders, going through many iterations of ideate, build and test.

170. Even though significantly important, Customs is only one of the stakeholders in the supply chain. Digitalization of processes has greatly advanced in the logistics and transportation sector, as well as in the e-commerce domain. Customs administrations can to a large extent not only benefit directly, but also learn about the application of different technologies to ensure that their procedures are more effective and efficient. Furthermore, connecting to already digitalized supply chains with readily available data from reliable sources contributes to greater trade facilitation and compliance, which are both ultimately important objectives of Customs.

3.6.2.4 Recommendations

171. The last chapter of the Study Report on Disruptive Technologies is devoted to recommendations regarding the introduction and scaling up of technologies by Customs. The chart below outlines them briefly:

Table 1 - WCO/WTO Recommendations on Disruptive Technologies (source: WTO)

General observations	• There are tangible benefits to embracing technology • It is not a matter of choice for Customs whether or not to embrace and fully exploit the potential of disruptive technologies and keep abreast with their everyday progress and improvements • There is a need to establish a common understanding of the scope of disruptive technologies in the Customs context • Technology can help Customs complete its work more efficiently and manage trade flows and controls • There is a need to move away from transaction-driven processes and focus on the availability of data • One of the greatest benefits is that technology generates a pool of data (big data) that could be used for better decision-making • The use of technology in Customs should be needs-driven, rather than driven by its availability • Systems developed today should be flexible and future-proof • Customs need to develop a strategy to keep up with the speed at which information technologies are developing • Digital identity issues are important for international trade • Individual country assessments and cost/ benefit analysis should be carried out, as well as pilots and sharing of results
Cooperation	• Other border agencies need to be supported in 'catching up' in the digital transformation process • There is a need to ensure a holistic approach that would examine issues in a cross-cutting manner • There is a need to ensure regular engagement between Customs and the private sector on emerging trends or technologies and their impact on the Customs environment • There is a need for more involvement of the private sector. Close interaction between the different stakeholders involved in international trade from both the public and the private sector side is needed • New public private partnerships and arrangements could be explored, especially in terms of addressing the use of technologies in the e-commerce environment • There should be greater involvement of academia
Standardization	• There is a need to implement existing standards and to fill gaps in standards to address the digital island problem and to ensure interoperability

Legislative work	• A new legal framework may need to be drawn up for the use of new technologies
Awareness raising, capacity building, and IT infrastructure	• Using the latest technologies requires a cultural shift within the administration, not only at management level, but also by other staff • Awareness raising and building digital skills and expertise on the new and emerging trends • Digital infrastructure needs to be further improved in some regions
Experience sharing and joint work	• Holding joint IT conferences, carrying out joint research, pilot projects and jointly developing standards; developing best practices and compendiums would be useful • The WCO working groups should be used as effectively as possible to this effect • There is a need to ensure a holistic approach that would examine issues in a cross-cutting manner • There is a need for further exchanges of experiences through events and shared platforms

3.6.2.5 Case studies on innovative solutions

172. The second part of the Study Report on Disruptive Technologies contains case studies provided by WCO Members with some success stories in application of advanced technologies for different purposes, including risk management, surveillance, trade facilitation, mutual recognition of Authorized Economic Operator programmes between WCO Members, etc.

173. In the context of Customs and Ports, there are a few cases that could be interesting for both sides.

174. For instance, Italian Customs shared their experience on a special project for the digitalization of Customs procedures in national ports, the example of the Port of Bari. The project aims at the complete digitalization of Customs procedures in Italian ports for goods transported by both rail and road, and involves all the main institutional bodies in the port sector. The project is based on the logic of the Internet of Things, that is, the extension of the Internet to the world of objects.

175. Another case was provided by Dubai Customs, where drones are used for surveillance of suspicious activity and inspection of trade vessels in Dubai Creek. Additionally, Dubai Customs has launched a new sophisticated smart inspection device that features 3D CT scanning as part of its ongoing efforts to keep abreast with the latest technologies.

176. Another example is from Port of Rotterdam International, describing the Quay Connect project developed in collaboration between the Port of Rotterdam Authority, Blocklab, Azarc and the operator of CCS-UK, British Telecom. Built on the Naviporta platform, Quay Connect provides a seamless and direct interaction between the system of the exporter, the Dutch Port Community System (PCS) 'Portbase' and the UK Cargo Community System (CCS). CCS connects the various members of the cargo community in a digital and distributed way. This community includes not only HMRC (UK Customs), but also freight forwarders, importers, and hauliers. All this together ensures secure, reliable, and fast verification of information, thereby creating a seamless and fully automated flow of information between all parties involved, resulting in considerable savings in both time and money.

Australia Business Case

Overview

Successful cooperation with industry through Operation TIN CAN

Operation TIN CAN was an international multi-regional operation led by the World Customs Organization (WCO) with the strategic objective of enhancing cooperation with industry. The four-week operation's execution phase, including industry soft start and close, took place between 4 November and 14 December 2022. The operation looked to enhance cooperation with all operators in the supply chain including Customs agencies, ports, law enforcement, and shipping lines. Australia was one of 58 participating countries and had Customs officers embedded in both the Operational Coordination Unit (OCU) as well as key participating ports. Australia's experience with TIN CAN highlighted how critical cooperation with industry is to effective control of supply chains.

TIN CAN was focused on targeting cocaine trafficking using the rip methodology, which requires criminal infiltration of the supply chain by using trusted insiders to facilitate the access and movement of goods from the departure country, through transit countries, to the final destination.

TIN CAN was designed specifically to address the contemporary and growing issue of internal conspirators and insider threats and how they benefit criminal organizations seeking to infiltrate and operate illegitimately within global cargo supply chains. Whilst insider conspirators do also operate from within government and regulatory agencies, the operation focused on the external operating environment to understand how Customs can work with the private sector supply chain.

A significant portion of the operational successes was made possible through cooperation with industry and the testing of emerging container security technology. Cooperation with industry is not new to Customs administrations, but that cooperation has often focused on trade facilitation initiatives. Operation TIN CAN enabled industry and Customs administrations to work together on a compliance and enforcement activity.

TIN CAN highlighted the limited effectiveness of current standard traditional container seals in stopping interference and contamination of sea cargo containers. The demonstration of emerging technology, such as the container intrusion technology and smart seals, trialled during TIN CAN could go towards setting new global international industry standards related to the integrity of containerized cargo and hardening the supply chain from criminal infiltration.

One of the key components of the operation was to provide the participating shipping lines with a central contact point for their referrals, and the confidence that their referral will be handled efficiently and confidentially respecting the "need to know" principles. Early analysis of the findings identifies the importance of each Customs administration establishing enduring and trusting relationships with their local shipping line representatives in every port. The TIN CAN Report articulates this outcome in more detail.
Technological advancements in container security will continue to mutually benefit both industry and Customs administrations and with the growing risk of insider threats, strong relationships between ports and Customs remain key to addressing these risks.

Operational trials of emerging container security technology

TIN CAN showed that a controlled and managed operational environment to test emerging container security technology benefits both Customs administrations and industry. The examples below are to illustrate the benefits of cooperation and not necessarily to advocate for a particular type of technology. The intent of TIN CAN was to gain a greater understanding of industry technology and the evolution of smart container capabilities and e-seals.

Testing drug detection technology

A Customs officer embedded in the TIN CAN Operational Coordination Unit (OCU) observed a successful trial of a vapour detection technology alongside a TIN CAN participating Customs administration. The non-intrusive inspection vapour detection technology detects air particles contaminated by illicit substances. The technology is not limited to sea cargo and can be utilized in various frontline operating environments. The first test was conducted on a container from a high-risk port containing cassava. The X-ray image showed no anomalies but, based on the TIN CAN risk indicators, the container was tested with the vapour detection equipment. Successfully, 44 kilograms of cocaine was located underneath the cassava concealed within selected boxes. Without the positive result from the vapour detection technology, it is unlikely this detection would have been made. The trial continued over the course of TIN CAN and the outcomes were included in the final report.

The technology extracts air and detects particles and volatiles associated with an illicit substance that has been included in the vapour library. This non-intrusive inspection technology works by inserting a small tube, which contains a sample trap, between the container doors to extract a sample of the container air. The sample trap is then removed from the tube and inserted into the main device for reading analysis, displaying the results in 120 seconds.

The technology is promising and could be utilized to assess a high volume of containers on the wharf and refer those with a positive result from the technology to a Container Examination Facility for a more detailed assessment and examination of goods.

Testing container integrity technology

Industry continues to develop technologies to improve container security. One company has developed a device that can be placed on shipping containers turning them into ‘smart containers’. The device tested using TIN CAN uses GPS location data along with light and motion sensors to detect container door openings to improve supply chain and asset management. Currently under trial, this smart container device was initially created to provide complete visibility of containers – an advanced track and trace capability. The capability has evolved into an advanced security measure to monitor unauthorized access to containers. To support TIN CAN, shipping lines pre-positioned shipping containers enabled with the smart devices to high-risk ports known for rips. The OCU then managed alerts from industry on containers that had unexpected door openings which is a strong indicator of unauthorized access – a rip.

Container alerts were reported to the OCU and were considered suspicious due to unexpected container door openings. Although this does not confirm contamination or a rip taking place, it cannot be discounted without the confirmation of a Customs inspection.
The OCU worked closely with the TIN CAN national contact points globally at the port of discharge for each container to assess the integrity of the container and advise outcomes of the referrals. A small number of containers were also reported as having highly suspicious door openings which were already on-board vessels and on the water. These containers were all referred to be examined at the point of transhipments or the port of discharge, coordinated through the OCU. The capability is always ‘live’ and active, including at stuffing locations, en route to the port of loading, on the vessel and at any transhipment ports during its voyage. These are the most vulnerable time for a rip-on to occur (the term ‘RIP-on’ refers to when illicit goods are placed in the container). The TIN CAN experience with this smart container technology confirmed that the technology is effective, and continued engagement with Customs and law enforcement will improve the effectiveness of the technology.

Testing smart seal technology

Similar to the container integrity technology, industry has developed a patented electronic smart seal technology that can detect both seal tampering and container door openings via a specially designed latch mechanism that transmits alerts to a software application. An OCU Customs officer observed a trial of this technology during Operation TIN CAN and noted its accuracy. The technology could confirm when a seal was removed from the latch of a container, regardless of whether the door was opened or not. This type of technology may be an effective alternative to relying largely on manual assessment of seal integrity as the catalyst for rip activity.

Additionally, a number of Radio-Frequency Identification (RFID) seals were used and tested in containers from TIN CAN participating countries. These RFID seals appear as regular bolt seals with the RFID embedded within (non-visible). With a purpose-built mobile phone application, the mobile phone is utilized to scan the Quick Response (QR) code of the seal, with the mobile phone application confirming if the seal is legitimate. This type of seal has been developed in an attempt to eliminate the possibility of cloned seals which are often used by crime groups using the rip methodology. It is expected that by a simple QR code, authorities can verify the legitimacy of a seal and discount the threat of a rip.

3.6.2.6 WCO Data Strategy

177. Data is essential for both Customs and Ports to ensure they perform their missions efficiently, formulate strategies, improve the quality of enforcement and revenue collection, and optimize allocation of resources. Moreover, as far as governments are concerned, disseminating data and statistics meets the objective of more open governance.

178. From the Customs perspective the transition to a data-driven organization requires new skills, processes and infrastructure. It raises specific policy, legal and ethical issues. Although all WCO Members have a wealth of data, there is a risk of a “data divide” between a small number of Members who are already implementing data strategies, and the vast majority of Members who currently lack the internal capacity and external support to benefit from innovations in the data domain.

179. On the other hand ,it is not enough to just have data - Customs needs a strategy in place to realize the data’s value and to bring to bear meaningful outcomes aligned with respective goals. A data strategy enables any organization to be innovative, data users to be effective, and the business to be competitive.

180. In this light, since September 2021 the WCO Secretariat has been working on a Data Strategy to respond to four challenges listed below.

Table 2 - 4 WCO challenges related to Data Strategy (source: WCO)

181. To respond to these challenges, the WCO Data Strategy aims to build an international Customs data ecosystem, connecting administrations, technologies, infrastructure, Customs experts, academics and technology companies. The building of this ecosystem is structured around three building blocks, namely:

- data sharing;
- creating communities of practitioners;
- assistance to Members with their transition to data-driven organizations.

182. In June 2022, the Council adopted the WCO Data Strategy. Moreover, the WCO established a new Working Group on Data and Statistics whose objectives are to:

- improve Customs statistics through new definitions, standards and methods;
- enhance knowledge of and provide guidance on data governance and analytics in Customs administrations;
- provide guidance and recommendations on the implementation and evolution of the WCO Data Strategy;
- make the WCO part of the global statistical community and of global initiatives on data related to trade, taxation and security.

183. This group will be responsible for ensuring the consistency and priority of the initiatives and their implementation according to Members' needs, in connection with the work of other WCO working bodies.

184. All these actions were taken so that the implementation of the Strategy would be progressive and ensure that all data initiatives converged and were connected to a single working body.

185. The WCO fully acknowledges that the ultimate goal of a data strategy is to answer the question of how Customs can leverage data in support of making business decisions, and to build a plan that weaves the role of people, processes, and technology to make it a reality.

3.6.3. The Joint Customs – port data collaboration strategy

186. For Customs and Ports creating a successful data strategy requires leaders to take a deliberate and objective look at the common goals through the lens of data and anticipate what needs to happen to bring about specific objectives two administrations have defined.

187. Data collaboration[27] between Customs and Port Authorities is also part of the data strategy that may develop into a formal document that would ease the process and determine the steps that need to be taken for the successful collaboration. The document that formalizes this approach could be called the 'Joint Customs – port data collaboration strategy'.

188. A data collaboration strategy is the potential way to optimize higher-level relevant data, generating more robust data and analytics to solve common challenges and meet the goals of both authorities.

189. The data collaboration strategy involves moving from the fears of data sharing towards the five principles of data collaboration to build trust for a common agenda: (i) engage stakeholders, (ii) data governance, (iii) orchestrating data, (iv) change management, (v) long term financial sustainability.

3.6.3.1 Steps to implement the Joint Customs – port data collaboration strategy

3.6.3.1.a. Establish trust-based mechanisms

190. To achieve common goals from the data collected by Customs and Ports, both authorities need to introduce trust throughout the data collaboration process. It is crucial that organizations are confident about their own data sources so that they can rely on them and pass the data on to each other.

191. It is recommended to dedicate specific unit/staff from both sides that could be responsible for this process. Their responsibilities could cover:

- determination of data collaboration elements;
- clear understanding of the purpose of application of the data collaboration elements;
- verification of data security/confidentiality obligations of each authority before agreeing on a data set for collaboration;
- constant communication to ensure that the data set for collaboration is up-to-date and amend it accordingly, if and when necessary.

3.6.3.1.b. Foster a data-collaboration approach instead of a data-ownership approach

192. Communication is a key element to move towards data collaboration[28]. A holistic approach should be required to establish data collaboration in order to break the ice between siloed public agencies by removing barriers such as lack of trust, technology, operational and governance issues, to create in a first instance a common understanding of data collaboration by balancing the value and risk dimensions of data collaboration and strengthening trust in a second instance,

193. The value of data collaboration ranges from the discovery of a new creative thinking, enabled decision-making, predictive forecasting, optimized business process efficiency and orchestration, and smart Customs and Ports emerging through technological innovation, while the risks of data collaboration range from commercial risks, regulatory risks and cybersecurity risks to privacy risks.

194. Collaboration can be also applied in light of cooperation between Customs and Ports where data collaboration plays a critical role.

195. Improving data literacy throughout both authorities is another critical part of the implementation of data strategy. The immediate benefit is giving employees the skills they

[27] https://www.weforum.org/reports/data-collaboration-for-the-common-good-enabling-trust-and-innovation-through-public-private-partnerships/

need to make data-driven decisions and eventually to fulfil digital transformation efforts and other strategic objectives.

3.6.3.1.c. Draft joint implementation roadmap, including communication plan

196. The implementation roadmap shows an action plan for all prioritized goals agreed by two authorities to accomplish through the strategy. Apart from indicating the timeline and actions, there should be also an opportunity for transformation, noting that a data strategy should remain flexible to take account of changes that will constantly arise during the implementation process.

4

Enhancing supply chain security and resilience

4. Enhancing supply chain security and resilience

4.1. Aligning Customs AEO and IMO ISPS Code security programmes

197. To secure the supply chains, both Customs and Port Authorities are committed to following a set of international standards endorsed by respected Members. Since 2019, the WCO and IMO have engaged in and carried out preliminary mapping of the two programmes. They found that while there were differences between these two systems, there were also many similarities, and the systems could be aligned and thus avoid potential duplications, reduce costs, and ensure optimal utilization while maintaining the integrity of supply chain security.

198. The Customs and Port Authorities were encouraged to consider promoting alignment and synergies between both supply chain security programmes. This should ultimately lead to simplification of procedures and the eradication of duplicative security requirements and controls, to the benefit of authorities and industry.

199. The objective of the alignment step is to assist Customs and Port Authorities that may wish to assess the similarities of their AEO and ISPS Code programmes and consider further aligning them to enhance effectiveness and efficiency, thus reducing compliance costs while maintaining supply chain security.

4.1.1. Process to align supply chain security programmes

200. The following steps are recommended when commencing a process to align Customs and ISPS Code security programmes.

4.1.1.1 Step 1: Ensure there is political will and executive commitment for the alignment

201. An alignment process takes time and resources, and changes in legislation may be necessary. This can only be done if there is the political will to do so, from both the Customs and Ports perspectives. Both authorities need to be equally involved not only at the political level, but also at the management and technical expert levels.

202. The authorities involved may consider formally recording their expressed intentions and the arrangements made, for instance in a written agreement, memorandum of understanding or exchange of letters.

4.1.1.2 Step 2: Establish a project team, define a reasonable and workable timeline and agree on deliverables

203. Any Members who would like to align their Customs and ISPS Code security programmes should ensure that their respective programmes are compliant with the WCO SAFE FoS and the IMO's ISPS Code, respectively.

204. The project team should consist of experts from both the Customs and the port authorities. The experts should be knowledgeable on every aspect of AEO and ISPS, respectively, including the approval process, security requirements and oversight mechanisms. Depending on how the authorities are organized, experts from different branches (e.g. both policy and operational experts) may need to be included.

205. An agreed timeline and deliverables will contribute to streamlining the process.

4.1.1.3 Step 3: Exchange legislation and gain understanding of each other's processes

206. The comparison and assessment (see steps 4 and 5) of both programmes are key elements of the alignment process. For this to be carried out, exchange of all relevant national and international legislation is essential.

207. To ensure understanding of the legislation and the relevant processes, the members of the project team may give presentations on their own field of expertise and invite the other experts to join onsite audits or verifications.

208. At this stage, the project team may also involve representatives of industry associations, as well as some already accredited AEOs and port operators who are compliant with the ISPS code. The experience of entities who participate in both secure supply chain programmes may be beneficial in understanding them and can provide useful insights into how alignment could benefit the industry.

4.1.1.4 Step 4: Conduct a paper comparison of the legislation

209. By using a comparison table, the national legislation relevant to both programmes can be assessed. The comparison should cover the complete array of requirements for entities who want to become an AEO, or a secured port operator. This includes:

    a. The remit and coverage of the two programmes (e.g. which operations are covered);

    b. The requirements an entity should meet before its application will be considered by the authority (e.g. holder of a VAT number, certain type of operations);

    c. The documents an entity should submit to the authority (e.g. application form, self-assessment, security programme);

    d. Past period for which documents are required;

    e. The security requirements that should be met (security of premises, storage and adjacent areas; access controls; cargo, conveyances and logistics security; trusted business partners and trade relationships; secured outsourced activities; personnel vetting, educational training and security awareness; documents, data and data storage security);

    f. How the authority ensures that the requirements are met (e.g. review of documents, examination of premises);

    g. The validity period of an approval;

    h. Monitoring and oversight activities during the approval period;

    i. Revalidation process;

    j. Appeal procedure; and

    k. The conditions under which an approval can be suspended or revoked.

210. The comparison can be conducted in two ways. The first option is to take the requirements of one programme as the starting point and compare the requirements of the other programme against it. In that case, it should be ensured that all the requirements of the other programme are considered as well and not only those that exist in the first programme. The second option is to compare both programmes against a predefined set of elements based on the respective WCO and IMO standards and requirements.

211. When carrying out the comparison, attention should be paid to the fact that similar requirements may be worded differently in both programmes and that similar wording may have different meanings.

4.1.1.5 Step 5: Assess the compatibility of both programmes

212. The review gives clarity as to which requirements exist in each national programme. With this information, an assessment can be made of the similarities and differences in both programmes and whether any differences would or could be a barrier to aligning the programmes.

213. The assessment should not be made on the programmes as a whole but focus on single elements. This will benefit the decision-making for which form of alignment can be established. It is advised not to simply note the outcome of the assessment but include the reasoning behind it as well.

214. The following conclusions may be drawn for each element:

- Both programmes have similar requirements;

- The requirements in both programmes differ, but this is likely no obstacle to alignment; and
- The requirements in both programmes differ and this is likely an obstacle to alignment.

4.1.1.6 Step 6: Confirm the assessment by conducting a practical comparison

215. Theory and practice may not always be in line, or elements of the paper comparison may have been misunderstood. It is therefore recommended to confirm the assessment by conducting a practical comparison in the form of a joint validation exercise.

216. The combined project team could jointly visit an entity that is both an AEO and a port operator to verify its findings. The project team may also choose to involve industry associations directly in the verification process, and make use of their experiences and expertise.

217. Where necessary, the review and/or assessment should be adjusted.

4.1.1.7 Step 7: Establish conclusions on possible ways of alignment and seek political support

218. Based on the assessment, the project team concludes which types of alignment are possible, which are desirable and what is needed to achieve alignment. This may include changes in legislation, guidance documents, procedures, documentary requirements, application forms, etc.

219. A very likely conclusion is that both programmes are compatible in such a way that Customs authorities may accept the on-site validations carried out by port authorities and vice versa. This principle has already been laid down in the ISPS Code and the WCO's SAFE FoS.

220. There may be also other ways in which the Customs AEO and the ISPS Code programmes can be aligned. Possible areas for alignment are:

- Application procedures
  - Both authorities inform each other of new applications
  - Application forms are aligned
  - A Single Window approach is adopted, through which one application can be made for both programmes
  - A core module security programme is developed
- Documentary validation
  - Exchange of relevant information/data on the applicant, its organizational structure and risk factors
- On-site validation
  - On-site validation activities are coordinated
  - On-site validation activities are undertaken jointly
- Approval procedures
  - Mutual recognition of assessment results
  - Mutual access to respective databases
- Monitoring of existing approvals
  - Results of oversight and monitoring activities are shared
  - The schedules for on-site visits are coordinated
  - Monitoring activities are undertaken jointly
  - Information on suspension, revocation or withdrawal of a status is shared

- Communication and public relations
    - Websites are updated to include the same type of information and to include reference to the other programme
    - Organization of joint information or training sessions for industry.

4.1.1.8 Step 8: Change legislation, regulations and/or programmes

221. Depending on the outcomes of the assessment and the decisions made on alignment, changes to legislation, regulations and/or programmes may be required. This could include changes in:

- primary legislation
- secondary legislation
- the national security programme
- guidance documents
- training programmes
- websites
- forms, and
- report formats.

222. While changes in secondary legislation or programmes can often be established in quite a short time, changes in formal laws may take more time as they often involve a parliamentary approval process. If it is necessary to change primary legislation it may be considered if changes in secondary legislation or programmes can be used in the meantime to temporarily establish a less far-reaching form of alignment.

4.1.1.9 Step 9: Inform industry about the legal changes

223. Before the new situation comes into effect, it is critical to inform the maritime supply chain industry and to consult with them with respect to possible upcoming changes. Depending on the number of entities affected and the impact of the changes, authorities have different options on how to do so, which can be used alongside each other:

- Informing entities through a letter, email or other forms of electronic communications;
- Informing entities via email and by publishing new information on a website or trade portal;
- Providing information when entities request or renew a status; and
- Organizing workshops.

224. Authorities may also wish to inform those states with which they have one-stop security agreements, or other related agreements.

4.2. Coordinated risk management

4.2.1. Risk management philosophy for Customs and Ports

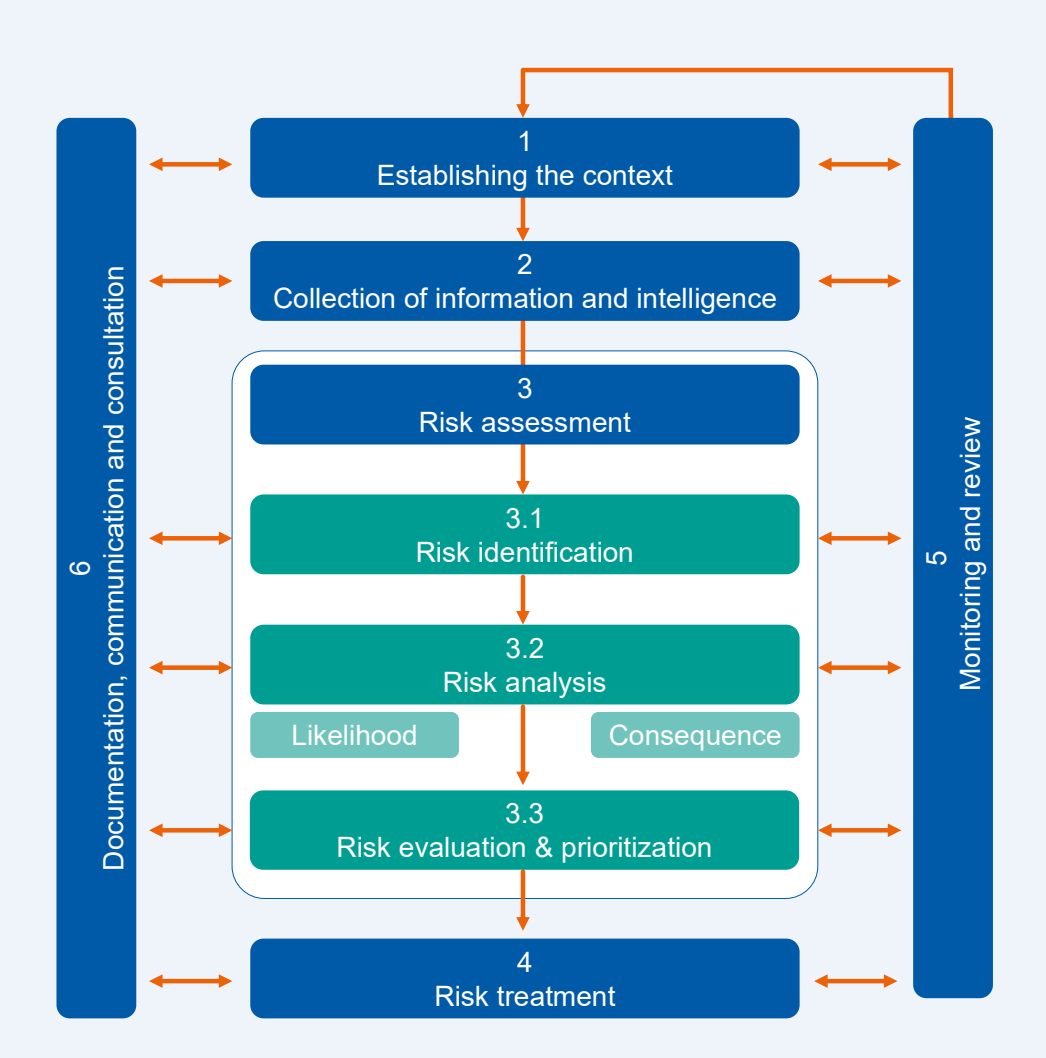
4.2.1.1 Customs

225. Ensuring a balance between the sometimes contradictory missions of Customs, such as trade facilitation, protection of society and revenue collection, has become possible only through the consistent application of a risk management system.

226. Risk management can be defined as coordinated activities by administrations to direct and control risk (WCO Risk Management Compendium). It will be true to say that nowadays each Customs administration implements some form of risk management, either formal or informal, in their activities.

227. The majority of WCO Members establish and maintain a comprehensive risk management process according to the diagram below:

Figure 8 - Risk management process (source: WCO)



228. Depending on its missions and objectives, each Customs administration determines own risk criteria that can also change and be adjusted over time. However, there are a number of risks that can be generally specified, such as: safety and security risks, financial risks, risk related to prohibitions, restrictions, and infringements of commercial policies, infringements of intellectual property rights, illegal trafficking of goods and commodities, and the risk of money laundering.

4.2.1.2 Ports

229. World trade increasingly relies on longer, larger and more complex port systems, where maritime transportation is a vital backbone of such operations. Non-compliant Port systems are more prone to risk. Many specific methods have been found to assess risk and safety in a port area or operation.

230. Port risk assessment should be based on the unique parameters of the vessel, cargo and port dynamics, including cross reference against the latest intelligence reporting, historical and contextual data, weather patterns and routing nuances.

231. The structure of the port risk assessment below is very similar to the Customs risk management process.

Step	Step Feature	Step Content
0	System Identification	Port; Container Terminal
1	Risk Identification	What can go wrong and which port functions/capabilities should be protected
2	Risk Assessment	Investigation/quantification of most important port risks
3	Risk Control Options	Measures to mitigate the most important port risks and measures to restore port functions/capabilities
4	Cost/Benefit Assessment	Cost/benefit assessment of port risk control measures
5	Decision-making	Recommendation and feedback to assessment – Port Risk Index

Table 3 - Petros L.Pallis/Transportation Research Procedia 25(2017) 4411-4421 (source: WCO)

232. This demonstrates that Customs and Ports can achieve coordinated risk mitigation actions without altering the general approaches of either of the parties.

4.2.1.3 Customs-port networking

233. Standard 2.1.3 of the WCO SAFE Framework of Standards advocates that Customs should establish mutual cooperation with the maritime authorities (including inland waterways) and port security authorities, which makes sense from various perspectives.

234. In reality, both Customs and Ports face the same dilemma – increasing volumes of maritime traffic – without any corresponding increase in resources. Moreover, Customs and Port Authorities may also have a number of common potential threats. Another issue is that the private sector/businesses (including shipping lines) in some cases need to submit the same documents requested by both Customs and Ports.

235. Coordinated risk management is a potential solution to the challenges that the maritime supply chain presents, especially with respect to efficient and effective border management.

4.2.1.3.a. Memoranda of Understanding

236. To achieve such a sophisticated approach, political will is necessary from both parties to agree on cooperation. Agreements in the area of coordinated risk management between Customs and Ports can best be formalized in so-called memoranda of understanding (MoU). MoU can be much broader in context, going beyond joint risk management, and cover all elements of the strategic partnership. Nevertheless, even in that case, coordinated risk management should be an integral part of such agreement. Another important point that needs to be considered and marked within this agreement is information exchange. Wider, closer and mutually complementary information sharing between Customs and Ports increases recognition of existing risks at the border.

4.2.1.3.b. Cooperation strategy

237. As a next step, Customs and Ports can develop cooperation strategies to establish coordinated risk management systems which will be beneficial to actors involved in port supply chains. This approach does not necessarily imply a single automated risk management system or platform. According to the SAFE Framework of Standards, cooperation may include the alignment between AEO programmes and the ISPS Code with regards to areas such as the initial security assessment procedure, exchange of available and appropriate information, and, where possible, alignment of compliance controls and follow-up activities.

4.2.1.3.c. Joint investigation and/or examination

238. There is added value in creating joint investigation and/or examination teams that can be set up for a fixed or indefinite period and a specific purpose or longer, depending on the terms of high-level agreements. Through joint investigations and/or examination and operations, Customs and Ports can better target and mitigate common risks in order to disrupt criminal networks and avoid work duplication whilst increasing efficiency.

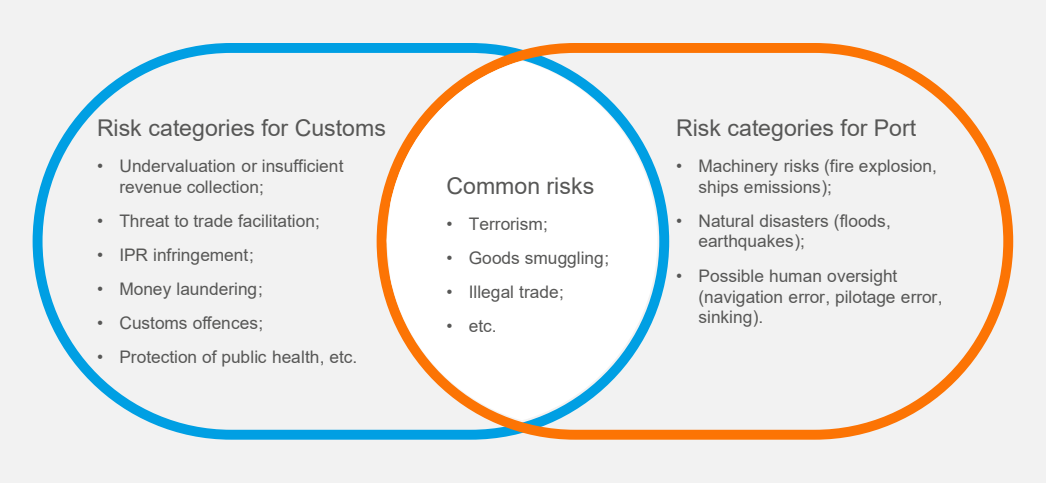
4.2.1.3.d. Risk assessment/targeting centres

239. A growing number of Customs administrations have been reorganizing their control functions, resulting in the establishment of specific risk assessment/targeting centres. Such centres could take into account the information provided by the port authority to enhance their risk assessment. This enables better planning, coordination and response actions and may generally contribute towards a more efficient and cost-effective border management.

4.2.1.3.e. Common risk indicators and/or risk profiles

240. It goes without saying that Customs and Ports have different mandates and functions which determine, among other things, risk indicators for certain profiles. Nevertheless, for both services security (including combatting terrorism, smuggling, illegal trade, etc.) is key. In this case, the two sides can join forces by developing and establishing common risk indicators.

Figure 9 - Risk Categories at Customs and Ports (source: WCO)



241. A shared risk register for certain risk areas could also provide the opportunity to come to agreements, allocate responsibility for action and trigger monitoring. A shared risk register ensures comprehensive understanding for both Customs and Ports of risks to implementation and enables a joint approach to managing risks. Clarity on who is responsible for, and manages, which risks is also essential.

4.2.1.3.f. Joint review of common risks

242. Making sure that risk management activities are monitored and reviewed and that results are fed back to the policy level assists in ensuring that risk management remains effective in the long term.

243. It is highly recommended to have joint risk-review meetings, as an integral part of performance management arrangements. Such meetings may be flexible in frequency, for example, once in a month, every quarter, every six months, etc.

4.2.1.3.g. Benefits

244. Coordinated risk management can prevent Customs and Ports from wasting scarce resources in an attempt to identify and mitigate risks. Cooperation benefits lead to strategic alliances between both authorities premised on the belief that seamless customer service does not require ownership of all the assets and results from targeting risks that accept cooperative behaviour.

4.3. Advance cargo and vessel information

4.3.1. Methodology

METHODOLOGY OF INTERACTION BETWEEN CUSTOMS ADMINISTRATIONS AND PROVIDERS OF PORT SERVICES IN THE DIGITAL TRANSMISSION OF ADVANCE CARGO INFORMATION

245. The Guidelines on Cooperation between Customs and Port Authorities strategy to enact the main principles of sustainable cooperation between the Customs administration and port community is embedded in an adequate and efficient model of digital transmission and simultaneous exchange of maritime cargo information, and in particular electronic Advance Cargo Information (eACI).

4.3.1.1 Application of Advance Cargo Information - priorities and advantages of the use of electronic Advance Cargo Information.

246. The risk management model is upheld as an ingenious Customs model for efficient and effective control of international supply chains. However, the genius of this intelligent technique depends on a wide range of complex actions. In turn, these actions rely heavily on quality cargo information submitted in advance of the arrival or departure of ships and consignments - Advance Cargo Information (ACI).

247. For risk assessment purposes, ACI enables Customs risk management to identify and address high-risk consignments and conveyances in an appropriate and consistent way, scrutinizing security and safety standards. On the basis of complete, credible and accurate pre-arrival information Customs should be able to:

- undertake informed and reasoned decisions on controls, including documentary, intrusive or non-intrusive controls;
- concentrate efforts and resources on consignments with higher levels of risk;
- respond to new emerging threats or collateral security uncertainties;
- react adequately to various and divergent risks;
- convey transparency and predictability when enforcing trade policies, restrictive or prohibitive measures, as well as interdictions, or financial penalties.

248. Stemming from this, Customs should be able to correlate the risk within accepted standard levels and with a minimum of errors. Reduced risk occurrence results in further sustainability and resilience of international supply chains, adding effect to trade facilitation. Conversely, unreliable Advance Cargo Information would undermine the objectivity of risk targeting while leaving the genuine risk without a proper response and thus endangering the security and safety of the maritime supply chains. Inaccurate or incomplete information would compromise the risk assessment, generating redundant inspection rates and further causing unwanted obstructions and disruptions in maritime trade.

249. For the port operators and providers of port services the benefits are derived from:

- coordinated interactions between the port communities and law enforcement agencies in aligning their common objectives for security standards and trade efficiency;
- optimized levels of controls, expeditious border procedures;
- reduced tension and predicted availability of equipment and resources for port operations, port stuffing sites and terminals, saving of human resources;
- trusted partnerships with both parties - business and institutions;
- acknowledged port performance ratings, gained opportunities for development.

250. For economic operators, the advantages of ACI are witnessed in direct and indirect gains: improved business continuity, reduced costs, faster clearance times, simplified Customs

formalities, predictable delivery times to destinations, and confident and trustworthy communication with the border regulatory institutions.

4.3.1.2 Preliminary ACI methods adopted

251. ACI submission is a compulsory obligation stemming from the international requirements of the Convention on Facilitation of International Maritime Traffic (FAL Convention), WCO SAFE Framework of Standards (SAFE FoS) and the WCO Data Model (WCO DM). These contracting countries to both organizations - WCO and IAPH – abide by these legal requirements. Nevertheless, the methods of adoption, application and interoperability vary between the different countries. They are determined to a great extent by the port's specific location, international transport connections, and volume of traffic, and are also broadly determined by economic factors, and social and cultural identities. The viable solution depends on the specific circumstances in every country. Priority needs to be given to the appropriate approach in compliance with the national legislation enacted, specific administrative measures and restrictions.

252. Considering the specificities of Advance Cargo Information as related to maritime transport, multiple methods are available for the provision of the required ACI. The broad concept is a unilateral digital environment - the Maritime Single Window - which is a digital platform laying down the foundations of Coordinated Border Management and controls in terms of connecting all organizations present at the border, government or private, by compiling data in a standardized manner, thus ensuring the proper enforcement of and compliance to national and international legislative requirements. The MSW is a conceptual part of the Coordinated Border Management Model. Once submitted through a single point of entry, the data is accessible and can be processed and disseminated to the relevant authorities and providers of port services. The MSW platform collects, accumulates and archives general information for vessels, and FAL forms for Port Calls (FAL Convention). Its function is to exchange information in real time to reinforce interactions between Customs, ports and trusted economic operators and further promote maritime transport relations and the associated trade.

253. ACI is declared by electronic means. ACI data elements are extracted from the content of the cargo manifests or bills of lading accompanying the shipment. Technically, to comply with the standardized and harmonized requirements of the digital MSW environment, the data elements have to be checked and adjusted. It should be noted that comprehensive, legible and accurate eACI means that the information in the carrier's cargo manifest should correspond in full to the information provided by the shipper or its agent, to match the risk analysis processing.

254. Electronic ACI provision is inherently the responsibility of the transport operators - shipping lines, agents, forwarders, holders of the goods or the legal holders of the cargo. Customs, port operators and stakeholders are required to exchange the data related to their functions, while protecting the information shared in line with data privacy requirements. Confidential commercial or security sensitive information is not to be disclosed to third parties without explicit permission. The authorized users are obliged to preserve and protect the shared cargo information.

4.3.1.3 Information related to the cargo manifests and bills of ladings (carrier bills of lading)

255. Cargo manifests usually contain pre-arrival information that is essential to risk management. As they contain confidential commercial information, or information that may be sensitive from the security aspect, access to the documents is restricted to the law enforcement agencies, the shipping lines or their agents, and the legal holders of goods. Cargo manifests shall not be disclosed to third parties. Despite these precautions, cargo manifests frequently contain minimal data from the source related to the end-to-end consignment. Needless to say that in such cases the use of ACI is ineffective. A feasible solution to this issue could be the development and establishment of Port Community Systems. This concept refers to a digital port environment connecting only the regulatory agencies and economic operators directly involved in the clearance and shipping of the consignments. Specified and restricted access to the data is designed to prevent unauthorized interferences, misuse, leakage or loss of commercial or sensitive cargo

information, not least to protect secure Customs information – for instance, risk profiles, risk analysis results, and prior selection of high-risk consignments likely to involve criminal offences.

256. Data flows and accessibility are streamlined in three directions, namely:

- Preliminary cargo information submission: shipping lines/agents to Customs;
- Risk assessment results and decisions on controls, including X-ray controls: Customs to port operators/terminals; n.b. AEOs (Authorized Economic Operators) are granted benefits. If AEOs have security and safety authorization and enable direct electronic connection with the Customs in real time, they shall be automatically notified of inspections on consignments relating to security risks;
- Decisions on controls and the type of controls: port operators/terminals to economic operators who are the legal representatives of the goods.

257. The way in which ACI is provided differs depending on the relevant international or national legislation or contractual requirements, the digital development stage and the institutional interactions. Different techniques for ACI provision are set out below.

4.3.1.3.a. Advance Cargo information submitted for Port Calls via common interface software (MSW) – provision of general information for vessels

258. The first notice for Port Calls, ship arrivals or departures, is submitted to the border control agencies via the Maritime Single Window. The platform operates with the FAL Forms required by the Convention on Facilitation of International Maritime Traffic (FAL Convention). Consequently, the data elements in the FAL 2 “Cargo Declaration Form” containing the relevant cargo information are transmitted through the MSW environment. However, depending on the specific IT system, a scanned copy of the FAL 2 “Cargo Declaration Form” may be attached, or the cargo declaration may be replaced by a copy of the ship’s cargo manifest or a copy of the carrier’s bill of lading.

259. The content of the FAL 2 “Cargo Declaration Form” is restricted by the FAL principle that only the essential information is to be reported while keeping the number of data elements to a minimum. The availability of this information for Port Calls before the ship’s arrival and departure is vital for Customs. This first notice allows them to begin the risk assessment process and to communicate messages, acknowledgments and decisions rapidly.

260. The advantage of the MSW interface is its functionality to accumulate large sets of standardized and harmonized data. Collected digitally, once reported the data remains available, providing options for subsequent reuse, use for statistical purposes, analysis, history retrieval, and evaluation of the risk management performance. The interface allows the storage and further expansion of the database for ship identifications, Port Calls and all relevant particulars. If extended to the international level, the technology reinforces interoperability between the port community and Customs.

4.3.1.3.b. Import Control Systems (ICS) – provision of detailed ACI in formal electronic Customs declarations forms

261. Automated Import Control Systems extend the MSW environment by adding specific sets of data checked for risk assessment purposes in compliance with security and safety standards and financial risks. The data elements are extracted from cargo manifests or bills of lading and then declared in specific electronic formats, such as import/export declarations or entry/exit summary declarations. Import Control Systems (ICS) are integrated specifically for security and safety risk assessment purposes. Automated screening of the declared data separates consignments into high, medium or low risk levels in accordance with the input risk profiles. Finally, the consignments are assigned for appropriate regulatory controls to be conducted and the messages are transmitted, where possible through the IT system, to the economic operators for action to expedite the border clearance procedures.

4.3.1.3.c. Port Community Systems

262. Port Community Systems for the exchange of all relevant cargo and transport data ensure the interoperability of handling and clearing the cargo at the ports. The systems assist the ports and Customs to improve, accelerate and facilitate the procedures for Customs formalities and controls. Managed by port operators or port terminals, such systems provide connectivity between regulatory agencies and economic operators. A Port Community System is considered to be efficient when separate and independent streams of information are organized so that the relevant information is addressed appropriately to the responsible border control agency. Conversely, the decision on control or confidential and sensitive information is disseminated solely to the party involved in the consignment in question.

4.3.1.3.d. Provision of eACI by e-mail

263. If a fully operational digital system for eACI provision is not available, a viable option for Customs is that the Advance Cargo Information (ACI) be provided by e-mail. Exchange of scanned cargo manifests or carrier bills of lading with shipping lines or their agents is a feasible solution for risk assessment purposes for one simple reason - the cargo manifest and bill of lading forms are documents issued by the originators without being amended, altered, adjusted to be compatible with the fixed requirements of the electronic systems. In this sense, the provision of cargo manifests/bills of lading by e-mail is still used in some countries and may complement MSW, ICS or PCS irrespective of the stage of development and digital maturity of their risk management model.

4.3.1.3.e. Paper copies

264. Provision of paper copies is not required and not recommended. The digital era and rapid electronic transmission of digitalized data avoids the need for provision of paper documents and manual signatures. However, these may still be required under national legislation. Government authorities may request paper documents in addition to the electronic data for court litigation, criminal proceedings or other legal reasons, and so paper provision is not ruled out entirely. Electronic submission requires certified digital signatures, which is dependent on the adoption of the relevant legislative requirements and the ubiquitous use of these signatures.

265. Each of these techniques for the provision of ACI may be compatible and applicable as long as complete, credible and accurate information is provided and exchanged in a timely manner. However, the fact remains that, regardless of the method adopted, the most constructive approach combines the advantages of each of them. The ultimate goal is to achieve a consistent and comprehensive risk management process along with an efficient digital environment.

266. In the future, a trusted partnership between Customs and Ports is envisaged with implementation of the digital environment promoting international interconnectivity and interrelations between ports and Customs. This concept will gain credibility thanks to its significant impact on sustainable and resilient global supply chains and trade, with the added value of mutual control recognitions, and will promulgate the benefits of AEO programmes and mutual recognition agreements or arrangements.

5

Appendix – Case Studies

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5.1. General Administration of Customs of China - the China International Trade Single Window

5.1.1. Institutional arrangements

267. Under the guidance of the Inter-ministerial Joint Conference on Port Administration of the State Council, the General Administration of Customs of China (GACC), together with the Maritime Safety Administration of the Ministry of Transport, the National Immigration Administration and more than 30 other ministries and commissions, jointly established a working group on the construction of a Single Window. Each local port is responsible for the promotion and application of all Trade Single Window functions.

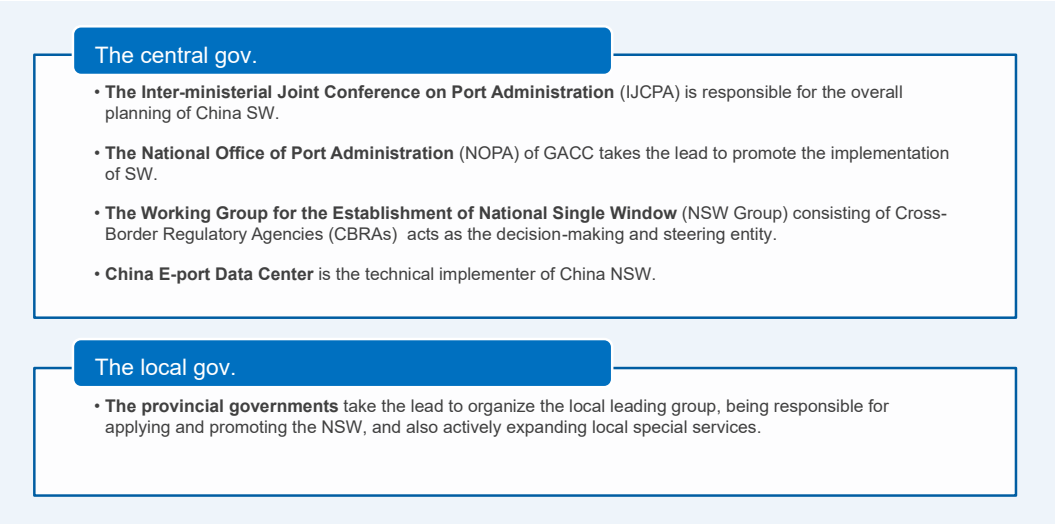


Table 4 - Governance Structure China NSW (source: GACC)

5.1.2. Legal provisions

268. The Regulations on Optimizing the Business Environment of the State Council stipulate that government at all levels and the relevant departments shall promote the integrated handling of relevant business in the field of ports and international trade through the International Trade Single Window, in accordance with the relevant requirements of the state to promote cross-border trade facilitation.

5.1.3. System design

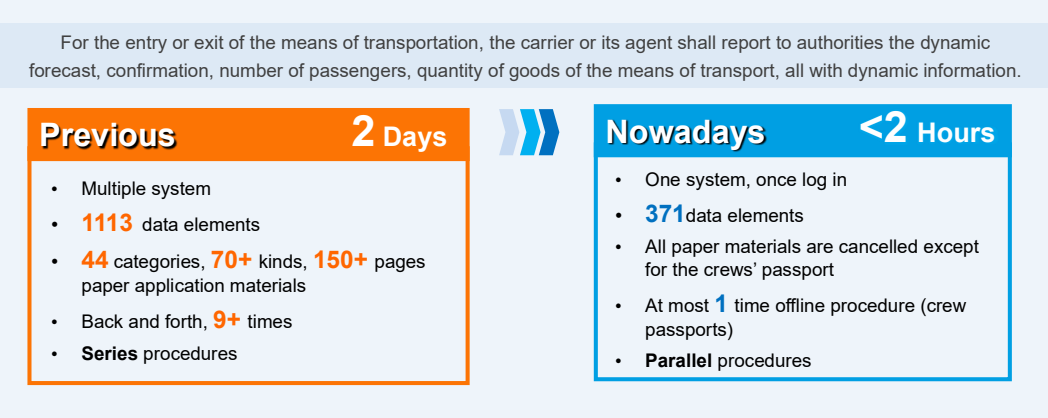
269. The front end of the Single Window system provides entry and declaration services for enterprises, and the back end is connected with the law enforcement management systems of Customs, maritime and other administrative agencies. The relevant information required in the declaration shall be entered and declared through one Single Window at one time, and disseminated to the law enforcement management systems of different agencies through a Single Window. The information on law enforcement results is fed back to the declarant through a Trade Single Window.

Figure 10 - China TSW System Design

5.1.4. Typical application

270. The function of “one-time declaration to multiple departments” for entry-exit vessels. When vessels enter or exit the port, they are allowed to fill the declaration in just one time and report it to the Customs, maritime and immigration administrations at the same time. Thus, the traditional serial mode shifts to the current parallel mode.

Figure 11 - Benefits of one-time declaration to multiple departments for entry-exit vessels (source: GACC)



271. The function of “data reuse for transhipment for vessels”. When vessels continue to sail on to the next domestic port after entering the country’s port from international waters, they can use the data already entered at the previous port, requiring only a small amount of data adjustment to simplify data entry as far as possible.

272. The function of “pushing Customs inspection notice information”. Pushing the Customs inspection notice information to the port and wharf operation system can bypass the two intermediate links, including the enterprise’s request from the wharf and feedback to Customs, thus reducing the preparation time for cargo inspection, and improving the overall Customs clearance efficiency of the port.

273. The function of “joint vessel boarding inspection”. The Customs, maritime and border inspection officials may conduct a joint boarding inspection on the same inbound or outbound vessel. Specifically, the maritime office will collect and coordinate the inspection requirements of the above three offices, and if the time for inspection can be aligned, then the maritime office will organize the three offices to board on the vessel for law enforcement inspection at the same time, thus reducing the total number of separate inspections by different law enforcement departments, maximizing the inspection efficiency and reducing the burden on the enterprises.

5.1.5. Implementation effect

274. The implementation of the above functions improves the efficiency of data entry and business processing. After simplification and standardization, the data items required for vessel entry and exit declarations are reduced by more than two-thirds; by reusing the data for transhipment, the number of data items to be entered has also been greatly reduced.

275. The paperless level of Customs clearance for entry and exit vessels has been improved. A large number of duplicate paper materials that originally had to be submitted to the regulatory authorities have been cancelled.

276. The business process is streamlined. Declarants do not need to take multiple trips to see the regulatory authorities, and thus avoid the issue of handling relevant procedures offline.

277. According to company surveys, the time for the full-process vessel entry and exit Customs procedures has been shortened from over 16 hours to two hours, and the Customs clearance time has been reduced by more than 80%. The reuse of data for transhipment further reduces the declaration time to less than ten minutes.

5.2. German Customs - Sharing data between port operators and Customs authorities - a win-win-situation?

5.2.1. Introduction

278. In our modern, digitized world, data is considered a valuable asset. We tend to keep our data private, there is even a whole industry that has emerged to deal with data protection. Data is being stolen by criminals and sold on its own black market. Data is even used in modern warfare, although it is then called intel. For companies, data is money: who is the cheapest seller that offers the best quality, what are the best ways of shipping cargo, and so on.

279. So, the question is, what could be the benefits of sharing data between companies and Customs officials for both sides and how could this data sharing be achieved? Last but not least: how can all of this been done without breaching any data protection laws or company policies?

5.2.2. What kind of information could be provided?

280. After identifying the potential parties for sharing data, what data are they interested in sharing?

5.2.2.1 Customs administrations

281. Generally speaking, international trade is quite a fast-paced business nowadays. Cargo must not be delayed while en route to its destination because a large share of cargo has to arrive just-in-time at the factories or warehouse. Therefore, any delay in delivery could result in a marked problem for the customers. Customs authorities tend to have an unappreciated habit of ad hoc checks on cargo which lead to delays in delivery. Truck or rail transport then has to be cancelled and rebooked, warehouses have to be found to enable physical examinations to take place, and, in the worst case scenario, whole shipments might be stopped, because the Customs authorities might discover that they include cargo that needs a permit to enter the country, for instance, and do not yet have that permit.

282. Starting at the first station in this line, sharing the information that a specific shipment is going to be examined to all other parties that might need this information could be a vital part of this process. For their part, the Customs authorities have to ensure that they do not jeopardize the purpose of their examination. They have to walk a very fine line to find the right time to share the information that an examination is to take place. It has to be as soon as possible to allow forwarding agencies to react to this announcement and reschedule the subsequent truck or rail transport, for instance, but also as late as possible so that any illegal cargo cannot be diverted or replaced.

5.2.2.2 Shipping agencies

283. Shipping agencies receive some information from their customers that is entered in their systems and could also be of benefit to other potential parties already identified in the digital data exchange process.

284. To plan loading on their vessels, the shipping agencies need information about the contents and weight of a shipment and also need to know whether there is any dangerous cargo in the shipment that needs special handling.

285. Shipping agencies also receive information on whether the cargo needs to be cooled or deep-frozen to stay fresh. For this special commodity, the shipping also needs to be able to ensure that the cold chain has not been interrupted during the transport.

286. For transport purposes, the shipping agency also receives information about the final recipient of the shipment, the exporter in the exporting country, and about the sailing route of the goods.

287. It usually knows if a shipment has been unloaded from a vessel during the transport, and even how long the shipment stayed in a port of transit.

288. Most shipping companies tend to seal containers with their own shipping seals to make sure that the cargo is unaltered while the goods are under their responsibility. They may provide the number on the attached seals and also information on whether the seals had to be altered during the transport. And if this is the case, the shipping agency should also have information on where and when the alteration of the seal took place and why the seal had to be changed.

289. The shipping agencies also keep the schedules of their own vessels and have information on whether the cargo has to be loaded onto another vessel during the transport and when and where this is going to take place. If the port of reloading the shipment onto another vessel is changed, the shipping agency receives information about this, too.

290. Finally, the shipping agency should also have information on whether the cargo has been altered during the transport, e.g. if some of the cargo has been removed due to a Customs inspection or even for safety reasons.

291. These are all examples of information collected by a shipping agency and that it may provide to any participant who has a legal interest in receiving this data.

5.2.2.3 Port operators

292. To be able to plan for the storage of several different shipments and commodities, port operators receive information on all shipments that are scheduled to be unloaded at their quays.

293. They also receive information about potentially dangerous cargo, so that they are able to store this cargo properly within the container yards and are ready, if, for example, such a shipment were to catch fire, to counter all possible hazards that might occur due to this incident and provide exact information to (in this example) the firefighting department.

294. During their operations, shipments are often weighed, so the port operators should know of any discrepancies between the intended weight of a shipment and the actual weight.

5.2.2.4 Forwarding agencies

295. Forwarding agencies are also able to enter information into a data exchange system.

296. In general, forwarding agencies should know details of the stages of transport inside a country.

297. First and foremost, they know the timetable for the planned transport within the country and the means of transport.

298. They should know if the shipment is planned as a “multi-stop” or “single stop” transport. “Multi-stop” transports may occur because the shipment has to be presented to another competent authority or if there is more than one receiver of goods within one shipment.

299. A forwarding agency should also be able to add some more information into the process such as information about dangerous goods, weight of the cargo, information about restuffing and so on.

5.2.2.5 Other authorities, e.g. border veterinary

300. Some shipments have to be presented to authorities other than the Customs administration on entering a particular country.

301. The specific example chosen explains what information a border veterinarian could add to the process, but this example could also be adapted to other authorities, such as weapon offices.

302. If the shipment has to undergo an inspection before it can be released for transport, a border veterinarian could add information about the estimated timeframe of the inspection. This could lead to a combined inspection by both the border veterinarian and Customs officials if needed.

303. The authorities could also add their decisions on whether a shipment can be released for transportation to the data exchange process, so that everyone who needs this information in their own specific field has access to it.

304. If a shipment is rejected, they could also add this information so that any participant can take the necessary steps to get the cargo re-exported if possible or make sure that the rejected cargo is disposed of properly.

5.2.2.6 Importer

305. The importer of the goods can also add a lot of data in the data exchange process. They should be able to provide information about the goods in general but also about e.g. licences issued in the exporting country, detailed data about the goods composition (if this is needed by Customs for instance) and data about the exporter.

306. The importer can also provide information about the price of the goods and any payments made in the country of origin. The importer should also be able to provide the associated invoices if requested to do so by Customs authorities.

307. To a certain degree, the importer should also know about other companies such as the forwarding company involved in this process. The importer may also authorize the national authorities to share information with these other participants.

5.2.3. How could data be provided?

5.2.3.1 Issue 1: legal framework

308. As mentioned, data is today considered a valuable good. Therefore multiple countries have established a legal framework to prevent the misuse of data.

309. To set up a successful data exchange between the parties concerned, it is essential to first set up a robust legal framework that allows all parties to participate in the process.

310. German tax law, for instance, enshrines the concept of tax secrecy ("*Steuergeheimnis*"). This prevents German Customs authorities from sharing data that they receive in their spheres of activity with any person other than the importer or the importer's representatives. There are of course some exceptions to this rule. These exceptions are also laid down in German tax law. But if a certain situation does not fall under these exceptions, German Customs officials are not allowed to share their data.

311. This means that, to set up a process of data exchange between all parties, German tax law first would have to be changed.

312. This may also apply to other countries or even to company policy. With this in mind, every country that wants to participate in the process of data exchange would have to check their laws and legal framework, to see whether any provisions need to be changed.

313. Companies would also have to adopt the possibility to communicate confidential data not only to the federal authorities, but also to other companies who are also involved in the movement of specific cargo. This may sometimes require a mutual agreement that allows the data exchange.

314. On the other hand, every participating party needs to make sure that the available data is not shared indiscriminately. Taking the principle of data economy and data reduction into consideration, the available data should only be shared with the parties who really need the data and could benefit from the availability of the data. This could require a higher level of supervision of data exchange than is currently laid down in the legal framework or company policy.

315. To trust companies and officials in the data exchange process, it is also necessary to ensure that there are provisions allowing prosecution in the event of any misuse of the data provided. Such provisions also need to be laid down in the relevant laws of the participating countries. In some cases, the need for international communication of data also has to be considered and implemented in the legal framework.

5.2.3.2 Issue 2: Technical means of data exchange

316. A much more practical problem is the question of how to exchange the data. To make this process as quick and efficient as possible, data exchange needs to be computerized. However, companies and authorities do not always use the same computer programs. To enable data exchange, interfaces are needed between the different programs so that the individual programs can process the data.

317. Another possibility is, of course, to offer an official government computer program that allows data exchange between the parties. What may sound like a perfect idea at first glance may be an extremely bad idea from a budgetary point of view. And this idea also involves a number of problems. Even if this program is offered free of charge to anyone who would like to participate in the process of data exchange, the question remains how to get the data from the company or authority's computer programs into this government-run platform. Again, an interface between the different computer programs would be needed.

318. The data stream would also have to be protected against any attacks from a third party. There would therefore have to be a security mechanism to protect not just the data stream, but also the computer program managing the exchange of this data. Each entry point into this system must be considered as a potential source of a breach, which makes strict supervision of any activity within this system necessary.

319. Defence mechanisms to counter a possible data breach also need to be installed, maintained and also be kept up-to-date.

320. Last but not least, the human interface of such a digitized data exchange program must be kept as simple as possible while still offering all the functions needed and desired to maximize the benefit of using such a mechanism.

5.2.4. How to motivate potential parties to join the process?

321. Once these problems and obstacles have been dealt with, there may still be the issue of how to motivate potential parties to join the process of data exchange.

322. The two most important factors that should be taken into consideration are time and convenience.

323. As regards the time factor, the best solution would be for all participants to have all the data needed on time, and also to be informed in advance about any delay in delivery. Achieving this goal would mean for instance that transport capacities could be planned more efficiently, thus minimizing downtime. The authorities would also be able carry out the required tasks much more quickly if the data required were available on demand on an accessible platform. This would mean that the authorities would not have to contact agencies or customers to obtain invoices or certificates showing the results of analyses, for instance - this information would be available immediately. Even the exchange of information between the authorities would be much easier if managed through one platform instead of different platforms.

324. This leads to the second advantage of data exchange: convenience. Once entered into a data exchange system, any participant can be sure that all of the data is available for anyone who needs it. There would be no need to request the submission of additional documents because they would be available from the outset. Participants can also be sure that the vital information (e.g. release of the goods by the border veterinarian) is available to anyone who needs it as soon as it is uploaded. This should make the whole process of importing goods much more efficient and convenient for the importer.

325. Of course, one key benefit of all of the above points is the associated savings. Convenience and time savings translate into lower costs, thus saving money. An importer can tell his customers more accurately when the goods will be available, forwarding agencies can plan their trucks or trains more cost-efficiently, and port operators are able to plan the layout of the container yard more precisely and therefore calculate the turnover of containers more efficiently, etc.

326. To conclude, this all leads to greater efficiency in almost every aspect of import or export. And this is what almost all, if not all, companies and authorities aim for today: (cost) efficiency.

5.2.5. An example of best practice in Germany

327. In recent years, the Customs office of Bremerhaven has benefitted from access to an external, non-customs system, the “Bremer Hafen Telematik” Database (BHT). BHT is a regional IT-application privately operated and used by economic operators. Having implemented the Union Customs Code in 2016, there was also an interface between the German Customs export computer program and the database. With German Customs on one side, on the other side the terminal operators inside the Bremerhaven’s free zone area and shipping agencies are also able to access the BHT database. Having set up an X-ray unit inside the container terminal, this database is also used to provide terminal operators with information on what containers have been selected for scanning. If a container has to be held by the Customs authorities, this information is shared through the BHT database and the terminal operators guarantee that the container does not leave the terminal until the hold is removed by the Customs officials.

328. The Bremer Hafen Telematik database has now grown to include sub-systems responsible for different tasks. While the Bremer Hafen Telematik database itself was originally set up for export shipments, there is now a sub-system available that is almost exclusively used for import shipments. The forwarding agency is also notified when a container has been released by the shipping agency and is ready to be picked up at the terminal. If the terminal operators find that a container is not safe for further transport, if it is damaged for instance, they can issue a hold on this container and the shipping agency is informed about this so they can plan accordingly.

329. Over the years, the Bremer Hafen Telematik[29] database has been fully accepted by everybody participating in exports and imports through the free zone of Bremerhaven.

5.2.6. Conclusion

330. It is often said that “data is key”. It is now time to build a good, solid and reliable lock into which this key fits and which, once opened, provides access to faster and more secure data exchange. Every business in our world has to operate faster, and therefore this kind of data exchange on a secure level would be a great benefit for the economy of every country, leading to faster-paced data exchange worldwide.

5.3. Guatemala Customs - Port Community System

5.3.1. Introduction

331. In Guatemala, the National Port Authority has administrative roles that do not allow it to exercise certain functions over seaports, while in other countries the authorities have more powers, are operational governing bodies, and follow a single national policy with governance over the port community.

332. As a result, in Guatemala each port is independent and has its own governance. Each port is trying to implement a mini port community, and acting individually to make consultations available to interested parties who have no interaction with port computer systems.

333. Guatemala’s Customs administration, the Superintendency of Tax Administration (SAT), has been the point of convergence and coordination in this case, seeking certainty and legal security for investments with the port community; this process must be oriented to a digital transformation of systems and interoperability between them.

5.3.2. Description

334. A new model of maritime dispatch is required, focused on a Port Community System in which all stakeholders can participate at the systems level and which allows the traceability or tracking of the status of goods, means of transport and documents, among others, in order to reduce the number of activities and manual documents that impact the environment, and increase efficiency throughout the process, which will ultimately translate into a reduction in the price of the goods that are acquired by the final consumer.

335. Objectives:

- Simplify and automate the activities conducted by the different actors involved in the maritime field.
- Reduce time and costs.
- Incorporate information technology into processes, through community systems and applications, equipment such as RFID, smart cameras, X-rays, electronic processes, automated dispatch lanes and other technologies that are used in more developed countries.
- Eliminate the physical presence of people and thereby reduce the opportunity for discretionary decisions and mitigate fraud and other crimes.

5.3.3. Current situation

336. Today SAT has a workflow management system and a document management system for which it designed computer applications and provided access to users so that they can enter and register the actions according to their competence and sphere of activity.

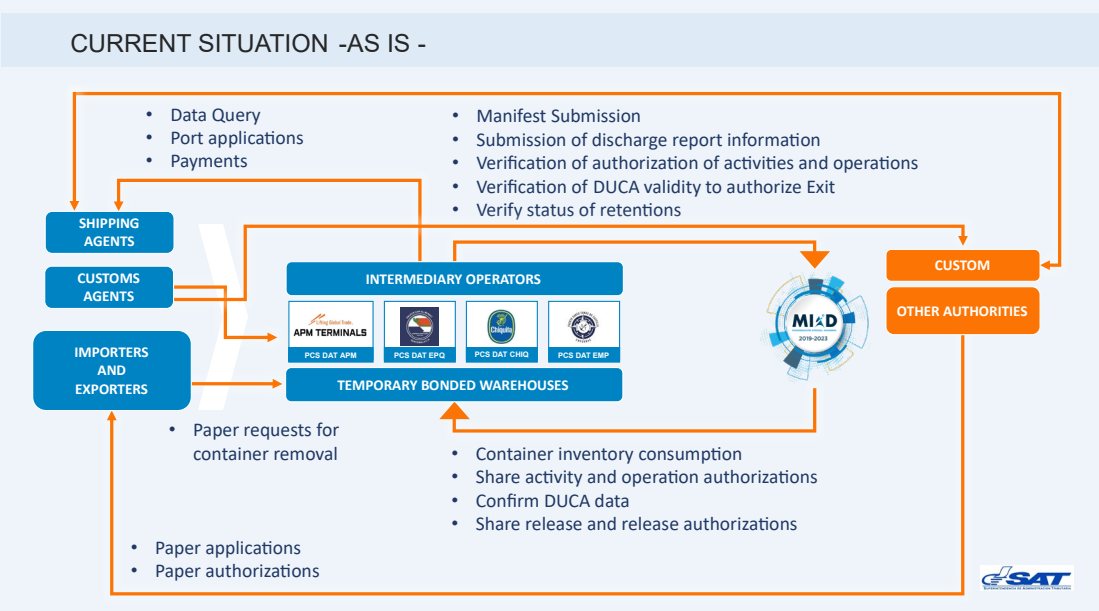
[29] Further development of the Single Window at EU-level falls within the competence of the EU Commission, based on Regulation (EU) 2022/2399 of the European Parliament and of the Council of 23 November 2022 establishing the European Union Single Window Environment for Customs.

337. In addition, the Auxiliary of the Customs Public Function (Auxiliary) does not have feedback from the SAT system in its system since each stakeholder has an independent system and there is no interconnection between them.

338. SAT has designed 'Web Services of Consultation Type Rest' which the Auxiliary that performs the function of a temporary Customs warehouse uses to consult issues related to the declaration of goods, hold/release of goods, etc.

339. SAT has also designed an application for the competent authorities (police, health, agriculture, among others) that allows them to determine whether or not they need to carry out an inspection. The computer application puts a hold on the equipment or cargo while the authorities carry out the physical review, and verifies the non-tariff regulations or profiling that each entity performs. If nothing of note is found, the application releases it and continues with the corresponding management.

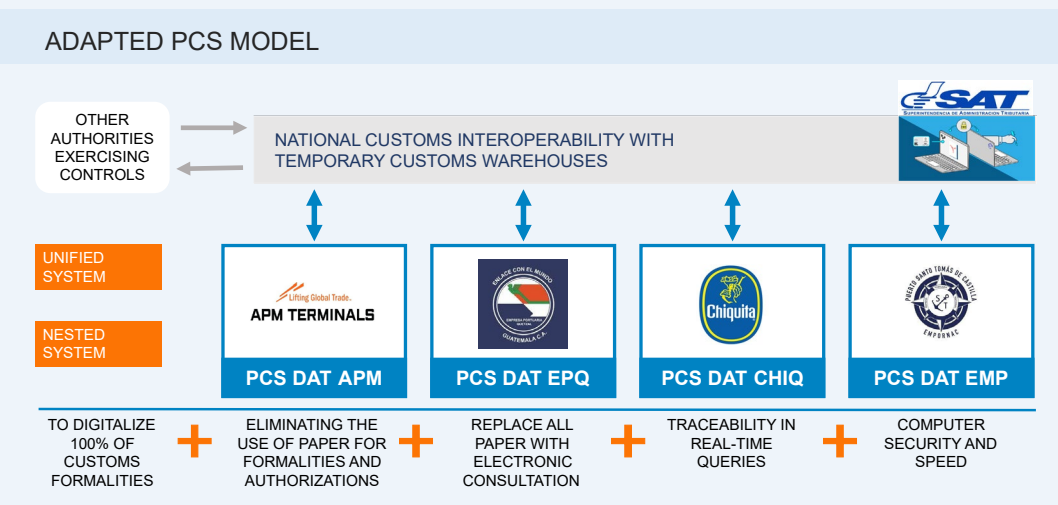
Figure 12 - Guatemala PCS - As-Is analysis (source: SAT)



5.3.4. Future situation

- Interoperability between systems between stakeholders in the logistics chain.
- Agile and secure platform in navigation or consumption.
- Assessment of what type of technology can be adapted to a new model of maritime dispatch to facilitate, in addition to communication, traceability, reports, consultations, and a Single Window that allows improvement of average dispatch times for the goods, on both import and export.

Figure 13 - Guatemala PCS model (source: SAT)



5.3.5. Adapted PCS model

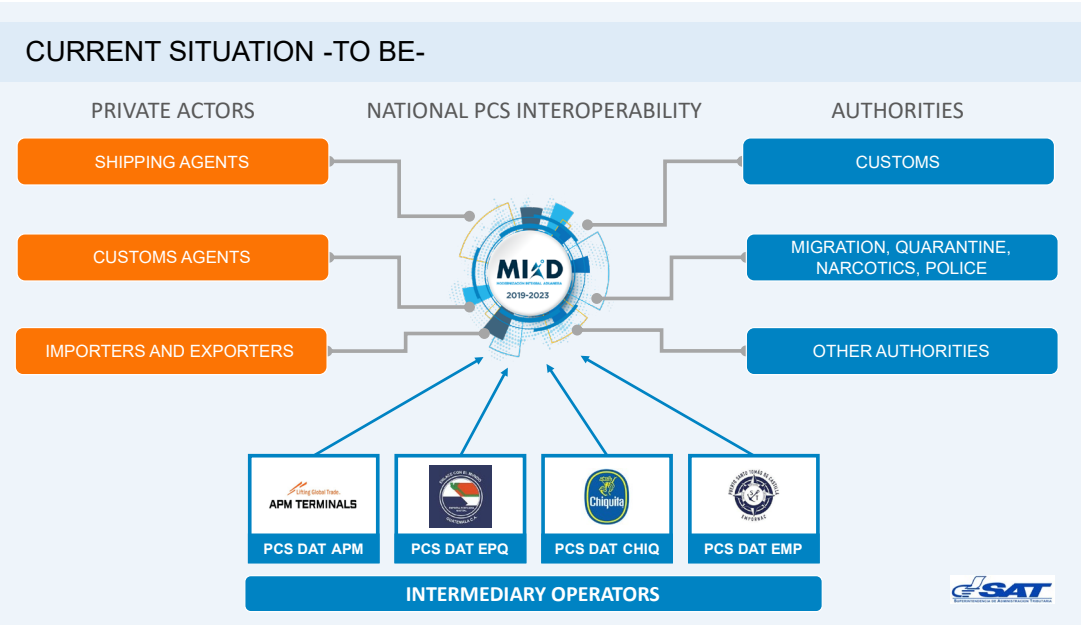
340. The intention is to provide a system that allow digitization of all Customs procedures, is prepared for the number of transactions that are made in each period and provides an adequate response time and does not lead to system down time due to the number of procedures that are in transaction.

341. There is also a need to eliminate the use of paper, which would support environmental management and reduce the physical space needed to store physical documents.

342. Consultations and reports are available to each user who participates in the logistics chain, facilitating traceability of their goods.

343. Computer security and speed are essential. This is one of the most important points, since SAT has suffered several cyber-attacks to date, which have made the system slow or made it return a time-out message to users, blocking them from completing their transaction.

Figure 14 - Guatemala PCS - To-Be analysis (source: SAT)



5.3.6. Requirements

5.3.6.1 Scope

344. Meet other Customs administrations and exchange experiences on the implementation of a Port Community System.

5.3.6.2 Global Requirements

345. The exchange of experiences is to determine the requirements relating to:

- Financial resources
- Technology
- Human resources
- Applicable law
- Environmental issues, etc.

5.3.6.3 5.3.6.3 Important milestones

346. The PCS is expected to be implemented in Guatemala's three ports in 2025.

5.4. Indonesia – National Logistics Ecosystem (NLE)

347. A logistics cost study for Indonesia was conducted in 2013 by the Center for Logistics and Supply Chain Studies, Bandung Institute of Technology (ITB). The results were that Indonesia's logistics costs to GDP are 24%, higher than other countries in Southeast Asia (Vietnam 20%, Thailand 15%, Malaysia 13% and Singapore 8%). The results of the Logistic Performance Index (LPI) and Trading Across Border-Ease Of Doing Business (TAB-EODB) assessments conducted by the World Bank have also tended not to increase since 2008.

348. To reduce logistics costs and improve Indonesia's logistics performance to make it more efficient and internationally competitive, President Jokowi issued Presidential Instruction Number 5 of 2020 on Structuring the National Logistics Ecosystem (NLE). This contains four main programmes: simplification of government business processes in the field of logistics, logistics platform collaboration, ease of payment, and logistic layout planning. These programmes in turn cover 42 action plans that have been carried out since 2020 and are targeted to be completed in 2024 and reduce logistics costs to 17% of GDP.

349. The implementation of the government's business process simplification programme has led to the development of the Single Submission (SSm) of Transportation, SSm of Licensing and SSm of Quarantine and Customs (QC). Breakthroughs in the SSm of Transportation, include the one-time submission through the Indonesia National Single Window (INSW), no repeat submissions to other agencies (port authority, Customs, marine and fisheries, quarantine, and immigration), integrated single billing service for government non-tax revenue which was mandated at 14 ports in 2022 and will be available in all ports by the end of 2023. An advance made in the in SSm of Licensing includes the introduction of one Single Window application through INSW (no longer repeated to several government agencies), for certain commodities that has been integrated with the commodity balance (currently 19 out of 37 commodities). For the SSm of Quarantine and Customs, only one submission is now needed to INSW (previously two submissions were needed), cutting the business process stages from ten stages to three, the originally serial process is now a parallel process, carried out through a joint inspection by Customs and Quarantine, which has been implemented in 12 ports.

350. A maritime stakeholder, PT Pelabuhan Indonesia (Pelindo) has been a Customs strategic partner in implementing a logistics platform collaboration programme. This collaboration has resulted in several programmes such as the online delivery order service (container redemption service, from the shipping line), online container release letter service (container redemption service, from the terminal operator/Pelindo), online trucking (goods transportation service), autogate (automatic goods release service, from the port operator),

and online temporary storage service (Customs release letter issued by Customs then used by the terminal operator/Pelindo for the online container release letter service issuing process to provide the owner of the goods with a barcode to release the container at the autogate). The whole process is done automatically. The National Logistics Ecosystem (NLE) connects all systems owned by each logistics service provider. The payment service programme is being implemented for the sake of convenience, to enable logistics business actors to make a one-off payment (single billing) for their logistics activities, covering both payments to the government and to the private sector. The logistic layout planning programme is focused on structuring the storage containers and use of railways that support logistics. Measurement of the effectiveness of NLE services has been carried out with satisfactory results, with improved efficiency in each logistics process, namely online delivery order service (50% time, 37% cost); online container release letter service (55% time, 39% cost), SSm of Quarantine and Customs (29% time, 25% cost) and autogate (24% time, 27% cost).

5.5. Italian Customs - National cooperation between Italian Customs and Monopolies Agency and National Port Authorities

5.5.1. Strengthening cooperation

351. The Italian Customs and Monopolies Agency (ADM) has entered into agreements with all 16 different Italian Port System Authorities (PSA), the Italian Coastguard and the Italian law enforcement agency Guardia di Finanza (GdF), to boost the competitiveness of the national port and logistics system and promote the development of traffic in ports, including through the use of advanced technologies. The objective is to standardize and speed up import and export procedures, and Customs formalities related to the entry and exit of goods, embarkation and disembarkation, and the fulfilment of conditions related to the payment and collection of port and anchorage fees. This can only be achieved by merging Customs systems (linked to the control and release of goods) with port systems (Port Community System, linked to the operation with the port community that physically uses the port spaces) and maritime systems (related to ship arrival and departure formalities).

352. In Italy, the merging of these systems has led to the development of the:

- Maritime Single Window,
- One-stop shop for Customs controls (S.U.DO.CO.),
- Interoperability model for the digitization of ports (road),
- Interoperability model for the digitization of ports (rail).

5.5.2. Institutional and governance framework

353. The above technological measures have been identified in accordance with the relevant specification documents issued by the Agency for Digital Italy (AgID) and the European Commission:

- EIF (European Interoperability Framework): the New European Interoperability Framework ISA²[30] which provides guidance to European public administrations (PAs) on how to operate initiatives related to the theme of interoperability. Three types of interactions are envisaged:
    - A2A (administration-to-administration), i.e. interactions between PAs;
    - A2B (administration-to-business), i.e. interactions between PAs and enterprises;
    - A2C (administration-to-citizen), i.e. interactions between PAs and citizens.

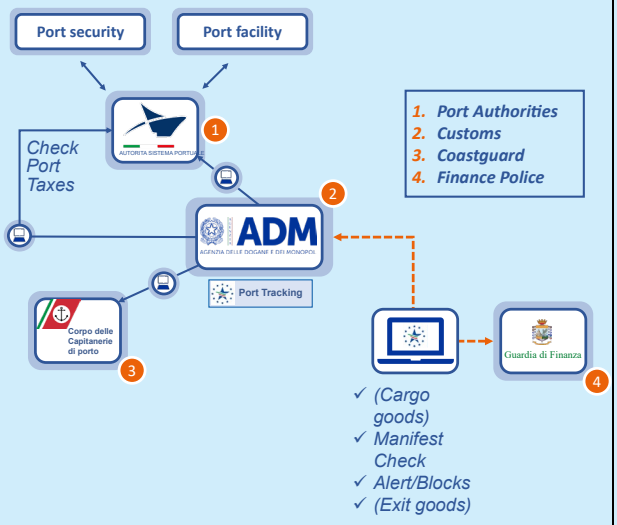
[30] The New European Interoperability Framework | ISA² (europa.eu)

- Guidelines on technical interoperability of public administrations[31].

5.5.3. Digitized Customs processes and the use of disruptive and innovative technologies

354. The complete digitalization of Customs procedures involves interoperation between all of the main institutional authorities in the port sector as illustrated in Table 5:

Table 5 - Stakeholders involved in the interoperability model (source: Italian Customs)



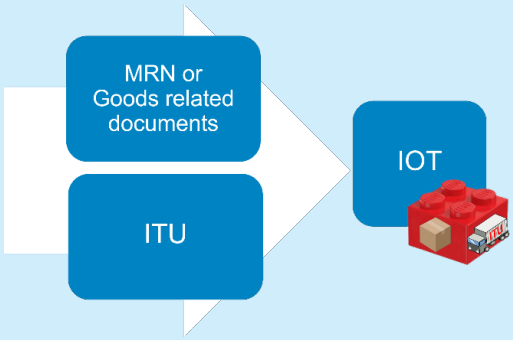
The actors involved in the interoperability model perform the tasks assigned to them by law:
Port security (i.e. control of port access credentials) and port facility (i.e. what goes into which port facility (terminal, dock, etc.)) are matters for the port authority **(1)**, which provides data on the location of Intermodal Transport Units (ITUs), transporting goods, in ports so that they can be tracked throughout their journey.
Responsibility for Customs-relevant goods, on the other hand, is a matter for Customs **(2)**, which follows the goods on their journey by verifying compliance.
The Italian Coastguard **(3)** checks maritime navigation and the safety of ships in ports.
Finally, the Italian law enforcement agency GdF **(4)** is in charge of checks during boarding procedures and verifying the exit/entry of goods.

355. All of these actors interface with Customs/ADM's information system to share the information they hold on import/export goods. Interoperability is possible thanks to a unique identification code (IOT_ID) generated in UUID format by Customs information systems.

Table 6 - The logic behind the use of IOT_ID (source: Italian Customs)

The IOT_ID code makes it possible to monitor moving goods, as a unique item, combining:

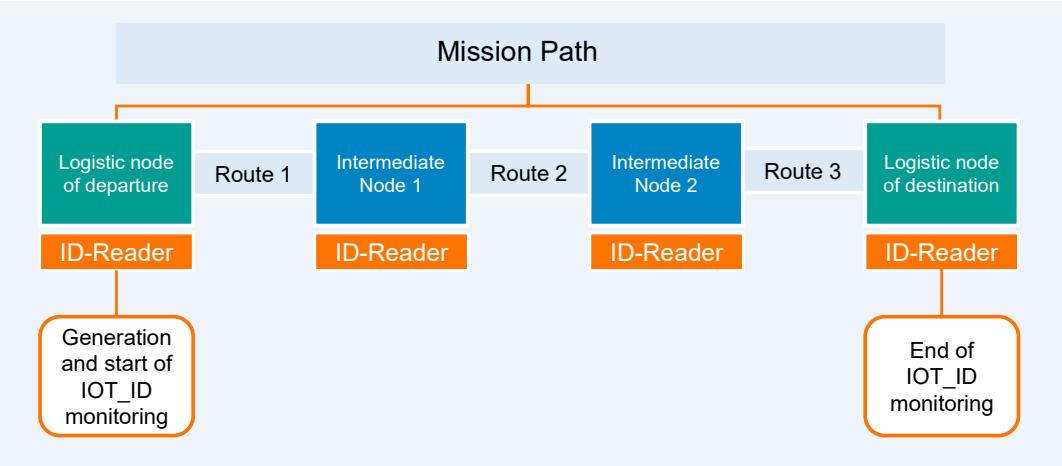
- Information on the goods, i.e. the identifier of the Customs declarations;
- Information on the ITU associated with goods (combination of one or two of the following: **vehicle licence plate, container BIC code, track ILU code, SWAP box identifier, seal number or goods identifier on electronic manifest** of departing/arriving goods)



[31] https://www.agid.gov.it/sites/default/files/repository_files/linee_guida_interoperabilit_tecnica_pa.pdf

356. Once generated, an IOT_ID can be read along a port logistics route (mission path) using specific devices (ID-READER: “OCR”, “RFID”, “BARCODE” type device) usually connected with the Port Community System. The logistical (mission) path defined for the IOT_ID object is represented in Figure 15:

Figure 15 - Mission path (source: Italian Customs)



357. The following elements are always considered:

- A mission path covered by the IOT-ID journey between a logistic node of departure and a logistic node of the destination.
- A logistic node of departure. This is the logistics node where the IOT_ID is generated.
- A Destination logistic node where the IOT_ID has a definitive status, because the process that requires the tracking has ended.
- An ID-Reader that represents the reader (“OCR”, “RFID”, “BARCODE” type device) used for detecting the IOT-ID or information related to it when passing through the logistic nodes.

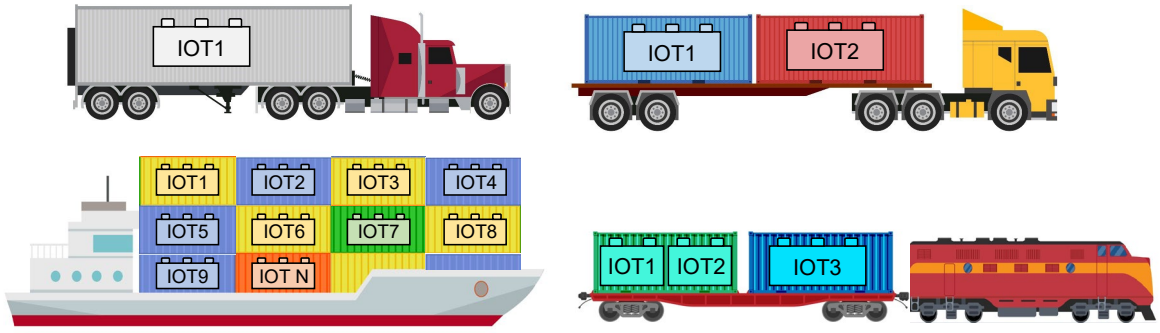
358. The following element could be also included (and normally is):

- One or more intermediate logistic nodes that represent(s) a physical place included in the “mission path” and distinct from the departure and destination logistic nodes, where the IOT-ID logistic tracking is carried out because it is required by the Customs processes.

5.5.3.1 The tracked objects and the tracking method

359. The tracking method is based on the definition of ITU expected at the port on arrival for embarkation or disembarkation, on the association between ITUs and information about the goods (MRN/Customs declaration) and the definition of logistic routes and nodes crossed by the IOT_ID (generated as specified above). Possible examples are illustrated below:

Figure 16 - IOT examples (source: Italian Customs)



5.5.3.2 Understanding Customs and port processes

360. Customs processes in Italian ports have largely been digitalized; however, to understand digitalization it is necessary to analyse Customs processes. In Italy, prior to the arrival of goods at the port, ADM must be notified of the quantity/quality of the incoming goods through the manifest.

361. When the goods arrive at the port, they are stored in temporary storage terminals. The goods remain there until the completion of Customs procedures for import.

While at the terminal, the economic operator forwards the required documentation for Customs clearance. If there are Customs controls, the goods cannot leave the port without completing them. Lastly, to leave the port there is an additional check by the GdF certifying that the goods have actually left the port by road or rail.

5.5.3.3 Maritime Single Window

362. Before the goods arrive in the port, the Italian authorities need to know what type of goods are arriving and when the ship is due to dock in port. This information is shared between the authorities involved via the Maritime Single Window. To attain a single access portal for maritime information, several services were implemented for authorities to exchange information. The main services in which ADM is involved are:

- FAL 2: Manifest sharing with incoming goods from ADM to the Italian Coastguard;
- WS ATA information shared by the Coastguard for manifest management of the Actual Time of Arrival (ATA).

363. An additional service is implemented to communicate the start of ship monitoring by the Coastguard.

364. This communication allows ADM to validate the cargo manifest. The economic operator, after validating the manifest, can decide to send the Customs declaration for each consignment of the goods. When the ship arrives in port, the goods are unloaded and immediately sent for controls or to a dry port, or released for exit.

365. During the pre-clearance activation, the following were noted:

- reduced container dwell time at the port, resulting in cost savings;
- greater accuracy in intermodal appointment, due to timely port logistics planning for container pickup.

5.5.3.4 Single Window for Customs controls

366. S.U.Do.Co (Sportello Unico Doganale e dei Controlli, i.e. Single Window for Customs and controls) is the tool used to improve efficiency, in order to speed up and simplify the process of Customs clearance of goods reaching the port terminals throughout the country, in both

import and export. The architecture type is a SOA (Service Oriented Architecture) which adopts a service-based logic to enable application cooperation between users and entities (B2G - Business to Government) and between entities (G2G - Government to Government). The S.U.Do.Co architectural solution enables interoperability among the information systems of the five actors involved: port authority, ADM, the other relevant administrations responsible for the control, economic operator and the EMSWe (European Maritime Single Window environment). It consists of the following modules:

- The “Certificate Management” module: which aims to create a single entry point to offer a single interface to operators and administrations, for the single submission of information and for the management and issuing of authorization measures.
- The “Control Management” module: which aims to implement, through the “Control Coordination Agenda,” the coordination of all control requests received from the administrations involved and ensure the concomitant performance of the controls themselves (according to the one-stop shop principle).
- The “Goods Tracking” module: which aims to implement the necessary functionality to enable the monitoring of the location of goods in real time, and to detect movements and timing, ensuring greater efficiency in the conduct of control and Customs clearance procedures.

5.5.3.5 Interoperability model for the digitization of ports (road) (only import is reported)

367. The port interoperability model must consider both logistics and Customs processes. Specifically, the logistical processes to be considered concern:

- the exit of goods and vehicles from the port;
- the logistical tracking of goods flows of Customs relevance.

368. In addition, it is necessary to keep track of goods related to Customs processes (import/transit). Goods must be tracked from the moment they are disembarked from the ship to the moment they leave the port.

369. For each of the processes analysed, two dimensions were considered:

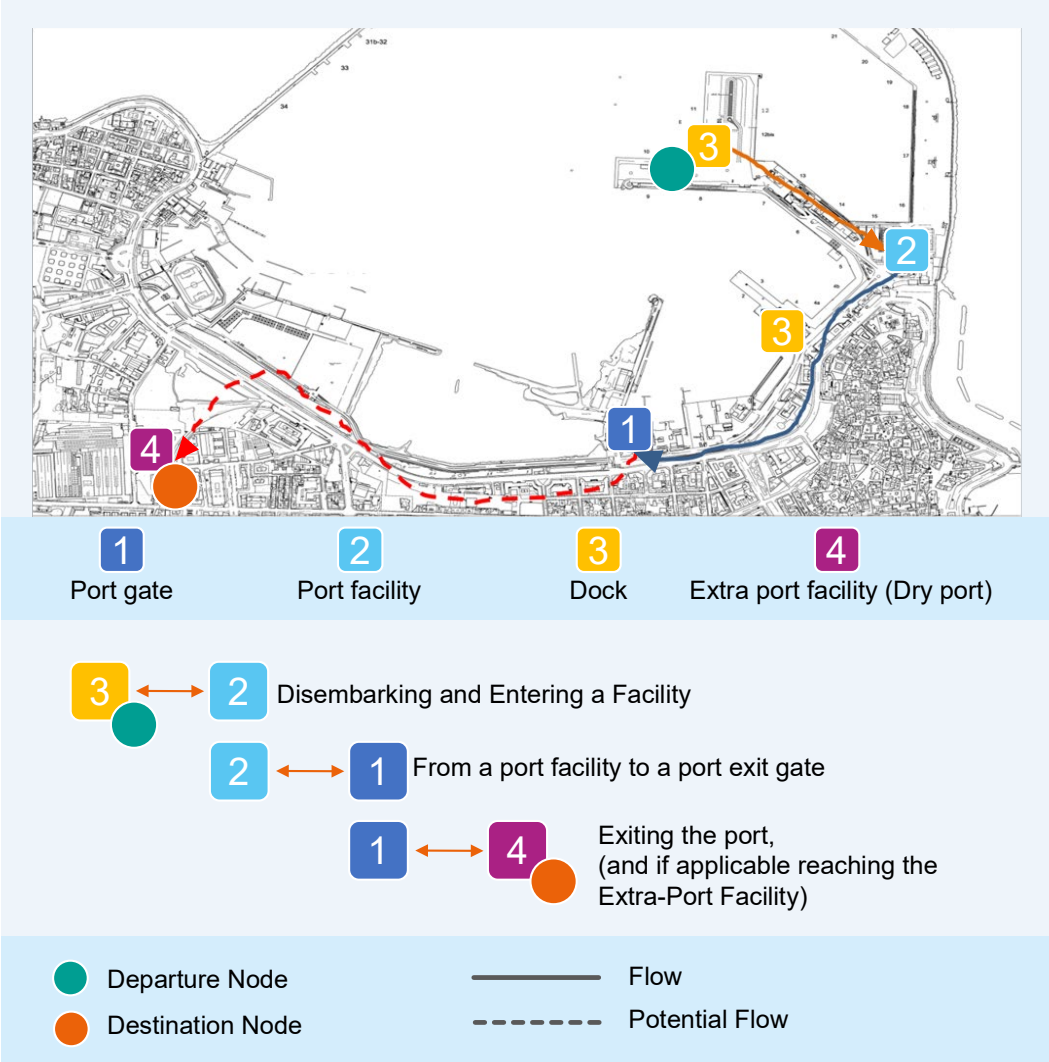
- the points (physical or virtual places referred to as “nodes”) at which, in relation to the physical flow of vehicles/freight in the port, data are collected and/or exchanged by/among the parties involved (e.g., between port authority and Customs);
- the subjects between which data exchange takes place.

370. The following types of “nodes” were considered in the process model:

- port entry nodes/gates. The security rules to be observed for access to the port (port security) and formal matching of outgoing goods are applied at these points;
- nodes inside the port related to Import/Transit procedures (port facilities) (e.g. terminals, temporary storage facilities, warehouses, approved or authorized places, Customs spaces, etc.,) where goods are located if they are waiting for a Customs destination or because they are subject to control, or because they are awaiting embarkation or still to be picked up to exit the port;
- nodes representing entry and exit points/gates to/from the port docks that goods pass through as they are being loaded/discharged;
- nodes outside the port but connected to it for import/transit procedures (extra-port facilities) (e.g. approved or authorized locations, backports (intermodal or multimodal terminal), Customs spaces, etc.).

371. This model is illustrated in Figure 17:

Figure 17 - Logistics nodes at import (source: Italian Customs)



5.5.3.6 Interoperability model for the digitization of ports (rail) (only import is reported)

372. The model considers in an integrated view port logistics processes related to goods leaving by train. The model considers three phases:

a. Phase 1: Sharing the loading list i.e. the list of ITUs, containing goods intended to be transported, candidates to leave the port on a train. Each ITU may include the Customs declaration identifier (“MRN”). This allows the outgoing train, to be composed by the Multimodal Transport Operator/Train Agent with Customs “ready” goods.
b. Phase 2: Creation and sharing of a train manifest. The train is loaded and ready to leave the port. This is the most crucial part because train list is sent to Customs (ADM) showing the ITUs connected with each wagon. The associated Customs declarations or transport documentation is also shown for each ITU. ADM associates an IOT_ID with each ITU. At this stage, permission to leave is also requested once the train has been loaded.
c. Phase 3: Exit from the port via the exit gate through an automatic detection system.

5.6. Morocco – The importance of cooperation between Customs and Ports

5.6.1. A national strategy to facilitate foreign trade procedures

373. In 2008, Morocco embarked on a strategy relating to the simplification of foreign trade procedures in the context of the accelerated globalization of trade and the implementation of free trade agreements.

374. This strategy is based on the convergence of several national policies: the policy of Morocco's Ministry of Transport and Equipment, the Ministry of Finance, and the Ministry of Industry and Trade. These three public actors share common objectives: to make trade more fluid, improve transparency, reduce delays and costs for operators, and ultimately improve the business climate.

375. The Moroccan government's decision to set up a Single Window for foreign trade was taken during this period and the implementation of this ambitious project was entrusted to an inter-ministerial working group which will be jointly coordinated by Morocco's National Ports Agency, the Ministry of Foreign Trade and the Administration of Customs and Indirect Taxes.

5.6.2. A public private partnership governance model

376. The cooperation between these three public actors was an essential factor in the success of the project. The active participation of the community of private companies and professionals in the sector (forwarding agents, shipping agents, terminal operators, banks) in the governance of the project was also very important to engage the private sector in this transformation.

377. A limited company, PORTNET S.A, with its board of directors composed of representatives of public actors and professionals in the sector, was set up in 2012 and ensures the operational management of the Single Window for foreign trade.

378. The National Ports Agency, the Customs administration and the Ministry of Industry and Trade have coordinated their efforts to unify, simplify and gradually digitize each of the key processes of foreign trade, on a Single Window platform which is both a Maritime, Port, Customs and Foreign Trade Single Window.

5.6.3. A Maritime, Port and Customs Single Window

379. The Single Window is first and foremost a Maritime and Port Single Window that allows the management of ship calls in accordance with the international regulations of the International Maritime Organization (FAL, SOLAS, and MARPOL) and the national regulations of Morocco.

380. The formalities for the arrival of ships, goods and crews in the commercial ports under the authority of the National Port Authority of Morocco, ANP, (10 ports) are carried out on the platform electronically by the shipping agents. The main formalities are as follows: notice of arrival of the ship 72 hours before docking, request for berth allocation, and declaration of dangerous and special goods 48 hours before docking, cargo manifest and list of passengers and crew 24 hours before docking.

381. The port authority, Customs, terminal operators, inspection bodies, and shipping agents are notified through secure and authenticated messages of the stopover stages (12,000 stopovers are handled per year by the one-stop shop), and receive the data in real time, as well as the decisions taken by the authorities. Each of the players integrates the messages received into their information system to process them and provide a response. The platform is interconnected with the national Customs system in real time via an EDI interface, and also with the information systems of terminal operators (in particular MARSA MAROC which operates in all ports, but also 10 other private terminal operators). The platform also integrates (9) inspection bodies and offers numerous services to (130) shipping agents.

5.6.4. The Single Window cooperation framework

382. The Single Window is a platform for cooperation between ports, Customs and public bodies responsible for border control: Morocco's National Office of Food Safety (ONSSA), National Telecommunications Regulatory Agency (ANRT), Ministry of Health, and the Moroccan Agency for Nuclear and Radiological Safety and Security (AMSSNUR).

383. In 2015 the platform became the Single Window for foreign trade in Morocco following the decision and decree of the Ministry of Trade and Industry. All importers and exporters of goods are members of the platform (over 20,000 companies) which they use to prepare their import or export, obtain licences and approvals from the authorities, depending on the products, obtain financing in foreign currency from their bank, and carry out Customs clearance, collection or shipment of their goods.

384. The one-stop shop is a successful example of the World Customs Organization's SAFE Framework of Standards (SAFE FoS) , particularly in terms of its pillars Customs-private sector and Customs-institutional sector, which contribute in particular to better coordinated border management.

385. The Single Window has gone through different steps of developments. Each step requires coordinated administrative decisions between the National Ports Agency, the Administration of Customs and Indirect Taxes and the Ministry of Trade and Industry. Some of the Single Window development steps include:.

1- The management of ship calls and the import manifesto in 2013. The export and cabotage manifesto in 2014.

2- Management of import licences, financing of transactions with banks and the foreign exchange office in 2015. Export licences in 2016.

3- Coordinated management of goods inspection and exchange of inspection results in 2016.

4- Management of container arrival notices and the verified gross mass (VGM) declaration of the verified weight of containers for Export in 2016.

5- The dematerialization and electronic payment of invoices for Customs duties, port fees, and other services from 2018.

6- Management of goods exit formalities and Customs clearance areas, in 2019.

7- The electronic delivery order to obtain the release of Customs in 2019.

8- Making appointments for the removal of goods from 2019.

9- The dematerialization of border health control documents in 2020.

10- Integration of air cargo with summary declaration, BAD and BS in 2021.

386. Thanks to this fruitful cooperation between the National Ports Agency, Customs, and the Ministry of Industry and Trade who jointly coordinated the development of the Single Window for Foreign Trade, Morocco gained 20 places between 2010 and 2020 in the World Bank Group's Doing Business ranking.

5.7. United States of America - Georgia Ports Authority and US Customs and Border Protection partnership and cooperation outline

5.7.1. Partnership history

387. The Georgia Ports Authority (GPA) has had a longstanding partnership with USCBP (US Customs and Border Protection) for over 30 years, starting back in the mid-1990s. At that time, GPA had 4 USCBP agents on site and the GPA provided the recruitment agency Labor to assist USCBP. GPA also had 1 GPA employee assigned specifically to assisting USCBP with any requirements they had. This partnership was enhanced in the early 2000s when GPA was able to complete the process of implementing a CES (Container Examination Station). Currently GPA is the only terminal in the United States with a CES station that is physically located at the terminal.

5.7.2. Establishing cooperation

388. The key to establishing cooperation lies within the understanding that it is a mutual cooperation between both parties, with an end goal of facilitating cargo flow/movement while at the same time adhering to government guidelines.

5.7.3. Strategic objective

389. The strategic objective of this partnership is to ensure a continued line of communication and cooperation exists. This communication/cooperation affords GPA and USCBP the ability to align on any security concerns. Security is of the utmost importance to both the GPA and USCBP. While the GPA acts as a liaison between the beneficial cargo owners, Customs house brokers, trucking community, ocean carriers and US Customs, in doing so, we adhere strictly to any/all USCBP guidelines and requirements.

5.7.4. Stakeholders

390. GPA partners with all government entities. This includes: USCBP, United States Department of Agriculture (USDA)/the Attorney General (AG), Animal and Plant Health Inspection Service (APHIS), United States Coast Guard (USCG), U.S. Fish and Wildlife Service, etc... This partnership includes all levels of the GPA organization from Chief Executive Officer to Container Operations, Customer Service, Container Examination Station (CES), rail and intermodal teams, as well as many levels within USCBP including (but not limited to) the CBP Port Director, assistant Port Director and all other levels within CBP and its sub-teams.

5.7.5. Organization and potential areas of cooperation

391. The Customer Service Center, the CES and the GPA administration office are some of the key departments that work to facilitate cargo movement and flow in cooperation with US Customs:

1. *The GPA Customer Service Center* has a specialized “US Customs-focused” team that works with ocean carriers, truckers, beneficial cargo owners, Customs house brokers, and US Customs on any entry/release concerns.
2. *The CES (Centralized Examination Station)* works exclusively with government agencies on cargo inspections. This includes full, partial and tailgate inspection requests from USCBP/AG/APHIS/USDA, etc.
3. The *GPA administration office* works on submitting the contract negotiations to US Customs and offsetting up the CES when/if that contract of work is agreed to by US Customs.

392. Additional examples of cooperation and participation that occur through dedicated meetings, along with a GPA specialized focus that sets the stage or framework for strengthening the cooperation, include:

1. *monthly partnership meetings*, facilitated by Customer Service Management and attended by Customer Service Management, the CES and USCBP;
2. *quarterly pest risk management meetings,* facilitated by CBP Agriculture and Trade teams, attended by multiple CBP teams as well as Customer Service Management. This is key in understanding and assisting in environmental protections;
3. *GPA facilitation of BCO (beneficial cargo owners)/customer meetings;*
4. *Quarterly brokers meetings,* facilitated by US CBP and attended by Container Ops and CES Management;
5. *USDA/AG sampling meetings*, facilitated by Customer Service and attended by USDA/AG and Customer Service Management. This is key in understanding and assisting in environmental protections;
6. *Process review* is another key element that assists in identifying any gaps in a process that may be instrumental in slowing cargo release and expedited flow. The GPA and USCBP work hand-in-hand in reviewing certain processes that can affect delayed cargo release. One example is time-sensitive cargo such as refrigerated commodities that require cold treatment processing.

5.7.6. Benefits of digital collaboration

393. The benefit of sharing information is the visibility that is afforded to GPA as well as USCBP on cargo moving through our facility. This visibility provides added protection from a security perspective as well as from an environmental aspect.

394. Systems integration and digitalization interoperability. There are currently three systems used at GPA to facilitate cargo movement:

1. *GPA's terminal operating system, originally called Express,* was replaced by Navis N4 in April 2022;
2. *manifests* – ocean carriers download their manifest data into GPA systems via EDI (Electronic Data Interchange) so GPA has full visibility on all of the cargo/commodities discharging or loading onto vessels;
3. *US Customs holds/release status* - US Customs downloads this information into GPA's system from the US Automated Commercial Environment system (ACE) using EDI connectivity, so GPA has full visibility on anything that is on hold or has been released;
4. *the United States Coast Guard* has a Domestic Ports division that works directly with ports in the US. Safety and security are a critical focus for the USCG. At the Georgia Ports Authority, the USCG certifies hazardous goods, confirms there are no mechanical issues, confirms that the proper number of crew are in place to manage the ship as well as ensures all documentation/paperwork for the ship is in order.
   The USCG Mission statement is "*Develop and implement programs to prevent safety, security, and environmental incidents in the maritime arena and to protect continued vitality of the Marine Transportation System. We do this by administering and managing port, commercial onshore and offshore facility, cargo safety, security and environmental protection compliance programmes; policy and field guidance for Coast Guard field activities, oversight of third parties, and leadership in industry partnerships and advisory committees";*
5. *harmonized data requirements:* in the United States harmonized data requirements are used on export cargo shipments throughout the industry for commodity classification.

5.8. World Shipping Council

5.8.1. Shipping Line Cooperation with Customs and Port Authorities

395. The cooperation between customs and port authorities is a critical relationship for trade, particularly for shipping lines and all port stakeholders. Nevertheless, enhancing trade

while ensuring the safety and security of maritime commerce requires that customs and port authorities develop a close understanding and cooperation with shipping lines and all port's stakeholders. Effective cooperation and information exchange between customs and port authority, and individual shipping lines is essential to ensure the efficiency of maritime trade, with a goal to reducing economic drag. Moreover, effective dialogue will ensure that regulatory authorities have the best possible understanding of developments in trade and industry, which can in turn better support the fulfilment of their supervisory function.

396. Having in place appropriate mechanisms for government entities to consult with port's stakeholders is vital. These consultations should be used to help shape the frameworks for data exchange and regulatory compliance. The consultation process is especially important when port and customs authorities are designing major operational changes or information collection processes. In this way, authorities can understand the business needs of port stakeholders (and vice versa), and solutions can be found jointly to overcome challenges in meeting regulatory obligations. The most effective consultation takes place over time. It should be part of a standard and on ongoing process.

5.8.2. Shipping Lines as one of the strategic port's stakeholders.

397. Shipping companies are typically a port's principal customers, offering maritime transport services regionally and around the world for their customers' cargo. Shipping lines establish direct relationships and digital connections with port and customs authorities. These interactions may take place directly or via local shipping agents and/or via port community system. Effective cooperation and efficient information exchange between customs and port authorities, and shipping lines, is essential to ensure that ships and shipments are not delayed.

398. Shipping lines and agents need to obtain and provide significant amounts of data concerning the vessel, its security, crew, and cargo. The IMO FAL.14(46) resolution frames the standard information requirements for the arrival, stay and departure of vessels to ports. In addition, for the cargo release process, customs will require shipping lines, their agents and other economic operators to provide detailed information in the form of declarations and notifications concerning cargo, type, weight, quantity, hazardous content etc. as well as information about the conveyance and the routing of the goods and transport. Detailed cargo data often needs to be obtained from shipping lines' customers.

399. These data submissions can take the form of advance cargo security information, vessel arrival notifications, cargo manifests and other types of filing. The data requirements introduced by port and customs authorities need to meet their needs but they should also reflect the realities of data availability amongst different supply chain actors.

400. As described in section 2.2.2 of the Guidelines, it is essential to have the close involvement of port's stakeholders in the process of identifying: data requirements; the parties that should submit that data; the constraints impacting data availability; filing deadlines and submission processes. Due to the cargo volumes involved and the mechanics of trade, shipping lines must largely rely on the accuracy and completeness of the data provided by their customers. Consequently, it is critical, and in line with the Safe Framework of standards, to seek to obtain data from the party that generates it in the normal course of their business.

401. Effective public-private data collaboration will support authorities to achieve their goals and obtain enhanced data quality by appropriately reflecting the business realities and commercial relationships that exist beyond the port or customs house gates.

5.8.3. The Value of Single Window – The shipping lines perspective

402. Shipping lines also strongly value the simplifications arising from the effective implementation of the Single Window Environment. Single Window Environment aim at modernizing cross-border regulatory processes by highlighting, expediting and simplifying information flows between the private sector and the national or regional authorities. Through more coordinated and effective data collaboration it can bring meaningful gains to all parties involved in cross-border trade.

403. Single Window Environments are designed to ensure a single-entry point for the submission of data by the trader and a coordinated - all of government – response for the checks, controls and authorizations that need to be performed for that cargo. UNECE Recommendation No.33 defines a single window as an electronic facility providing trade facilitation measures that allows parties involved in trade and transport to lodge standardized information and documents with a single-entry point to fulfil all import, export and transit-related regulatory requirements. Critically, once information has been sent to the Single Window Environment, an economic operator need not submit their data multiple times because it will already be lodged and stored in the system.

404. Maritime Single Window, provide a coordinated response related to vessel clearance, advanced vessel information, coordinated border management and risk management domains. The customs domain may also be included in the scope of the maritime single window, (such as in the case of the European Union's Maritime Single Window Environment) so that that the Maritime Single Window can act as the ports stakeholder's gateway and unique entry point for all regulatory formalities associated with the vessel and the goods crossing the border.

405. For economic operators such as shipping lines, it is very important that the Single Window Environment should enable the submission of all statutory and legally required information directly to the responsible authority. Appropriate and efficient access management to Single Window Environment should allow data submission from any location as long as legal framework and cybersecurity requirements are met. Port stakeholders such as shipping lines place a high value on Single Window Environment that operate at national or Customs union levels and in line with international standards and recommendations. This enables the best level of trade facilitation by promoting harmonized practices and data submission processes, across all ports on given territory or trading zone. Finally, data availability and visibility go together with the need to implement data protection and cyber security standards to prevent unauthorized access and manipulation.

5.8.4. The need for public-private partnerships to tackle illicit trade in drugs and other items

406. Just as it is vital for customs and port authorities, and shipping lines to cooperate closely to facilitate legitimate maritime trade, it is perhaps even more important for those parties to cooperate in order to detect and stop the flow of illicit goods moving through the maritime supply chain. Illegal trafficking, controlled by criminal groups exploiting maritime supply chains can include narcotics, illegal wildlife and timber products, contraband and counterfeit items and dual use goods under trade restrictions. To effectively counter these threats, public and private sector actors need to develop high degree of trust at all levels. Trusted relationships established between companies and government authorities foster vital intelligence sharing and help keep up as threats change and evolve over time. The benefits of close cooperation between public and private parties to detect and stop the trade in illegal narcotics has been demonstrated at global level. Operation Tin Can, (see also section 3.2.1.5 of the Guidelines), involving WSC members, customs authorities and law enforcement from 58 countries ran from 14 November to 9 December 2022. It resulted in 43 arrests and 158 drug seizures netting 98,734 kilograms of cocaine and 314 kg of cannabis herbals. WSC members reported over 700 anomalies that directly contributed to those results. The operation's success was built upon collaboration with the shipping lines and the combination of traditional law enforcement methods with new innovative data visualization tools, and container tracking technology.

407. The close involvement of the private sector in Operation Tin Can was inspired by a wider cooperation between the WCO, UNODC and WSC launched in June 2022 to improve the efficiency of combined efforts to tackle the trade in illegal goods. A range of initiatives and actions have been identified for how customs, port and other authorities, and shipping lines can work together more effectively. International best practice should be developed by these organizations and their members to ensure the most effective response to the growing threats of illegal goods trafficking.

408. The following actions have been identified as priorities:

- **Mutual training:** Company personnel can learn vital lessons from customs and law enforcement about how to spot and deal with threats and suspicious situations. Equally, port authorities and shipping lines can provide key support to law enforcement by teaching them about the organization and characteristics of ports and shipping lines. Better awareness of commercial and operational practices, import and export processes, changes of destination, bills of lading and information about loading parties can be a considerable asset for authorities to help channel resources and target controls more effectively. The WCO recently stood-up the Supply Chain Integrity Project, to which WSC members have been invited to regional customs symposiums to discuss carrier operations in a face-to face setting.

- **Data Exchange**: Customs and Port Authorities and shipping lines should jointly identify the key data that needs to be shared to better track ongoing and evolving threats. There are often legal and security-based constraints on what data can be shared depending on the jurisdictions and entities involved. However, a strong public-private partnership should aim to build an optimum two-way framework for exchanging key information in confidence about suspicious cargoes and risks.

5.8.5. Cooperation to tackle uncleared and abandoned containers

409. Another key issue and risk to maritime supply chain security to be tackled through the combined efforts of customs, ports authorities and shipping lines is the risks of uncleared and abandoned containers. This has an important dimension in a trafficking context where a container may be abandoned because the criminals picking it up to remove their illicit cargoes have been alerted that their activities have been detected by the authorities. Equally, where a shipper has abandoned a container following the detection of mis-declared hazardous goods both a criminal and potentially dangerous situation needs to be addressed effectively.

410. Experience from shipping lines and other parties has revealed the urgent need for clarity on the definition of abandoned containers and standardization of practices by customs and port authorities. WSC members see an important distinction between whether a so-called abandoned container has been cleared or not cleared by customs authorities. When such containers are cleared, many customs authorities then have the authority to direct shipping lines to reexport the container, or customs can open and confiscate the container. When uncleared containers are abandoned, this creates a difficult situation for customs, port authorities and shipping lines who are also unable to regain use of their container. There are also certain customs authorities that make a practice of putting such containers and their contents up for auction. In some cases, these can be incentivized by local corruption where a receiver can rebuy their goods at a much lower price at auction and also avoid paying any transportation costs.

411. Customs and port authorities have in shipping lines a committed and able ally in the common fight against illegal trafficking. But it should be noted that shipping line employees are not law enforcement agencies. Shipping Lines are not trained, funded, supported or authorized to confront the criminal elements that threaten public safety through their exploitation of the supply chain. Moreover, company employees often end up being unfairly arrested or detained just for reporting illicit cargo finds. There is a need to build an appropriate climate of trust and cooperation to effectively tackle trafficking. Finally, the container supply chain is a long one with many individual actors transporting goods from country to country. Tighter controls in one area will see the problem shift elsewhere. Containers arrive at the port packed and sealed. Manifests are issued by the shipping line based on the information provided by the shipper. There are many parties that operate throughout the whole supply chain, consequently, the fight against illicit goods trafficking must be won through trusted and effective public-private cooperation that reach across the maritime supply chain.

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