

**HOW TO BUILD A SINGLE
WINDOW ENVIRONMENT**

**SUPPLEMENT
EDITION**



IMPORTANT

1. This is a Draft document that has been compiled solely for study by the WCO Secretariat and some Volunteers from Customs Administrations, based on the 2014 version of the WCO Single Window Compendium, Vol. 1 and Vol. 2.
2. The document is not fully annotated. The Secretariat will add additional annotations and references wherever appropriate.
3. References to case studies have been / or will be omitted unless it is duly permitted by the member administration.
4. Comments may be sent to the dm@wcoomd.org. Comments will be examined by the Editorial Team of the Secretariat.

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CHAPTER 1: WHAT IS A “SINGLE WINDOW”?

The term ‘Single Window’ is a widely used term in the area of international trade, and a number of efforts have been made to define and describe this term and the associated concepts. The idea of a ‘Single Window to international trade’ challenges the conventional models of regulatory control of the movement of goods and means of transport.

Traditionally, in cross-border trade, different government departments and agencies manage different areas of regulation. These agencies include:

- Customs,
- Plant & Animal Quarantine Agencies,
- Sanitary & Phytosanitary Inspection Agencies,
- Food Safety Agencies,
- Border Police and
- Transport departments

The above list is non exhaustive and depending on national laws in place, other agencies and organizations may also have a presence at the border and manage services in their respective areas of competence. All of these agencies and organizations have their legally mandated roles and responsibilities that were developed over the years, and evolved into separate operational domains and bureaucracies.

The Single Window concept examines regulatory controls *through the eyes of the trader* and views all interactions between trade and regulatory agencies without regard for the internal divisions within government. This approach clearly brings out all the procedural redundancies, duplication in the filing of information and the wastefulness involved in the overall effort to move goods across borders.

This simple concept has been embraced enthusiastically by the leadership both in Trade and in government organizations. Several terms were coined to describe it in different languages around the world. In the French language, it is referred to as *Guichet Unique* where ‘guichet’ in French is understood traditionally as the service window or service counter of a government office. The Single Window approach does exactly what the term in French denotes – it unifies the interface between government and trade.

In Latin America, the Single Window is widely known as VUCE or *Ventanilla Unica de Comercio Exterior* – or a Single Window to External Trade.

The use of different terms for the Single Window concept is important because of the scope they suggest. ‘International Trade Single Window’ conveys the sense of it being an omnibus facility for trade.

Exchanges between participants in an international trade transaction cover processes starting with the discovery of products and trade partners, shipment and dispatch, regulatory clearances at the border and payment for the traded goods. For Customs and Cross Border Regulatory Agencies (CBRA), the primary interest would be the processes that are purely for trade and includes only those processes that involve cross-border regulation.

Definitions

UN/CEFACT RECOMMENDATION 33

In UN/CEFACT Recommendation 33, the collaboration between Customs and other government agencies is explained in terms of information flows between parties involved in trade and transport on the one hand and regulatory agencies on the other. It was the first rigorous attempt to collect data and documentation on the design and implementation of Single Window for international trade. This recommendation is generally

the basis for the current understanding on the subject. Globally, implementations of the Single Window concept are being judged by whether they meet the norms required by the definition of Single Window and the typologies described in the annex to the Recommendation.

UN/CEFACT Recommendation 33 defines a Single Window as:

“... a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once.”

The accompanying guidelines to this Recommendation describe the most common models for a Single Window:

- (i) The **'Single Authority Model'**, an entity that co-ordinates between all relevant agencies to ensure that the logistics chain remains unhindered.
- (ii) The **'Single Automated System Model'** which is an automated information system that processes information or co-ordinates with a group of systems that process the data that has to be received or sent. Such systems could be further categorized as integrated systems in which the Single Automated System serves as processing hubs for individual users from all concerned agencies or interfaced systems where the Single Automated System develops and utilizes interfaces with systems belonging to other agencies to complete a transaction. There could also be a hybrid of integrated and interfaced approaches to the Single Automated System.
- (iii) The **'Automated Information Transaction System'** that serves as transaction hub and is integrated to all authorities. Declarations and permits are received electronically in a single application and it is processed seamlessly by the concerned individual authorities. The response is returned to electronically to the declarant.

SINGLE WINDOW 'ENVIRONMENT'

The WCO elaborates on the UN/CEFACT Recommendation 33 definition through the term 'Single Window Environment', and calls attention to the fact that the 'Single Window Environment is, in fact, an 'intelligent', facility that allows parties involved in trade and transport to lodge standardized information, mainly electronic, with a single entry point to fulfill all import, export and transit related regulatory requirements, which are largely in line with the UN/CEFACT Recommendation 33.

It is called an 'environment' because it has been widely observed that Single Window implementations are usually a union or a federation of interdependent facilities joined by mutually defined interfaces and collectively adopted business processes – i.e. a system of systems.

Single Window projects are often implemented in phases that sometimes extend beyond 5 years. Each phase and sub-phase builds upon the previous phase leading to progressive simplification for trade and more processing elements within the environment. The eventual outcome may not be the result of a single project but could be the outcome of a series of projects.

INTELLIGENT FACILITY

The term 'intelligent' is significant because the Single Window is not merely a data switch or a gateway to facilities belonging to cross-border regulatory agencies, or simply a unified access point to information through a web portal. It is also a vehicle for providing **shared services** to the users.

Such **shared services** includes **computation of duties/ taxes, fees and charges** administered by agencies at the border, **coordinated risk management** and **shared operational controls** between Cross Border Regulatory Agencies' processes and workflows. The 'intelligence' embedded in a Single Window makes it possible to provide the trader with an integrated view of his transaction.

Intelligence notwithstanding, the defining feature of a Single Window remains ‘**one time submission**’ to government agencies that seek information from trader and transport actors to enable the application of regulatory measures on cross-border movement of goods, people and all means of transport. Cross-border movements include import, export and transit.

Avoiding redundant flows of information from trade to CBRAs and vice-versa would help realize the true potential of a Single Window Environment.

One-time submission to a Single Window is based on the following principles, all of which signify the ‘intelligence’ aspect of a Single Window Environment:

Incremental submission of data: Trade and transport actors submit data to CBRAs at different points in time in the course of a transaction in international trade. A Single Window may require submission of only the incremental data to reflect a change or progression in the transaction. The Single Window should avoid re-submission of data to the extent that such data was part of an earlier submission. The ability to link-up individual submissions of data by a trader is part of the “intelligence” of a Single Window Environment.

Harmonized regulatory declarations: Different CBRAs prescribe data requirements, which are often overlapping. Under a Single Window, a harmonized set of data requirements may be prescribed so that for a trade transaction or a transport movement, the concerned actors are not obligated to submit the same data repeatedly to different agencies.

Sharing of information amongst CBRAs: This is a logical consequence of harmonized regulatory declarations. This sharing enables the shared, joint or separated application of controls by the respective CBRAs.

Harmonized CBRA response: The response to a declaration/report by a trade or transport actor is an important part of the business process. A CBRA response indicating release of goods signifies the fulfillment of a regulatory service. Each CBRA may process its responses independently but the single window must provide a unique harmonized response to the trader.

UNDERSTANDING THE SINGLE WINDOW ENVIRONMENT

A Single Window Environment can be understood through different complimentary perspectives. A holistic understanding of a Single Window Environment allows us to draw different actionable insights on how a Single Window Environment can be built.

SINGLE WINDOW AS FACILITY FOR LODGING STANDARDIZED INFORMATION & DOCUMENTS

UN/CEFACT Recommendation 33 perceives the Single Window primarily as a facility for “lodging standardized information and documents with a single entry point”, and establishes the operating principle that information in electronic form should be submitted only once.

Perspective	Main Themes	Actionable Insights
UN/CEFACT Recommendation 33	Facility for lodging standardized information and documents with a single entry point	<p>→ Standardizing information and documentation is the key to trade facilitation.</p> <p>→ Unifying government’s interface to trade</p>

Individual data elements should only be submitted once	→ Harmonizing data across cross-border regulatory agencies → Creating combined cross-departmental forms and software applications to enable single submission of data
Single Authority, Single Automated System (Integrated, Interfaced or Hybrid) and Automated Information Transaction Systems	→ Understanding architectural types, classifying existing Single Windows and charting migration paths

This provides the fundamental awareness necessary for a government to understand the nature and characteristics of a Single Window, as well as the key issues that lead agencies should consider when planning a Single Window project.

SINGLE WINDOW AS PART OF COORDINATED BORDER MANAGEMENT

The nature of the regulatory services to be brought into the Single Window environment raises the very fundamental issue of Coordinated Border Management between different Cross Border Regulatory Agencies (CBRAs).

Perspective	Main Themes	Actionable Insights
Co-ordinated Border Management	Single Window is part of a wider program of inter-agency collaboration	→ Linking the Single Window strategically with the overall performance on border management → Focus on functional integration and collaboratively performed activities (integrated risk assessment, coordinated examination, unified cargo control, combined trader account management etc.)
	Single Window services demand a high degree of inter-agency collaboration	→ Identifying and managing tasks of inter-agency coordination that support Single Window Services

Coordinated Border Management is an absolute necessity and pre-requisite for developing a Single Window Environment because it is only by holistically understanding the diverse roles and responsibilities of CBRAs, that the processes can be optimized and streamlined.

SINGLE WINDOW AS A VIRTUAL ENTERPRISE

The Single Window Environment can also be viewed as a 'virtual enterprise', where an assortment of service providers comes together in a virtual environment to provide goods and services to the customer, such as e-commerce websites. A virtual enterprise can be further understood through 2 key aspects (i) a web portal, and (ii) a network of collaboration facilities and arrangements between organizations.

Perspective	Main Themes	Actionable Insights
Co-ordinated Border Management	Single Window is part of a wider program of inter-agency collaboration	<p>→ Linking the Single Window strategically with the overall performance on border management</p> <p>→ Focus on functional integration and collaboratively performed activities (integrated risk assessment, coordinated examination, unified cargo control, combined trader account management etc.)</p>
	Single Window services demand a high degree of inter-agency collaboration	→ Identifying and managing tasks of inter-agency coordination that support Single Window Services

While a government website is very different in nature compared to a private-sector e-commerce site, the underlying characteristics provides useful insights for governments in the conceptualization and design of their Single Window Environment.

SINGLE WINDOW AS A COLLECTION OF SERVICES

A Single Window Environment can also be understood in terms of its value proposition through the services that it provides, which is ultimately, the management import, export and transit regulatory requirements. The bundling of such services into a Single Window Environment makes it convenient for businesses to access and consume these services easily.

Perspective	Main Themes	Actionable Insights
Collection of Services	Single Window services can be organized into distinct, non-overlapping categories and hierarchies	<p>→ Helps identify gaps in the IT supported services in cross-border trade, transport and regulatory domains</p> <p>→ Provides a framework to analyze and determine Single Window scope</p> <p>→ Creates pathways from business services to Single Window services under 'Service Oriented Architecture'.</p>
	Service interactions hold the key user satisfaction	<p>→ Draws management attention to interaction design and service experience</p> <p>→ Follows the established disciplines of service catalogue development and service operation management.</p>

Looking at Single Window through the prism of "services" and "service interactions" also allows us to become much clearer about what needs to be done for the trader and by which agency, so that existing processes can be rationalized to achieve the border regulatory and trade facilitation objectives.

CHAPTER 2: AGENDA SETTING & POLICY PLANNING

SINGLE WINDOW: A COMPLEX POLICY QUESTION

A Single Window Environment is not built overnight. It is a complex policy question that involves both government and private sector stakeholders, and touches on established and possibly, sensitive operational areas. The optimism that entrenched and difficult problems can be immediately solved through the introduction of an ICT system is misplaced and erroneous. Hence, it is necessary to understand the nature of the complexity so that proper planning and communication can be undertaken.

'Single Window' is often a complex policy question because:

- A significant number of Government Agencies are involved in the international trade regulatory processes. By its very nature, inter-departmental issues are very complex;
- Each CBRA have their defined role at the border that is mandated through laws and regulations. They cannot withdraw from these roles unilaterally. Perceptions that the Single Window might undermine their role will cause difficulties for the project;
- The Single Window project will not exist in isolation – concurrent or preexisting government, civil service and infrastructure reform programs can asset an influence on its objectives or the Single Window project may have to align itself into these existing programs in order to benefit from synergies and resource allocation;
- A Single Window cannot be build overnight – legislative changes, business process analysis and data harmonization are complex, time consuming activities that takes time. They are also collaborative and consultative in nature, and needs to be sustained through multiple iterations over a long period of time;
- Day-to-day work does not cease with the decision to start a Single Window project. The Single Window project will compete with many other “pressing matters” that requires immediate attention. The lack of resources to meet these competing priorities may limit the abilities, or the willingness of cross border regulatory agencies to actively participate in a Single Window project. The intimidating scope of a Single Window project can also trigger conservative responses by certain participants to limit their involvement.

All of these issues can cause participants in a Single Window project to lose focus. Hence, it is necessary for all CBRA participants to understand the political processes leading up to the formulation of a single window project, and for the Senior Executive of the Lead Agency to manage these factors in a manner that will achieve the necessary conditions that will bring the Single Window project into a position of priority.

GETTING 'SINGLE WINDOW' ON THE GOVERNMENT'S AGENDA

Experts have suggested that there are three process streams (Kingdon, 2002) that must converge in order to bring about major policy initiatives. These streams are the **problem stream**, the **policy stream** and the **political stream**. These streams exist independently but come together at crucial moments to produce structured policy decisions. The following sub-sections examine these three streams in the context of a Single Window in order to locate the success factors in consensus building and the enactment of policies.

THE PROBLEM STREAM

The Problem Stream comprises identification and recognition of a set of related problems. The problem stream can emerge from organized events, published indicators and reports (feedback) from the field. The problem stream is focused on providing a high level of clarity to all stakeholders. The consensus that “issues” have become “problems” is often necessary before stakeholders are willing to come together to deal with it in a focused and concerted manner – these “issues” can come in many forms:

- **Focusing events:** efforts by national and international bodies to identify bottlenecks in the trading environment, seminars, workshops, trade negotiations and ongoing efforts to attract foreign direct investments;
- **Indicators:** Key macro-economic indicators published by international organizations, such as the “World Bank Doing Business Report”, which ranks economies on their capacity to facilitate businesses and, and the “Trading Across Borders” sub-indicator published under the same report, which is directly relevant to cross border trade. Other related indicators and reports include the World Economic Forum Global Competitive Index, and the Logistics Performance Index, all provides qualitative and semi-quantitative rankings that can be used to identify potential problems in cross border trade.
- **Field Reports:** The country itself would collect and publish statistics and reports on cross border trade, as well as receive reports on the ground, both from its officials on the ground, as well as through grassroots channels and formal consultative bodies that would provide further insights to the situation on the ground. Other reports include a Time Release Study, which provides quantitative information on the time taken by various agencies at the border to clear goods.

These reports and globally published indices attract media attention and create public awareness. The concerned public authorities are brought under pressure to explain why national performance is so poor. Stakeholders will use the statistics and indices as a means to support analysis and justify the need for change.

THE POLICY STREAM

Governments establish policy programs in different areas of governance and different sections within government are tasked with the formulation of policy alternatives and proposals in their respective areas. These organizational units give shape to new ideas or policy proposals that generally require the government’s attention. In this stream, the decision alternatives for the policy agenda are formulated. While the problem stream is largely factual and based on hard evidence on the ground, the policy stream is the intellectual analysis of policy options and alternatives.

The policy streams that are relevant with Single Window processes can be located in the Customs modernization policy and the process of setting-up the vision, mission and goals for Customs. This is the only stream that is under the direct supervision and control of the Director General of Customs. Other policy streams that asserts an influence on Single Window projects includes:

- **Trade & Regionalization Policy:** Directed by the Ministry of Trade, or the Ministry of Foreign Affairs, who oversee trade policies, regional integration or multilateral negotiations at international organizations. An important recent development in this area is the WTO Agreement of Trade Facilitation provided new policy impetus, as it encourages Members of the WTO to implement a Single Window.
- **Logistics Planning & Industrialization Policy:** Trade logistics planning is a specialized area that requires expert input to government. It could include the identification of industrial zones, the planning for freight transportation infrastructure, the creation of industrial parks and the establishment of freight corridors. Policy planners that work on these policy issues may find Single Window as the solution to the problems of ‘logistics efficiency’. Hence, Single Window will likely emerge as a policy option that links the national logistics infrastructure with the overall national vision for competitiveness.

- **Human Resources & Civil Services Reform Policy:** Public service expenditure is often a major area of concern for many governments. Reforms and reorganizations leading to large scale re-deployment of manpower due to merging of functions or reallocation of resources between organization units presents a significant opportunity to introduce the question of the Single Window. Restructuring may also include the creation of a new government departments or agencies for achieving a better structure with the strategic priorities of the government.
- **eGovernance Policy:** eGovernance policy is not just about services provided by different government departments. It is also about technical standards to ensure interoperability and the common infrastructure for eGovernance. Governments are keen to optimize infrastructure resources such as data centres, networking, hardware, software, contact centers, citizen service centres to enable their shared use between government departments. This shared use would not only optimize resources across government departments but also foster the concept of joined-up services. Single Window for international trade could easily be one such area where the managers of eGovernance policy have a natural role to play. Hence, it is important for the Customs executive management to maintain a direct link with experts in this area, to be aware of the master-plans for eGovernance services to businesses and the government wide standards that are being promoted.

THE POLITICAL STREAM

In addition to the identification of specific “problems” and the purposeful alignment of policies to support a Single Window project, it is also important to be attuned to the political undercurrents that could influence political decision-makers. Items of economic governance and industrial regulation have always been high on any government’s agenda. With growth in the number of active trade lanes and the increase in the variety and volumes of trade, problems of cross-border regulation and the security of the supply chain have become very complex. In today's information driven world, businesses expect government to address these complex problems through faster and more effective processing of information. Therefore, it is not difficult for political leaders to pick-up ‘single window’ and put it on the Agenda.

However, Single Window is a problem that straddles across traditional departmental boundaries. Each ministry/department is under separate political oversight, supported further by a network of organizations that have diverse stakeholder interests. Each department will have its own budgeted government programs that its bureaucracies administer. Interest groups create and maintain their respective hard-fought turfs.

Factors that assert an influence on the political stream includes:

- **Shift in public opinion:** Increasing globalization and improvements in information and communications technology has made the information more widely available. Members of the public will acquire greater exposure and insights to new ideas and concepts. Increasing levels of education in a country, coupled with increasing affluence, also allows people to become more mobile, and to acquire new experiences, and seek new trading opportunities overseas. All of these factors will have the concurrent effect of increasing public expectations that will assert pressure on the government’s reform agenda;
- **Pressure groups & Incentives:** Trade associations, chambers of commerce and special interest groups have a natural tendency to advance their interests through influencing political decision makers. Where Single Window is concerned, the trade and logistics sector will seek to have its perspectives heard because it impacts their business interests directly. It is necessary to engage with, and understand this segment of stakeholders, so that its support can be secured, and its concerns mitigated. While a Single Window may appear to benefit trade and logistics service providers through increased trade facilitation, inherent conservatism and resistance to change, or potential disruptions to entrenched business interests or practices can lead can cause complications to a Single Window project;

- **Turnover in Leadership:** Changes in political leadership is also an important aspect that public sector agencies involved in single window projects need to be sensitive to. A single window project can have a long gestation period that intersects with elections, leadership transitions, and cabinet reshuffles. It is necessary for public sector organizations to work with the newly appointed leaders to understand if there are changes in national priorities, to re-contextualize the single window project to fit these new priorities, and to adjust the plans accordingly so that the single window project can remain on track.

The Senior Executive would have to be sensitive to the factors within these three streams, and to manage them in order to get Single Window into the agenda. Once the decision has been made, the momentum would have to be maintained through effective communication and planning to achieve the various dimensions involved.

CHAPTER 3: TRANSLATING POLITICAL MANDATE INTO STRATEGIES & PLANS

SINGLE WINDOW & STRATEGIC MANAGEMENT

Strategic Management is defined as the process of creating an operational strategy for an organization, based upon a mission and a vision in order to keep the organization on track with its goals and objectives. Government's priorities and its national and international obligations will shape Customs operational strategy. The development of a Customs administration rests entirely on the foundation of its mission, vision and strategy. Having to undertake a Single Window project does not change this underlying mission, vision and strategy. The development of a Single Window Environment is a key strategic element that links-up a number of trade-facilitation initiatives.

A Single Window will impact all stakeholders in international trade, and will have far-reaching implications, particularly for Customs. The WCO Survey held in 2010 has revealed that in the majority of cases, Customs has been chosen to lead and orchestrate Single Window projects. Even in those countries where customs does not 'own' or 'run' the Single Window, it is the major stakeholder simply because of its wide business coverage at international borders.

An essential trade facilitation outcome that should result from a successful Single Window Environment is 'short & predictable release times'. This outcome is only achievable when a number of interlinked policies and programs come together in a mutually supportive manner. The rest of this section uses a strategy framework developed by Michael Porter to illustrate this aspect of strategic management.

DISTINGUISHING FEATURES OF A MODERNIZED CUSTOMS

An analyst of trade and logistics infrastructure would commonly find the following characteristics and features among advanced industrial nation that performs very well on trade facilitation and logistics measures :

Defining characteristic	Observable features
Cargo release is mostly automatic	<ul style="list-style-type: none"> • Most of the cargo is released on the basis of declaration and without regulatory examination at the time of release. • Intervention is by exception. Documents are not examined at the port/ airport/ land border while cargo awaits release.
Simplified procedures	<ul style="list-style-type: none"> • Release on minimum documentation; • Two step declaration process where the first step involves submission of release data; • Separation of release from clearance; • Accelerated release procedure for accredited or certified clients.
Simple tariffs & clear regulations	<ul style="list-style-type: none"> • Low variability in rates of duty; • Few types of duties and taxes • Transparent methods of tax computation, facilitating automation • Few conditional exemptions to duties and taxes • Low tariff rates [most found in industrialized economies]
Effective use of risk management	<ul style="list-style-type: none"> • Risk Management is an organization-wide process with a systematic effort to implement risk-based controls. • Risk Management is embedded into Strategic, Tactical and Operational processes • Organizational structure supports risk management • Automated systems help risk assessment and selectivity • Intervention is by exception
High capability for compliance	<ul style="list-style-type: none"> • Government takes proactive steps in publishing compliance information • Voluntary compliance is supported through client outreach programs • Members of the trade remain invested heavily into compliance management. • Organized themselves to receive automated information

Defining characteristic	Observable features
Developed post-audit controls	<ul style="list-style-type: none"> • Maintaining client account information is an organizational routine. • Organizational units and skills exist for post clearance audit and assignment of audit tasks follow the principles of strategic risk management. • Post clearance audit is the basis for compliance tracking and measurement. • Legal support for on-premises audit and for access client's own information systems and data.
Certified Client-base	<ul style="list-style-type: none"> • Trusted trader / authorized operator programs exist. • Transparent norms of certification based in independently verifiable audits.
Efficient information exchange	<ul style="list-style-type: none"> • Electronic data interchange systems interlink various stakeholders – connecting traders, port/airport, logistics providers, regulatory agencies and banks.
Standard and simple electronic messages	<ul style="list-style-type: none"> • Highly standardized and simplified messaging has been implemented. • Messages cover a broad spectrum of business needs related to regulatory clearance
Support for supply chain visibility	<ul style="list-style-type: none"> • The entire community has invested in features that facilitate the transparent discovery of the status of declarations and release, vessels, cargo, and container movement
Progressive build-up of data	<ul style="list-style-type: none"> • Systems don't demand the submission of all data at once • Data is allowed to be built in stages matching with the corresponding actions in the trading and logistics business.
Reliable & orderly cargo delivery	<ul style="list-style-type: none"> • Low idle-time for cargo handling resources at terminals and warehouses. • Low waiting-times for delivery trucks. No visible clogging or queuing in the cargo facility. • Effective communication links between cargo handling units and the dispatch systems.
Highly automated Cargo delivery	<ul style="list-style-type: none"> • Real-time, graphics-enhanced container storage yard information supports highly reliable capability to locate containers. • Automated binning in the warehouses helps rapid storage/ placement and retrieval of cargo
Excellent logistics capability	<ul style="list-style-type: none"> • Inland hauliers are able to automatically schedule the delivery and collection of cargo at the airport, port or inland freight station. • Low waiting times and loading operation times for trucks
Real-time exchange between customs & logistics operators	<ul style="list-style-type: none"> • Release and release status information provided instantaneously to importer, forwarder and port and airport authority and warehouse operators. • Carry-in and carry-out gate permissions are automated and managed through online connectivity.

Most of these characteristics and features cannot be implemented in isolation. They are often the results of long-term reform and modernization efforts and can be visualized as a network of dependency relationships.

For example, short and predictable release times cannot be achieved without high levels of automated release of consignments. Physical handling of Cargo by the logistics facilities must ensure that cargo moves rapidly and reliably through the border facilities. Predictable and quick release has no meaning if the logistics processes cannot keep with the pace of regulatory release. The regulatory and physical processes come together with support from IT systems based timely flow of information. The diagram below depicts this relationship.

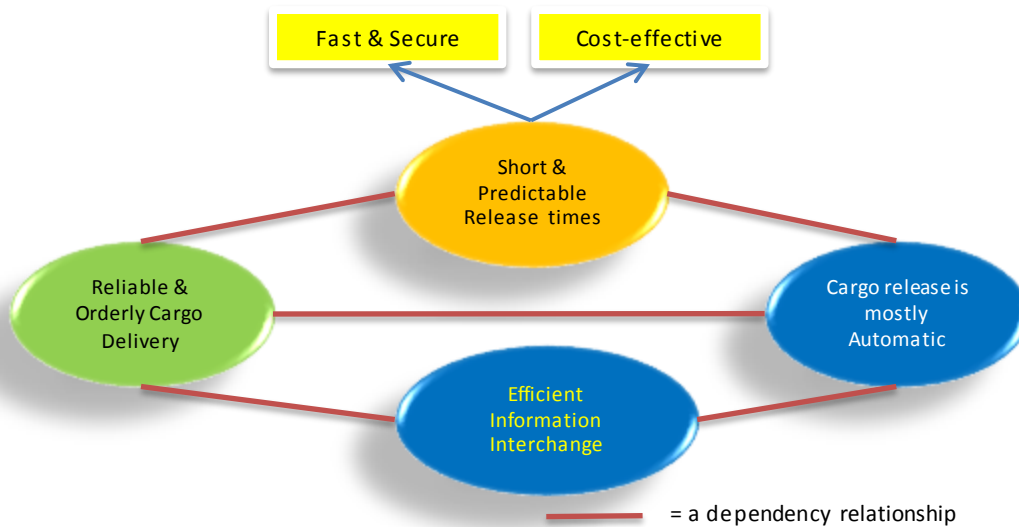


Diagram: Typical characteristics of an effective cargo clearance facility

The above diagram shows the interconnection between some of the key features of an advanced cargo clearance system.

This exploration provides an insight into how most of the advanced industrial nations that have already achieved high standards in the border processing of cargo. This goes to show that besides providing a Single Window solution, there is much that needs to be accomplished in order to achieve the targeted efficiencies in cargo clearance. The management of expectations from a single window project is vital and the existence of other elements that form the underpinnings of high-velocity of trade must not be lost sight of.

A further drill-down of these features reveals a clearer picture of the entire system comprising individual strands of policies and programs.

AUTOMATED RELEASE OF CARGO

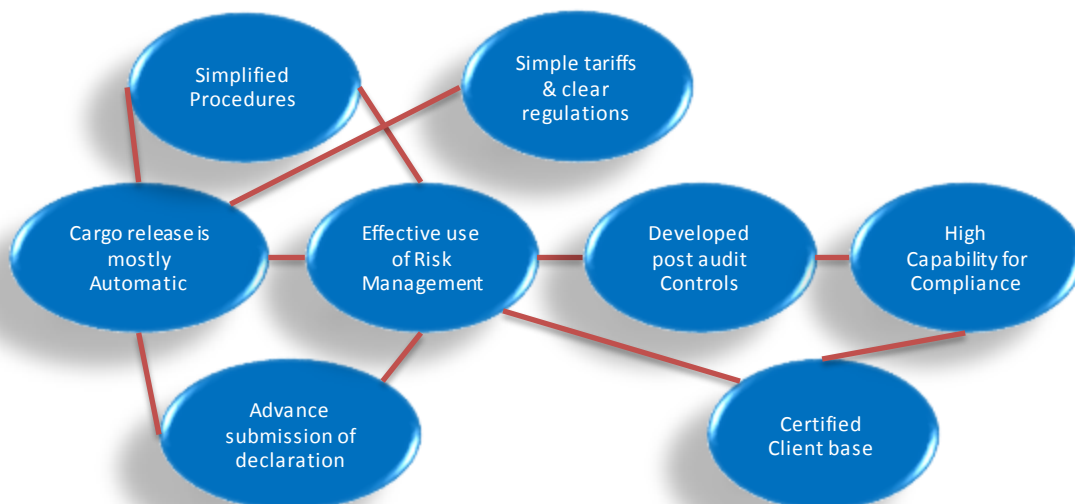


Diagram : There is a lot that goes into fully automated cargo clearance

For example, for **cargo release to be mostly automatic**, it needs to be accompanied by:

- **Low rates of inspection and documentary examination** upon arrival of cargo in the real-time flow of cargo.

- Low inspection rates cannot be achieved without the **effective use of risk management**, high recorded levels of compliance by clients and reliance on **post clearance audit (PCA) by Customs**.
- In all such cases, Customs follows **simplified procedures** and providing **guaranteed release on minimum documentation**.
- Industrialized nations tend to have **low tariff levels** along with **simple tariff regimes**. Added to this, the **non-tariff restrictions and regulatory requirements are made transparent**, allowing traders to easily access to information on commodity regulatory compliance and be effectively prepared to meet these requirements.

EFFICIENT INFORMATION INTERCHANGE

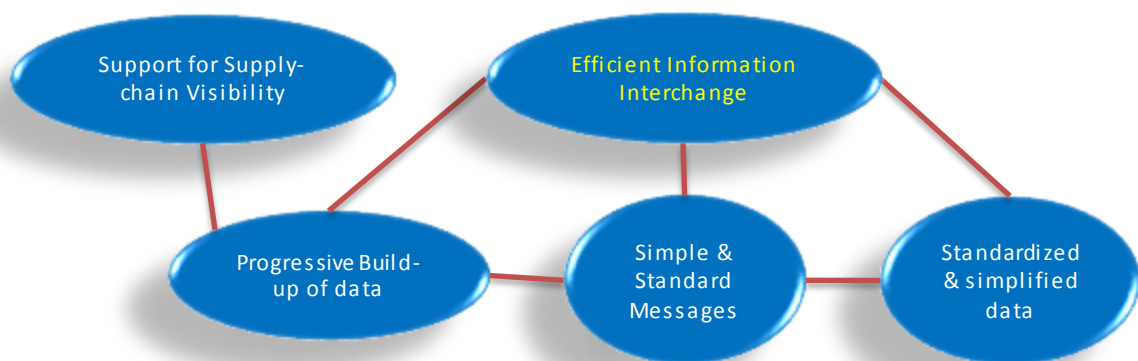


Diagram: Efficient information exchange implies standardized data processes

The next diagram looks at the key aspects of electronic information interchange.

- **Standardized and simplified data** is the basis for information flows. Non-standard data and messaging create islands of information and increase the effort and complexity involved in maintaining inter-connections between information systems.
- The progression of actions and operations in trade and transport transactions leads to the **progressive build-up of data**. The principle of progressive build-up leads to the gradual completion of information needed by regulatory agencies and reduces the lead time for document-preparation.
- All players in trade and transport do not have simultaneous access to all pieces of information that the importer / exporter or his agent needs for preparing regulatory declarations. The lack of awareness about the anticipated supply chain transactions and current status cargo movement prevent the 'regulated parties' from making advance submission of information. Therefore, support for **supply-chain visibility** is a key factor in the enablement of rapid clearance.

EFFICIENT SUPPLY-CHAIN MANAGEMENT

Lastly, the physical and logistics side of operations must match with the pace of the regulatory clearance. There are many aspects to this activity. The services that form the onshore infrastructure include tugging and pilotage, terminal handling, container yard management, tally & accounting, intra-terminal and intra-port-facility movements, and warehouse management (binning & retrieval). The diagram below depicts the inter-relationships.

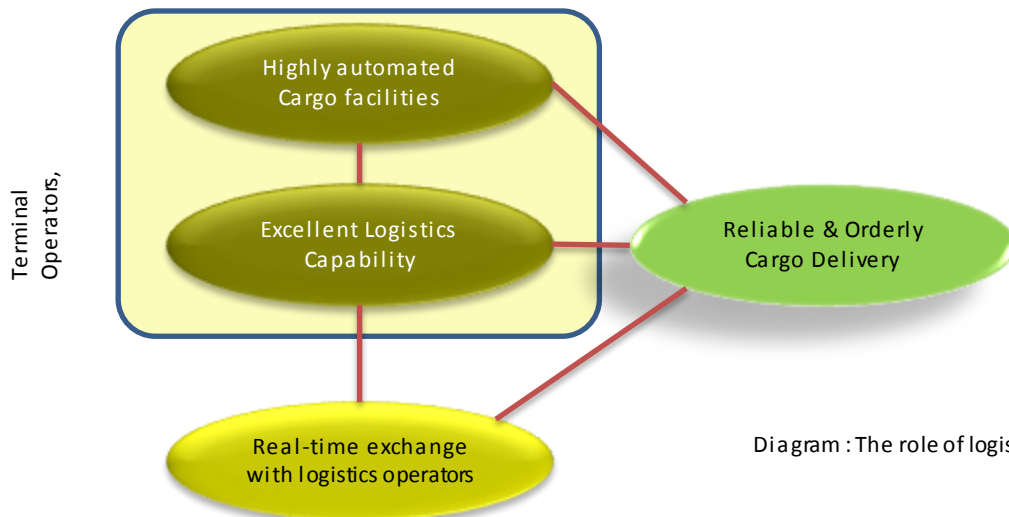


Diagram : The role of logistics operators is vital

Experts have documented (Clark, Dollar, & Micco, 2004) that poorly-performing ports have a direct negative impact on trade volumes and this is visible in smaller and less-developed economies.

The quality of onshore infrastructure is an important determinant of transport costs. Port infrastructure is a major determinant of transport costs. Poorly performing ports can account for up to 40% of predicted transport costs for countries with a coastline and up to 60% for landlocked countries. Resolving such inefficiencies through infrastructure upgrades can result in significant improvements.

Therefore, investment in port and airport modernization has to go hand in hand with a number of other initiatives in regulatory simplification. These investments are large and complex. They involve the use of high-technology and long gestation periods. Return on investment is typically spread over decades.

The analytical framework of 'Activity Systems' used in this chapter provides a clear perspective on the strategy for customs modernization. The expectation of short and predictable release times is the result of a series of inter-dependent activity systems that range from port infrastructure to simplified customs procedures and is mediated by several inter-dependent factors.

The following diagram illustrates the entire picture of activity systems which was arrived at by aggregating the above diagrams into one single frame. Customs executive management must recognize that there is a need to work simultaneously on different aspects of customs modernization, as the chain is as strong as its weakest link. The framework also provides the opportunity to arrive at a strategic positioning on each component of

the activity system:

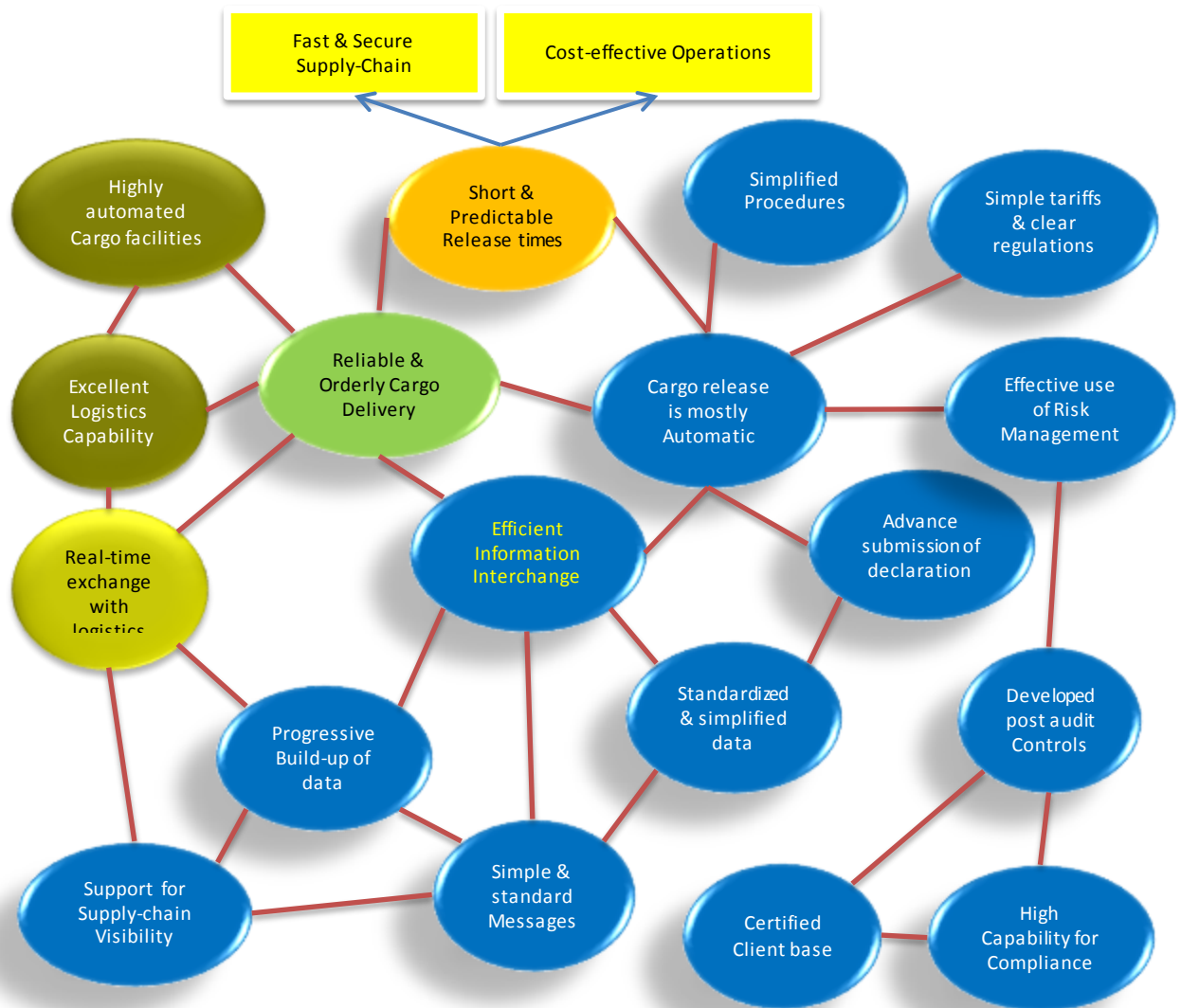


Diagram: Activity System of Country X that has a highly effective

STRATEGIC SYNTHESIS: IMPLICATIONS FOR SINGLE WINDOW

A Single Window project can be used as a vehicle for enabling or promoting each of the ovals in the activity diagram (save the two olive-green ovals in the top left corner, which are the preserve of logistics infrastructure, which is not of direct concern to Customs).

The Single Window initiative will impact a number of customs modernization initiatives by providing the impetus to drive the strategic components of a modern customs administration. Single Window projects will also have a positive impact on the different strands of modernization. Likewise, when a Single Window project is launched and becomes an integral part of the trade-regulatory eco-system, it will be an important factor in formulating various programs for customs modernization.

The key principles of Customs modernization become normative for all participating CBRAs in the Single Window initiative. For instance, if Customs follows risk management practices, it would become imperative for other government agencies follow suit. The same logic applies in respect of trusted trader programs, Post Clearance Audit programs, client outreach programs and the regimes of simplified procedure. Participating CBRAs will be able to share their best practice with other agencies.

CHAPTER 4: ESTABLISHING FORMAL STRUCTURES

POLITICAL MANDATE

The mandate on a Single Window gives the *official* instruction or direction to proceed with its development. The mandate gives legitimacy to the adoption of certain clear policies and well-defined objectives, the establishment of new organization structures and the assignment (including reassignment) of technical financial and regulatory authority to achieve these objectives. The mandate has to be *political* since only the political leadership can support the far-reaching decisions that need to be taken to support the Single Window initiative.

The mandate can either be an Executive Order, a Decree, or an Act/Resolution by the appropriate legislative body. The mandate has to be legally valid and administratively sound. Broadly, the mandate for a Single Window initiative comprises the following:

- Statement of object & purposes
- Definition of terms used
- Activities/services covered by the Single Window concept
- Establishment of the Lead Agency organization and the identification of partner organizations/CBRAs:
- Legal definition of the Lead Agency entity
- Financial dispensation for the Lead Agency & operating philosophy
- Lead Agency organization & consultative structures
- Powers vested to each of the identified organizations, including the Lead Agency to:
 - Approve projects
 - Recommend changes to legislation
 - Set service standards
 - Adopt changes to business processes
 - Adopt interoperability standards
 - Evaluate and review project implementation
 - Handle disputes.
- Date of applicability
- Schedules for the implementation of the Single Window Initiative:

When the mandate is not clear, there is a danger that default organization structures, existing delegation of authority and resources and existing modes of operation will prevail, and this could cause difficulties in the realignment of business processes that is necessary for Single Window development. The extent to which the mandate can be explicit would vary according to the political and administrative cultures.

CREATING EMPOWERED ORGANIZATIONS

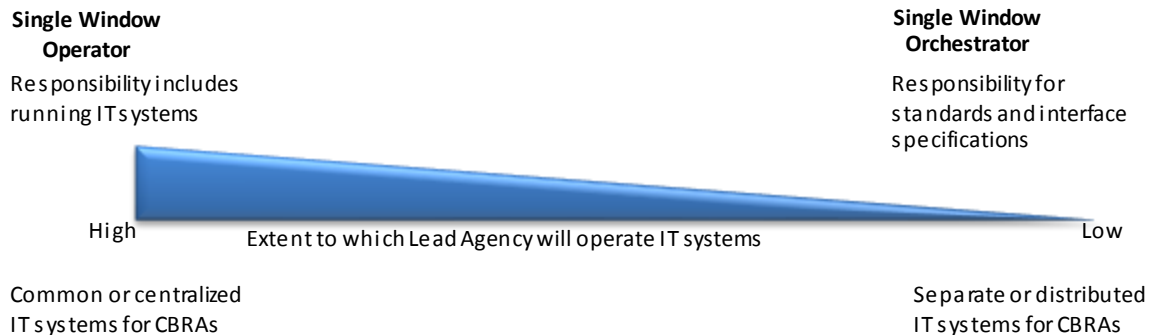
The Single Window environment needs a Lead Agency in order to co-ordinate decision making and to orchestrate the border management activities across multiple agencies. The Lead Agency has to be driven by consultative and inclusive process of decision making. While the precise outcome of this process will be reflected in the governance structures created under the mandate, the actual configuration will require four key aspects of the proposed structure: (i) The extent to which it is an operator or an orchestrator (ii) The degree of organizational re-structuring and re-allocation of powers envisaged (iii) The legal characteristics of the operating entity (iv) The involvement of private agencies in the decision making and operational structures.

SINGLE WINDOW OPERATOR OR ORCHESTRATOR?

Responsibility of Single Window Lead Agency organizations can vary considerably depending on the answers to the following lines:

Is the role of the Lead Agency primary role is to define, manage and enforce the interfaces, data standards, service standards and business process?

If the answer is yes, then such a Lead Agency is more of a Single Window Orchestrator than an operator.



What is the degree of centralization and sharing of IT Systems between CBRAs?

If there is a high degree of centralization and sharing, the Lead Agency may find itself in the role of the Single Window Operator, which to a great extent will be called upon called-upon to operate IT Systems as opposed to letting the individual CBRAs to operate their own systems.

RE-ORGANIZATION OF CBRAS

The Single Window Initiative presents a unique opportunity before the government to re-organize regulatory functions. Reorganization is a strategic decision. The extent to which regulatory authority for examination, intervention and release is vested in the Lead Agency is one of the issues of re-organization. Centralization of regulatory authority would lead to the so-called 'Single Authority Model'.



These significant dimensions were briefly discussed in the UN/CEFACT Recommendation 33. What appears from the various implementations around the world is that there is no single model, which is universally applicable and there could be variations along the dimensions described above. Authority and accountability goes hand in hand. Lead Agency authority should be assigned only to that body which has the ability to deliver and can be held to account for failure. It could be an existing body such as a government department. It could even be an inter-agency body created specifically to fulfill the mandate and has the legal and administrative authority to act.

LEGAL PERSONALITY OF THE ENTITY

The above discussion provides two different aspects to understanding the functional role of the Lead Agency (i) how involved is the Lead Agency in the operational aspects of the Single Window and (ii) to what extent will the Lead Agency possess functional authority.

The configuration of this functional role would influence the options for the type of legal entity that needs to be created for the Lead Agency. The legal entity could take the following corporate forms:

- A government department with defined in law or regulations with specified executive and agency powers & responsibilities
- An autonomous entity created through an Act of legislature
- A entity established by company law, whether private or public
- Any other voluntary association of entities covered by other national legislation
- Joint Venture with commercial entities.

PUBLIC PRIVATE PARTNERSHIPS (PPP)

The involvement of the Private Sector can take many forms and would influence the financial and operating governance of the Single Window Environment. The form of Public Private Partnership would determine the extent of involvement of government in financing the capital and revenue expenditure and the structuring of the inflows and outflow of funds owing to the Single Window Initiative.

The forms of PPP can vary along two dimensions – the increase in the degree of Private Sector risk and the degree of Private Sector involvement especially when it comes to dealing with the operating infrastructure. As each form is described, the common underlying theme remains - **the regulatory authority and accountability for regulatory compliance still remains with the government, regardless of the form of PPP.**

The essential forms are (i) Operations & Management Contracts (ii) Asset acquisition or leasing deal (iii) DBFO (Design-Build-Finance-Operate) (iv) BOO (Build Own Operate) (v) BOOT (Build,-Own-Operate-Transfer) and Joint Venture.

One of the above forms PPP will emerge based on a careful analysis the following questions:

- Does the Private Sector take-over existing assets involved in the Single Window project, whether through acquisition or lease?
- Will the existing assets that are leased to the Private Sector be returned at the end of period of operation of the lease or contract?
- Is the Private Sector is permitted to acquire additional capital assets or will only government decide on capital investments?
- Will the operating expenditure be met through revenue streams by charging user fee or will there be government fund partially or fully the operating costs?
- In the asset acquisition cycle, will the Private Sector also be involved from the design stage?
- Will the government and the Private Sector jointly build and operate the unit where risks and returns are shared?

The following diagram lists out the options for PPP. The italicized items in the diagram describe the choices available to the government:

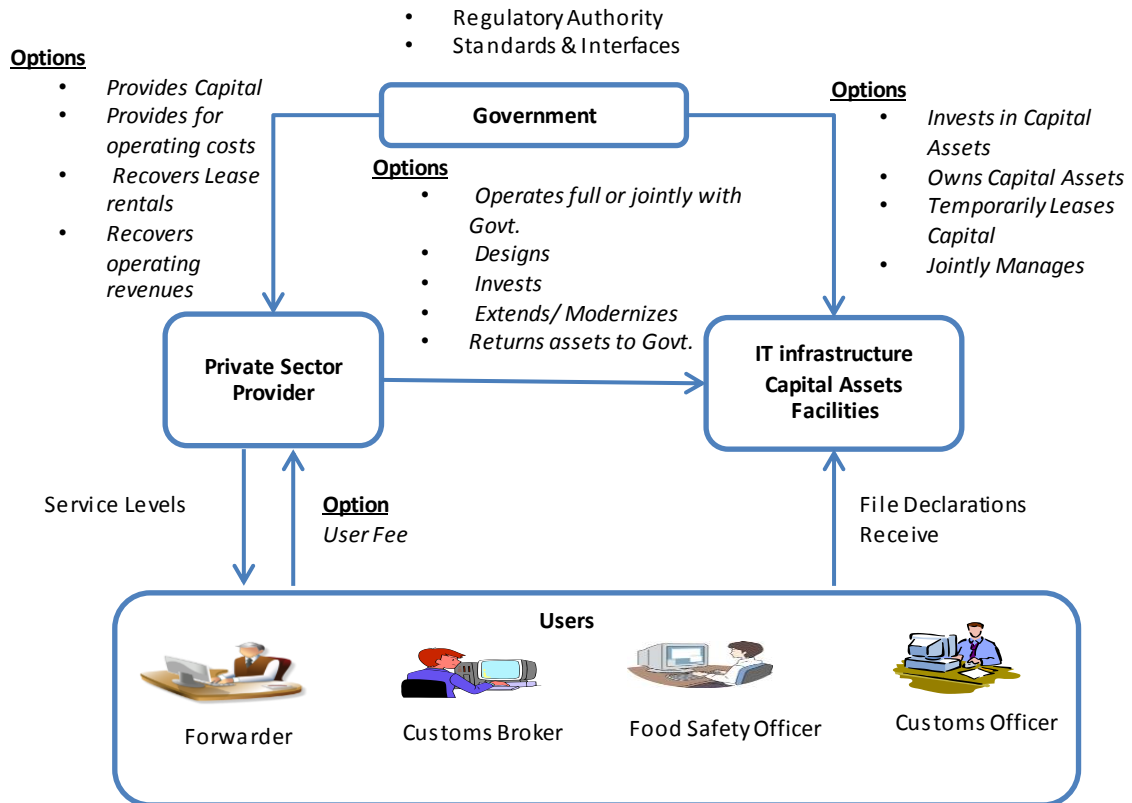


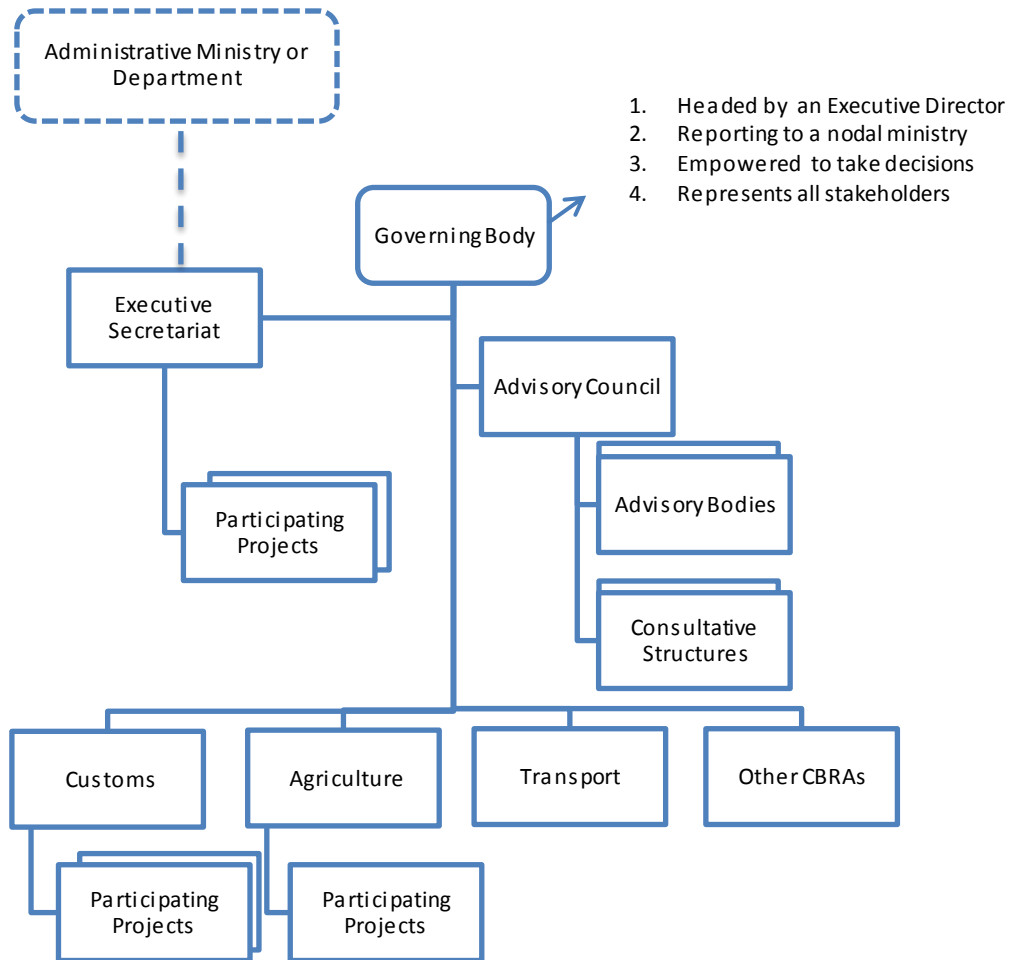
Diagram: Options for private sector involvement

STRUCTURES OF GOVERNANCE

Governance is about allocation roles and responsibilities. It is also about clarity and transparency, how risks are managed, who is accountable for what. The mandate that creates the empowered organizations also needs to specify minimally the structures of governance.

In this example, the political mandate creates a Governing Body as the Lead Agency to run legal entity, which is headed by an Executive Director who formally reports to the nodal ministry (for example, the Ministry of Finances). The Governing Body, which has members from all major stakeholders has been empowered through the Mandate on Single Window to take all policy decisions including approval of projects, management of standards and interfaces, Interchange Agreements, Memoranda of Understanding between CBRAs, service levels etc. It has defined financial powers along with allocations in the public budget. Further, it is assisted by an Executive Secretariat, which provides administrative and technical support.

The projects that participate in the Single Window Environment are governed by the Executive Secretariat either directly in its Capacity as the Single Window Operator or in its roles as the Orchestrator. A few major projects would constitute the core of the Single Window on which, the Executive Secretariat has direct control, but on other projects that are run by the respective CBRAs, it may be involved in indirect supervision.



The illustration given above suggests that there a Single Window Environment could include multiple projects. Some projects within the direct operational control of the Single Window authority and others projects in which the authority merely specifies conformance standards of operation.

The organization structure that governs the Single Window environment would be different in different countries. The reporting structures, lead agency configuration and the distribution of executive powers within the structure would differ from country to country. In general there are 3 layers, the Consultative layer, involving representatives of the private sector, CBRAs and domain experts, the Decision Layer involving the governing body that has executive responsibility for approving standards and running projects and to make consultations happen. The execution layer is responsible for project execution. Responsibilities range from orchestration to operation. Not all projects that are part of the Single Window Environment would be operated by government departments or the Single Window 'authority'. In some cases, the legacy systems of government departments would also continue to play a role within the Single Window Environment.

The complete organization structure needs to provide clear roles and responsibilities, and clear reporting lines. Responsibilities within the structure need to be clearly specified. The mere fact that a particular department is acting as the Lead Agency and is servicing under an administrative ministry does not give it any special privileges. For any structure to be sustainable over a long period of time, the fine balance between authority, competence, responsibility and accountability needs to be maintained.

CHAPTER 5: DESIGNING SINGLE WINDOWS SERVICES

VALUE PRESERVATION ROLE OF REGULATORY AUTHORITIES

Regulatory authorities are service organization and the Single Window Environment is the medium through which services are delivered. These services are aimed at simplifying Trade's efforts in meeting the requirements of cross border regulation. If performed efficiently and effectively, these services help preserve value in a supply chain. Participants in these service operations bring to bear a number of resources – technological and human, including skill, ingenuity and experience - in pursuit of value preservation.

Services are delivered through access channels. In the course of delivery of a service, the trader (and his IT systems) and the CBRAs personnel (and their IT Systems) participate in the creation of the service. The Single Window facilities are at the center of this complex process. Like any system, a Single Window also involves a complex a combination of people, processes and technology. Any improvement in these systems must necessarily involve all three components and must begin at the design stage.

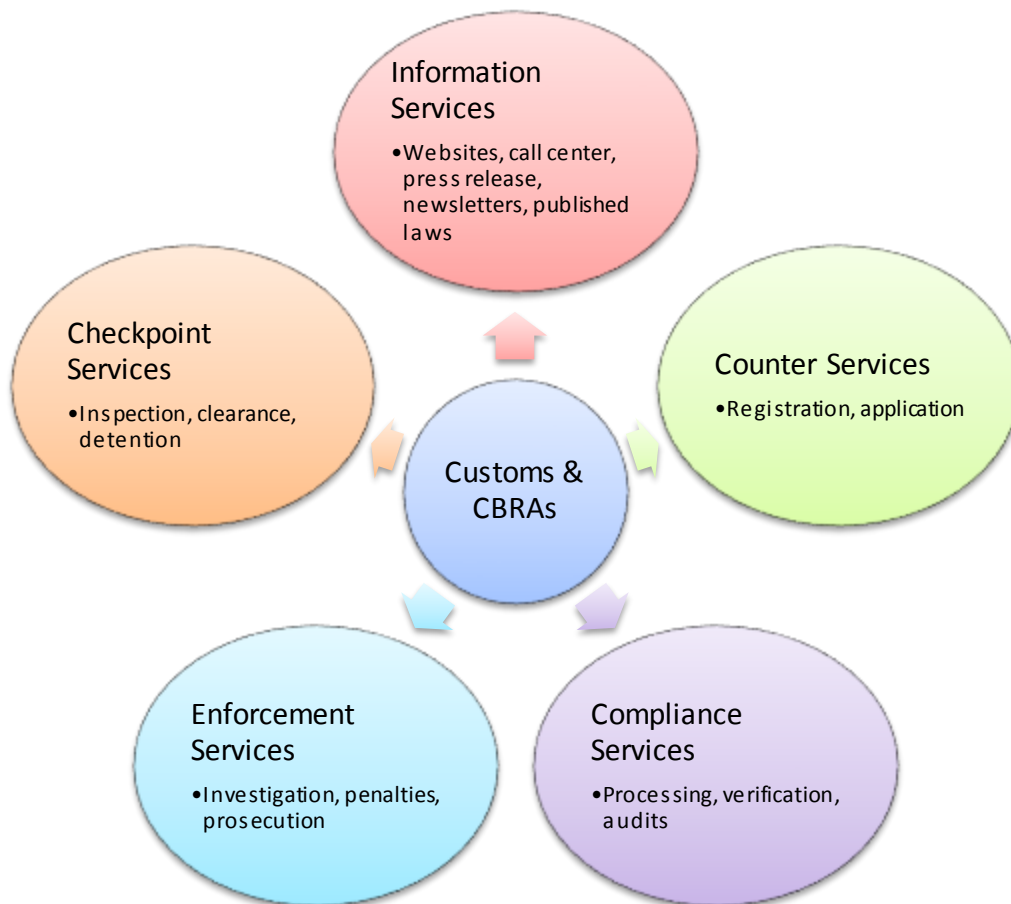
UNDERSTANDING INTERACTIONS

Bringing services “under one roof” involves a collaborative effort on the part all CBRAs in **redesigning interactions** between the trader and regulatory agencies. This redesign of interactions must be carried out from the trader's point of view. Interactions can happen through multiple access channels but can broadly be divided into two -virtual and physical. Online submission of information and documentation are in the virtual domain and the face to face interaction between the trader and officer forms the physical part.

Convenience and accessibility of the location of service outlets, the layout and the service counters, waiting times in queues, dead time between operations, and physical conditions at the service counter are all important questions for interaction design.

The “services” and “interactions” deployed by Customs or a Cross Border Regulatory Agency can be visualized through a touch-point map. At the basic level, the functional services operated by CBRAs can be categorized into:

- Information Services: The provision of information to the trading community and the general public for awareness and to achieve informed compliance;
- Checkpoint (or Border Post) Services: The physical checking of documentation or goods, utilizing various means (i.e. non-intrusive inspection, sampling, lab-testing, un-stuffing), at the border;
- Counter Services: The physical infrastructure used by agencies to meet with clients, in order to receive forms, or issue approvals;
- Compliance Services: The infrastructures deployed by agencies to process and verify applications, and to ensure compliance with regulations;
- Enforcement Services: The investigation of possible offences, the issuing of penalties for offences committed, and the interface between the agency and the judiciary, in the event of cases requiring prosecution of offenders.



At the high-level, these services will appear quite generic. However, as we drill into levels of details between different agencies and different processes while carrying out the functional assessment, differences will surface and the alignment of these differences will be crucial in designing a business-centric service experience.

It is also important to address certain 'soft' issues at the design stage. For a specified type of interaction between the officer and the trade, if there are multiple and highly subjective outcomes, then there is a potential for user dissatisfaction. 'Built-in' complexity and variability in interactions reduce the level of predictability, and increase the chances of manipulative or corrupt behavior. Such variables must be identified early, during the design stage, and eliminated.

FUNCTIONAL ASSESSMENT IN SINGLE WINDOW

All Single Window project must start from a comprehensive understanding of an organization's current state, before the Lead Agency and the Participating Agencies are able to pursue reform, realignment and redesign of services and interactions. This is done through **Functional Assessment**.

Functional assessment refers to the process for collecting the necessary information in order to acquire a holistic understanding of the process steps, data requirements and legal enablers that is currently in place by Cross Border Regulatory Agencies, so that the necessary realignment and reorganization can take place.

The WCO Functional Assessment Template guides administrations in gathering the information in a structured way, so that it can holistically understand:

- How registration of trading entities is taking place in agencies that have a trade regulatory role;
- What kind of process is used to manage the import / export / transit processes;
- What kind interactions takes places between the agencies when handling such processes;

- How agencies validate the data or information it is receiving;
- The decisions that are made in response to data or information received;
- The timing that these decisions are made;
- The post release checks that are done;
- The enforcement work that is done;
- The statistical information that is required to be captured or published for reporting, or analytical purposes;
- The laws and policies that grants the agencies the authority to act;
- The collection of revenue and fees undertaken as part of the agency's role;
- The existing paper-based or electronic system that is deployed;

The Functional Assessment Exercise provides the fundamental understanding for the Lead Agency & Participating Agencies to understand the “current state”, so that the necessary Business Process Analysis, Legal Gap Analysis and Data Harmonization can take place.

Functional Assessment is a time-consuming process – there is a need for officers involved in this exercise (such as relevant technical working groups working on Single Window) to be patient, disciplined and detailed in collecting the information that is needed. Because of the specificity involved, it is necessary to engage partner agencies in advance and to secure their full cooperation. Important factors to consider include:

- Setting aside enough time, so that information can be gathered, and clarifications can be sought if original inputs were unclear;
- Having a strong point-of-contact in each partner government agency where the exercise is being conducted so that the correct expertise can be made available to take part in the exercise;
- Conducting briefings sessions ahead of the actual visit so that participants have an understanding of what is expected of them, and the reason for the exercise;
- Building up the necessary rapport and trust, so that communication will be open and objective;
- Develop templates to allow for inputs to be collected in a structured way, for effective analysis and comparison;
- Where necessary, ensure that the necessary permission, security clearance and authorization had been received, so that agency partners can share the relevant information – where information is sensitive or secret, it is also necessary to provide the appropriate level of security classification to the functional assessment conducted.

CHAPTER 6: HUMAN RESOURCE & CHANGE MANAGEMENT

Due to its strategic nature, the development of a Single Window environment may lead to changes in the organization structure of the participating cross-border regulatory agencies (CBRAs). The design of new service interfaces also have implications for organization design, which needs to be pursued methodically. The Functional Assessment process provides the necessary preliminary information to start the exploration, but changes to processes and organization structure will result in the creation of new roles and the modification of existing ones. These are issues on which agencies must take a long-term view and create a roadmap.

Customs deals with a number of tasks that are 'cross-cutting'. From both policy and operational perspective, this poses challenges to the hierarchy-bound government set-up. Enhanced coordination and integration between CBRAs is necessary and the actions of the participating CBRAs cannot be permitted to become disjointed. The strategic management process enables the alignment of incentives, organizational processes and cultures of authority in order to fit critical tasks within and across organizational boundaries.

DRIVERS FOR RE-ORGANIZATION

Changes to workflow arising from operational co-ordination between CBRAs in the front-offices and back-office were also discussed. Essentially, implementation of Single Window will lead to changes in the way work-packages are formed and work gets completed as outlined below:

- Sharing the workplace with agencies belonging to other CBRAs, federated control units, integrated risk management units, inter-agency targeting centers, common contact centers and front offices.
- Routing of work between staff and involvement of staff from different agencies in joint activities.
- Empowering frontline staff through cross-designation: Staff from one CBRA to receive and deal with some of trade's queries concerning of another CBRAs
- Empowering frontline staff through better delegation of authority so that it does more with fewer hand-offs, also leading to job-enrichment.
- Co-ordinated and combined inspections,
- Co-ordinated interventions and release of cargo

As a consequence of these changes, accountabilities for service delivery will be re-defined and reporting relationships will be re-drawn.

Re-organization is a corollary to the redesign of services. It is a powerful tool in the hands of the executive management, but is also a rare opportunity, which must be used with care. The announcement of an impending organizational restructuring should be used carefully and with full preparation so that it helps the executive management to take concrete steps to gather resources and to launch internal and external communication to both staff, as well as the trading community.

There is always the expectation that IT driven efficiency would free-up some human resources, besides producing better results from improved coordination among units that work together. This however, is not necessarily the case and should be verified especially with respect the actual configuration of work performed by the staff. The reorganized structure should match closely with needs, priorities and expectations of the target organizational structure. The job specification of each employee needs to be reviewed in the Single Window environment.

HUMAN RESOURCES

HUMAN RESOURCE INVENTORY

Human resource planning is the key factor for enabling organizational improvements. Typically, employment in the civil service is characterized by lifetime employment and a high level of job security. This can be helpful because employees can remain assured that their employment would be intact despite changes in their job content. At the same time, assured employment can be an obstruction to enforcing discipline and favors employees over employers.

In some countries, Customs and other CBRA staff are vulnerable to bribery and irregular payment. Measures in place to mitigate integrity risks include strict separation of responsibilities and powers, mandatory rotations of staff to prevent individuals from becoming too entrenched and rule-based decision making to reduce the discretionary powers possessed by individual officers.

The Single Window Environment can be used as a tool to undermine and defeat the abuse of authority and corruption by putting pressure on non-transparent working methods. The use of technology to systematically undermine corrupt behavior must be deployed in conjunction with other measures to reduce corruption and irregularities in border procedures.

Skill inventories will reveal the gap between current HR capabilities and requirements under the Single Window. What have the employees been doing in their positions over the years and are they ready to work in the changed environment? This brings us to the question of employee competencies which will be discussed in the following section.

COMPETENCIES OF MANAGEMENT & STAFF

In the Single Window Environment, the specific competency profiles for different staffing positions will have to be re-assessed. This can be facilitated through the RACIN matrix [Responsibility, Accountability, Consultation, Information Not concerned- Not involved] shown below:

Leadership Area	Function	Customs	Change from current role	Competency profile & HR Impact
Policy	Support policy oversight on single window	Informed	None	
	Establish the strategic business case	Responsible	Minor	None
	Maintaining policy momentum and ongoing support	Responsible	Minor	New roles in policy devt.
	Program Management	Accountable	Significant	New positions in program management
Project	Business case for the preferred project;	?	?	?
	Project procurement and implementation	?	?	?
	Project monitoring, evaluation, review and sustainability.	?	?	?
Technical	Harmonization of laws and procedures including development new laws and regulations to support	?	?	?
	Data harmonization and business process alignment;	?	?	?
	Development of functional and normative structures of data interchange.	?	?	?
Operational - Business	Trader account management	?	?	?
	Managing Licenses, permits	?	?	?
	Management of business operations -	?	?	?

Leadership Area	Function	Customs	Change from current role	Competency profile & HR Impact
	release decisions;			
	post release accounting/post release enforcement	?	?	?
	Risk Management in the integrated environment	?	?	?
	Business Intelligence	?	?	?
Operational - IT	Ownership of IT assets: data center, hardware, software and data networks	?	?	?
	Ownership of information assets: Data management and data life-cycle policies.	?	?	?
	Management of IT enabled operations – operations management, change management configuration management etc.	?	?	?

RACIN Matrix: Responsibility, Accountability, Consultation, Information Not concerned- Not involved

The desire to assume strategic roles in a Single Window comes with the requirement to possess or develop specific competencies. For example where Customs is called upon to manage the operational aspects of the Single Window Environment, its executives will require additional competencies involved in the management of inter-agency process and integration of IT systems both internally and externally.

Similarly, the desire to take on new responsibilities in the operational business domain will also require a similar match in the level of competencies and capabilities.

Through the RACIN matrix and the Functional Assessment template, it is necessary to undertake the necessary HR planning so that functional capabilities can be acquired through new hires, transferred as part of the overall reorganization of agencies, or trained from existing staff as part of ongoing capacity building, or re-training for new tasks.

ANALYZING TRAINING NEEDS

Training is the key to implementing the transformational changes in a Single Window Environment. In any Information Technology based change, user training is a major activity. The staff will take time to get used to the new workflows and input screens. Training has to focus both on interpersonal communication as well as technology aspects.

Training needs should be determined strictly based on what helps address the key delivery needs, and what helps familiarize staff with the roll-out targets in the current phase. The 'hunch' of individuals and vague notions about the need to 'give our staff some exposure' seldom succeed, and are not substitutes to a formal approach to training needs assessment. Grooming and career path charting could be a basis for planning training packages but such an effort should be linked to the overall HR and placement policy. Changing employee attitudes to customer service, especially sensitizing them to the needs of the trader is a challenge.

No assumptions should be made in relation to the readiness of staff to assume positions in the Single Window set-up. Re-definition of job content and cultural changes introduced by new ways of working will have to be addressed through a package of measures.

It is a good idea to schedule hands on training very close to the actual rollout of operations. Such training can also be synchronized with the modules being rolled out. Computer based training or eLearning modules are helpful in ensuring that training is self-paced and is based on practical needs.

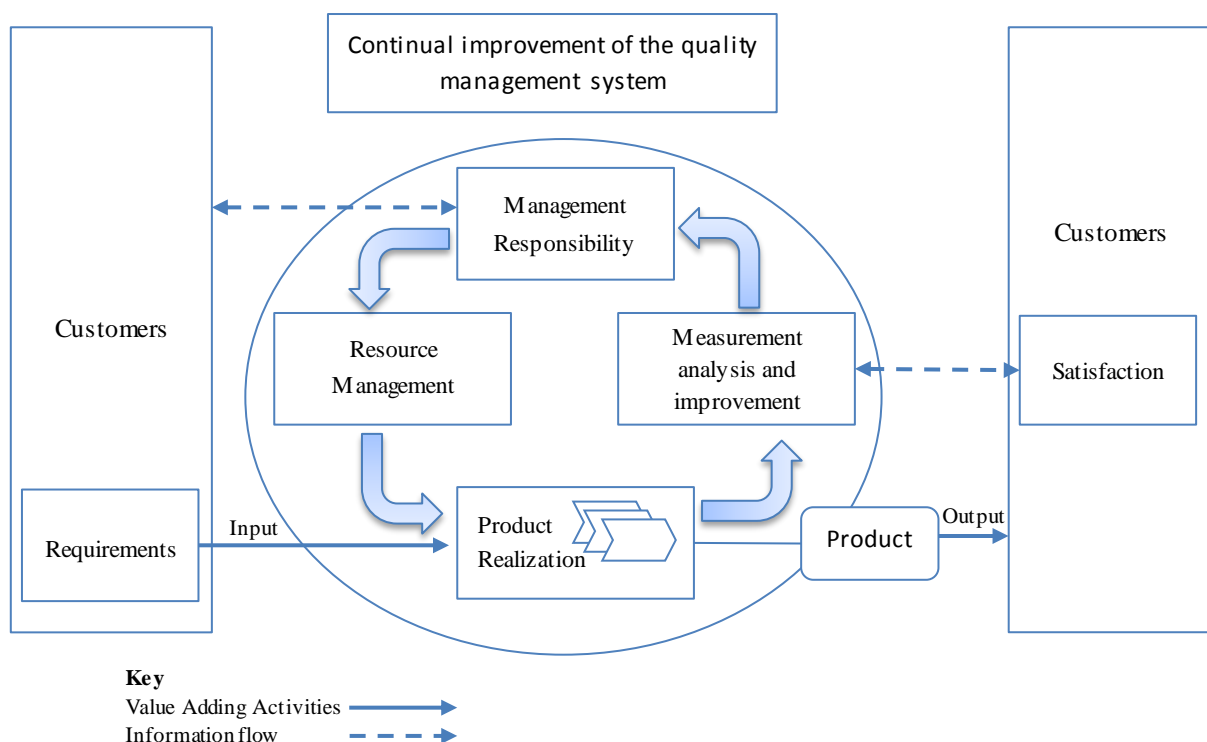
INTERVENTIONS FOR ORGANIZATION DEVELOPMENT

Human resource planning does not take place in isolation – it is a part of the strategic management and corporate planning process that is executed based on an organizational context, and as a response to broader impetus, such as a government reform agenda, or a single window program. It is well known that systematic and regular collection of data about employee performance, employee perceptions and organizational processes can yield immense benefits. On the basis of analyzed information, executive management can intervene with development oriented programs that foster positive values, improve employee capacities and strengthen work culture. All of these programs supports the overall reform agenda and has a direct implication when implementing a Single Window environment, when cross-cutting issues involving different government departments and agencies need to be understood in holistic terms.

Hence, it is necessary to understand human resource issues in terms of the overall Quality Management System. There are other structured and framework oriented programs that deal with organizational development. 'Total Quality Management' (TQM) falls into this category.

The ISO9000 Family of Standards

One of the most common TQM standards used in manufacturing, service and public sector is the ISO9000 family of standard which provides a series of standards and principles for companies and organizations to establish a quality management system.



Model of a process based quality management system (ISO 9001:2008)

Viewed from the perspective of an ISO9000 Quality Management System, it becomes clear that any kind of change management and human resource planning must be rooted in trying to meet customers' requirements, and achieve customers' satisfaction.

"Customer" in the regulatory context, can be a generic term used to describe members of the public, and members of trade that regulatory agencies interact with in the provision of regulatory services. In considering this point, it must be understood that regulatory agencies cannot be expected to perform its duties as if "the customer is always right". This is neither feasible nor desirable. However, it is necessary to find the appropriate "middle-ground" in which officers understand the importance of their regulatory roles, and work towards the achievement of their respective regulatory mandate while enhancing national competitiveness, trade facilitation, and logistics efficiency. Hence, the service-centric and customer centric mindset is not contrary to the regulatory mission of regulatory agencies.

CHANGE MANAGEMENT

As a result of the Single Window, there will be several changes, and to assist in this process, all CBRAs must answer some basic questions concerning the value proposition of Change:

- What new value is the Single Window bringing to the do the clients (importers/exporters/carriers/brokers)?
- What kind of change is really necessary to bring that new value?
- How will the changes benefit the administration?
- Does the administration need change to accommodate those values?

TEN STEPS LEADING TO CHANGE IMPLEMENTATION

The following is a concise approach to change management based on WCO Compendium on Capacity Building. This ten-step approach has been adapted to the Change Management Process to be followed in a Single Window Environment.

Step One: Focus on the business process and not on the function: Processes are the way the CBRAs interact with the clients and with each other.

Step Two: Development of a process profile: Most processes within CBRAs may not be documented prior to the implementation of a Single Window. Only documented processes provide improvement opportunities. Apply the 80 – 20 Rule.

20% of the processes consume 80% of the resources;

20% of the activities within a process generate 80% of the results; and

20% of the problems within a process represent 80% of the opportunities for improvement.

Step Three: Process mapping: Only documented processes can be subject to controlled change. In most CBRAs, processes may have evolved.

Step Four: Measure the processes: What cannot be measured can seldom be controlled. Process measurements allow CBRAs to determine current performance levels and establish quantifiable improvement targets.

Step Five: Study other Single Window implementations: Ideas or proven processes in other Customs administrations can provide invaluable information and save time and possibly avoid mistakes.

Step Six: Process redesign: Using the information gathered from the previous five steps, Customs can now map out the new processes, eliminating redundancies and duplicate work activities.

Step Seven: Balance processes and technology : Optimize use of technology through interaction design.

Step Eight: Manage process change: CBRAs should proactively manage the change by identifying and assessing the risks before the change is made.

Step Nine: Prepare people (staff and clients) for process change: Follow the Head, Heart and Feet Model for Successful Change.

Head – people intellectually understand the need to change based on supporting data. As much involvement as possible will help in understanding.

Heart – People are emotionally engaged in change because they see the performance possibilities.

Feet – People take personal action as a participant, not an observer.

Step Ten: Continue Process Improvement: CBRAs should be constantly on the path to improvement with day-to-day challenges and opportunities. [Please refer to Survey feedback and Total Quality Management are frameworks for continuous improvement”

COMMUNICATION: LIFEBLOOD OF CHANGE

Managing change that results from a Single Window implementation requires a formally developed communication plan with the following broad objectives:

- Stakeholder buy-in & support
- Overcoming resistance & assuaging fears
- Maintaining clarity & minimizing confusion

It is useful to distinguish between internally directed and externally directed communication:

INTERNAL COMMUNICATION:

Dominance of informal communication channels and grapevine is rarely helpful in managing change. Employees need to be informed formally, promptly and correctly about the impending changes. There should not be any scope for ‘hidden agenda’ and rumors. Messages have to be regular, uniform, with a clear purpose and in the context of the purpose. When formal opportunity is provided to employees and free-flow of information is permitted in formal settings, it promotes consistent focus on problem areas.

Where reorganization is expected to occur, with staff expected to be transferred to other functions within the same organization, or transferred to other organizations, it is even more critical for all departments and agencies involved to coordinate on the message to be communicated. Staff would be naturally concerned about their career prospects, job security and benefits, such as salary and pensions. Clear communication is necessary to provide the necessary assurances, or if employment terms are expected to change, to carefully engage and counsel, so as to mitigate the likelihood of a serious backlash.

Staff Unions and welfare committees can often support the dissemination of messages to employees and Human Resource Departments must, additionally, plan for formal settings to communicate with the staff, and receive feedback from staff of areas of concern that need to be subsequently communicated. Staff intranet sites, circulars and information booklets can also be developed to support communication with staff. Early intervention and adequate communication will ensure that employees have sufficient time to understand the

changes, its implications and how they could be affected. It limits the likelihood of passive resistance to change, as well as reduces the likelihood of intractable labor disputes that could complicate the single window project.

EXTERNAL COMMUNICATION

A formal approach to external communication involves creating stakeholder classes, describing the value proposition of the Single Window project for each stakeholder class, and creating target groups for communication. Following stakeholder analysis, management attention should shift to brand-building. Building an image for the Single Window, logo and a set of slogans that instinctively convey the value proposition of the Single Window is a part of this exercise.

Short and comprehensive slogans that convey the main benefits can be used as mantras to support dialogue and discussions and help the entire management team to consistently 'sell' the project proposition. Different types of communication material should be built for different classes of stakeholders. For instance, it may be useful to build different flyers need to be built for political executive, for senior management and for trade. Short infomercials can also help promote the concept effectively.

Single Window projects are often known by a short title or an acronym which in itself tends to become a brand. It is not enough to create a charter for the single window project; every project has a charter. What is absolutely necessary is to create a set of precepts that should be repeated like mantras in the course of meetings and discussions. Project titles and acronyms shouldn't become brands by default. Brand creation should be the result of a professionally produced communication plan.

The Single Window brand can be built by putting together a set of ideas and images that embody the Single Window outcomes. For instance, the brand image that the WCO Data Model, a project to promote the use of harmonized data for a single window is "Cross-border Transactions on the Fast Track".

An attractive project branding can help draw and maintain the attention of the stakeholders. The key ideas behind the single window can be captured in simple precepts that will act as guiding principles and help maintain continuity in the flow of ideas. Logos, slogans and other visual design can equally contribute to the brand. The project precepts or principled statements are of immense value to the entire project as they help bring sanity to discussions. For example, Columbia produced the Single Window and linked it with the theme of "No more square windows and square faces" became an instant hit. The audio visual material produced by Peru and Republic of Korea are also examples to illustrate this point.

Maintaining a visible presence for the Single Window concept is crucial. Public visibility among the stakeholder communities is the product of a formally developed Communication Plan. The plan should include both internal and external stakeholders. Single window being a complex undertaking has a variety of stakeholders and different packages need to be built for these stakeholders. The communication activities must flow from this plan. Periodic seminars, workshops, awareness raising events, brochures, mailers and other means of communication can be used to maintain a credible presence in the minds of the stakeholders. Making presentations at international events such as those organized by the World Customs Organization and the United Nations are also a useful measure to attract the right kind of attention.

CHAPTER 7: BUSINESS PROCESS ANALYSIS & BUSINESS PROCESS MODELLING

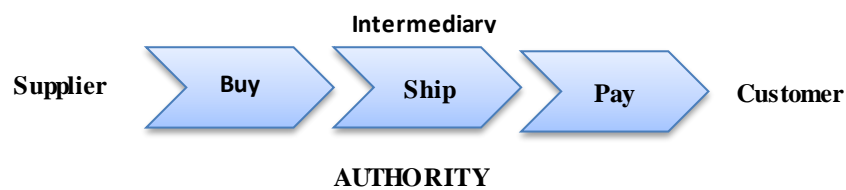
BUSINESS PROCESS MODELLING USING UML NOTATIONS

BUSINESS PROCESS ANALYSIS

Business Process Analysis is defined as a sequence of steps performed for a given purpose.

Based on this generic definition, a “business process” within the context of trade facilitation and Single Window development would refer to the chain of logically connected activities to move goods and related information from buyer to seller across borders.

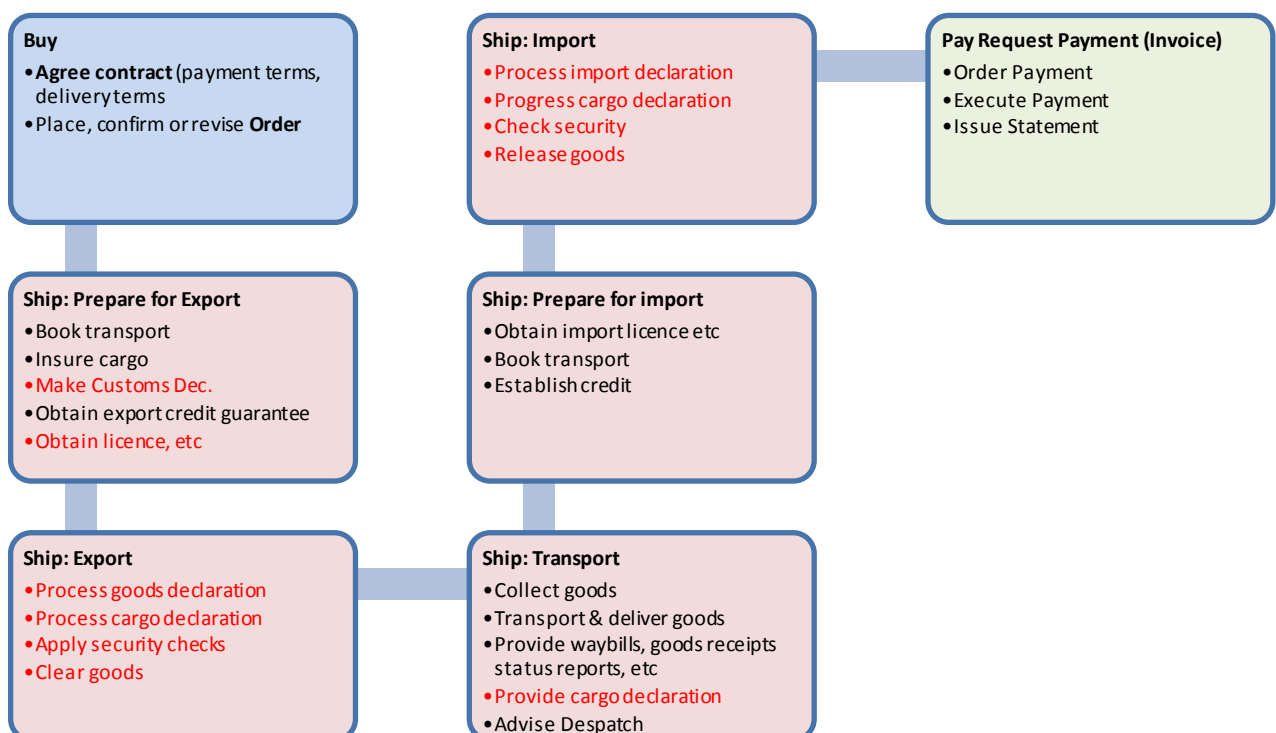
This process can be illustrated using the UN/CEFACT Buy-Ship-Pay model, which describes the international supply chain, as shown below:



UN/CEFACT Buy-Ship-Pay Model: Very simplified way of showing a

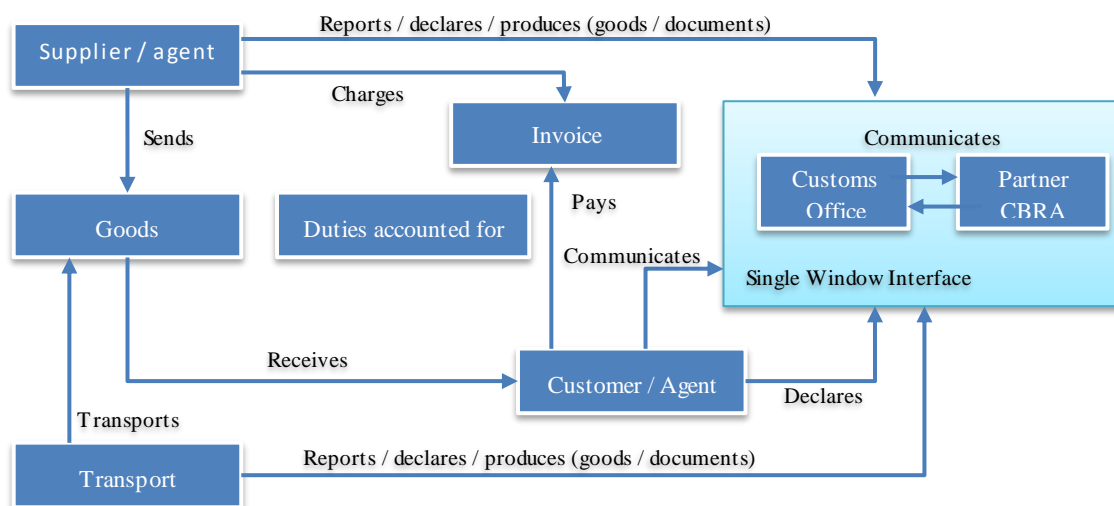
It is clear from the Buy-Ship-Pay model that Cross-Border Regulatory Agencies are **not** involved in every single step of the supply chain. In fact, the majority of activities only involve private sector entities and CBRA regulations and interventions only makes up a small part of the process.

As we explore deeper into the supply chain, we may identify the following individual activities:



Within the Buy-Ship-May model, official controls, covering all processes involving Cross-Border Regulatory Agencies have been grouped together under SHIP processes. This is only for convenience since activities related to official control extend beyond the physical transfer of goods and sometimes extend into the BUY business areas (international orders for purchase depend on licensing or certification goods, manufacturers, premises). Regulatory processes also extend into PAY Business Areas, since paying for the goods include payment of duties, taxes and fee and details of payable or paid amounts for goods determine customs valuation.

To overcome limitations posed by different view of the BUY-SHIP-PAY supply chain, the WCO Data Model Project Team developed the 'Simple Business Process Model' shown below:



WCO Data Model: Simple Business Process Diagram

The term "reports / declares / produces" refers to the Revised Kyoto Convention meaning of the term: *to report the Cargo Declaration, to declare a Goods Declaration and to produce the Goods or a declaration of departure or arrival to Customs*. The processes and data-flows through and within the box titled Cross-Border Regulatory Agency will be the main area of interest for a Single Window environment.

BUSINESS PROCESS MODELING

Any system development process will always start from the need to gather data and information about the process, so that it is possible to determine what needs to be built, in order to achieve the intended outcomes. Chapter 5 had introduced the Functional Assessment process to support administrations in collecting the relevant information about the work in text form, utilizing a template. The results of the functional assessment exercise can often contribute greatly to Business Process Modeling and Business Process Analysis by providing the baseline information needed.

Business Process Modeling is a technique for documenting business processes, where each element of the business process is presented by graphical notation. The end result of a Business Process Modelling exercise is a "Business Process Model", which provides a visual abstraction of the business process to support documentation, analysis and communication.

Business Process Modeling can be divided into two phases. These are: Analysis Phase and Design Phase.

- **ANALYSIS PHASE:** Is the phase that the findings about the business processes are being carried out and gathered.

- DESIGN PHASE: - Is the phase where the work flow of the business process is put into graphical representation. The output of analysis phase will be used to achieve this phase.

OBJECTIVES OF BPM

Business process model helps an organization improve how it conducts its functions and activities in order to reduce overall costs, provide more efficient use of scarce resources, and better support customers.

It introduces the notion of process orientation, of concentrating on and rethinking end-to-end activities that create value for customers, while removing unnecessary, non-value-added work.

Generally, technology is implemented to automate or streamline business processes, so it is important to conduct a business process analysis to understand how the process works and how it can be improved

BENEFITS OF BPM

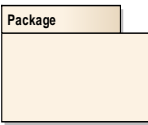
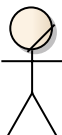

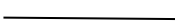
- To document business process models and process knowledge, i.e. process manuals for both private and public sectors
- To provide easy access to repository that displays business process models as a whole as well as individual element that constitute business process models.
- It allows the re-use of business models.
- To identify problematic areas that causes delays in moving goods from seller to buyer across borders, such as unnecessary forms and documents and repetitive data element
- To find opportunities for improvements, such as reducing the number of trade documents and minimizing data requirements.




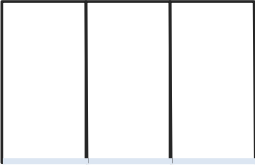
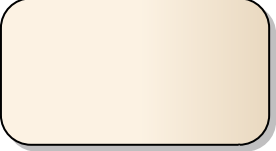
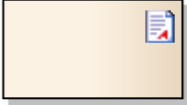


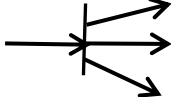
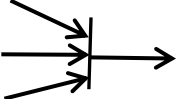

UML NOTATIONS

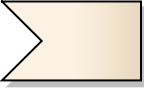

Unified Modeling Language (UML) is a graphical language that provides a set of standard graphical notations for business process modeling.

UML is an internationally accepted modeling language widely used not only by business analysts in business communities, but also used in Information Technology and Software Development. The WCO Data Model also uses UML for its notations.

PROCESS MODELLING SYMBOLS

No	Notation / Symbol	Description & Instructions for Use
1.		Subject Boundary: <ul style="list-style-type: none"> – Represents a process area – Includes the name of a subject boundary on top
2.		Business Actor: <ul style="list-style-type: none"> – Represents a role which participates in a particular business process. – Can be an individual, an organization, a department, etc. – Is labelled with a role-name – Is placed outside the subject boundary
3.		Business Use Case: <ul style="list-style-type: none"> – Represents a core business process – Is labelled with a descriptive verb-noun phrase
4.		Relationship Association: <ul style="list-style-type: none"> – Links actors with the use cases (business processes) they participate in

No	Notation / Symbol	Description & Instructions for Use
5.		Initial State <ul style="list-style-type: none"> – Represents the beginning of a set of activities – Can only be one initial state for each activity diagram
6.		Final Flow State <ul style="list-style-type: none"> – Is used to stop the flow of activities – Indicates that further activities cannot be pursued within the described context
7.		Final Activity State <ul style="list-style-type: none"> – Is used to indicate the completion of the business process
8.		Swim lane <ul style="list-style-type: none"> – Is used to break up individual actions to individuals/agencies that are responsible for executing their actions – Is labelled with the name of the responsible individual, organization, or department
9.		Activity <ul style="list-style-type: none"> – Represents a non-decomposable piece of behaviour – Is labelled with a name that 1) begins with a verb and ends with a noun; and 2) is short yet contains enough information for readers to comprehend
10.		Object <ul style="list-style-type: none"> – Represents a document or information that flows from one activity to another activity – Is labelled with a name of a document
11.		Decision <ul style="list-style-type: none"> – Represents the point where a decision, depending on the outcome of a specific prior activity, has to be made – Has multiple transition lines coming out of a decision point and connecting to different activities – Attached with labels addressing the condition on each transition line that comes out of an activity and connects to a decision point or vice versa
12.		Transition line <ul style="list-style-type: none"> – Indicates a sequential flow of activities and information flows in an activity diagram
13.		Fork (Splitting of Control) <ul style="list-style-type: none"> – Is used to visualize a set of parallel activities or concurrent flow of activities
14.		Join (Synchronization of Control) <ul style="list-style-type: none"> – Is used to indicate the termination of a set of parallel activities or concurrent flow of activities
15.		Send message <ul style="list-style-type: none"> – Is used to specify the sending Message or information to one party over another

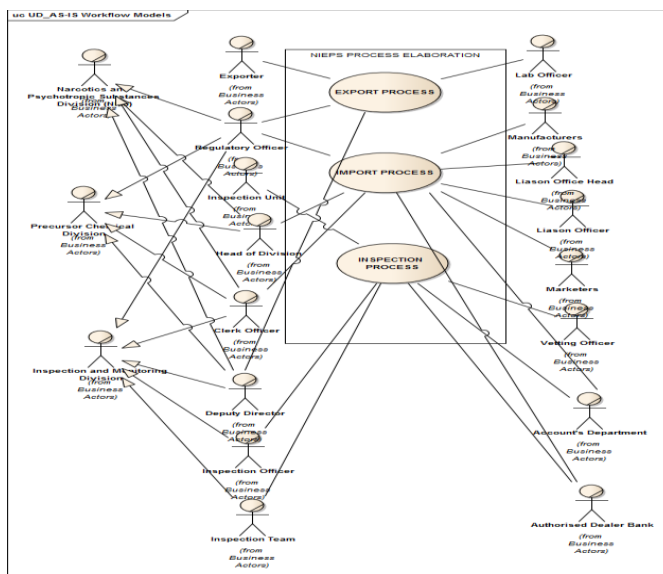
No	Notation / Symbol	Description & Instructions for Use
16.		Receive message - Is use to specified the acceptance message or information sending by another party
17.		Region - Is use to specified a group of document or information that flows from one activity to another activity

DEVELOP BUSINESS PROCESS MODEL USING UML NOTATION

UML Notation of Business Process Model can be created with different tools. Any of the tools can be used to suit any purpose, for example we have; Agile Structure View, Argo UML, Astah, Borland Together, Concept Draw PRO, Enterprise Architect, and Microsoft Visio. For the purpose of this document, the diagrams you see below were created on **Enterprise Architect Tool**.

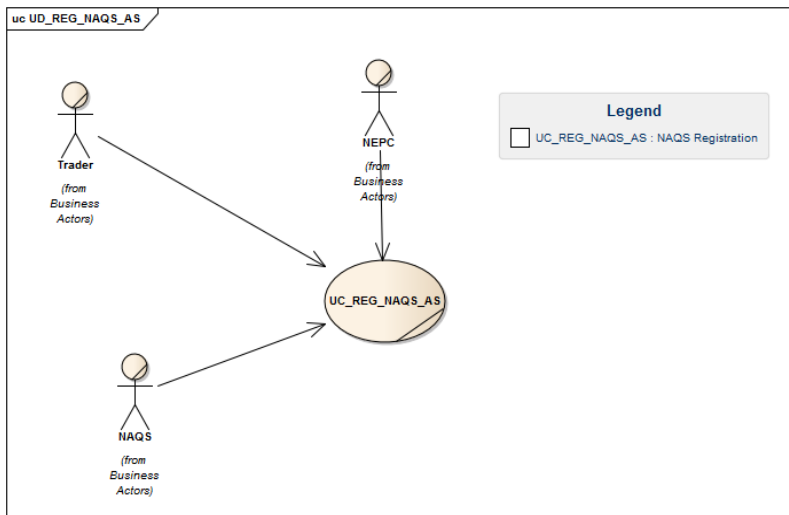
These are the steps involved in Process Modelling:

- I. Model Hi-Level Processes: explains the architecture that would be used for developing a software product. The architecture diagram provides an overview of an entire system, identifying the main components that would be developed for the product and their interfaces.



- II. Model Primitive Process Flow
 1. Use Case Diagram

This is the graphical overview of the core business processes that are subjected to further examination in depth. It also indicates all stakeholders/actors that are involved in the process. It also shows the relationship between the business process and the stakeholders.

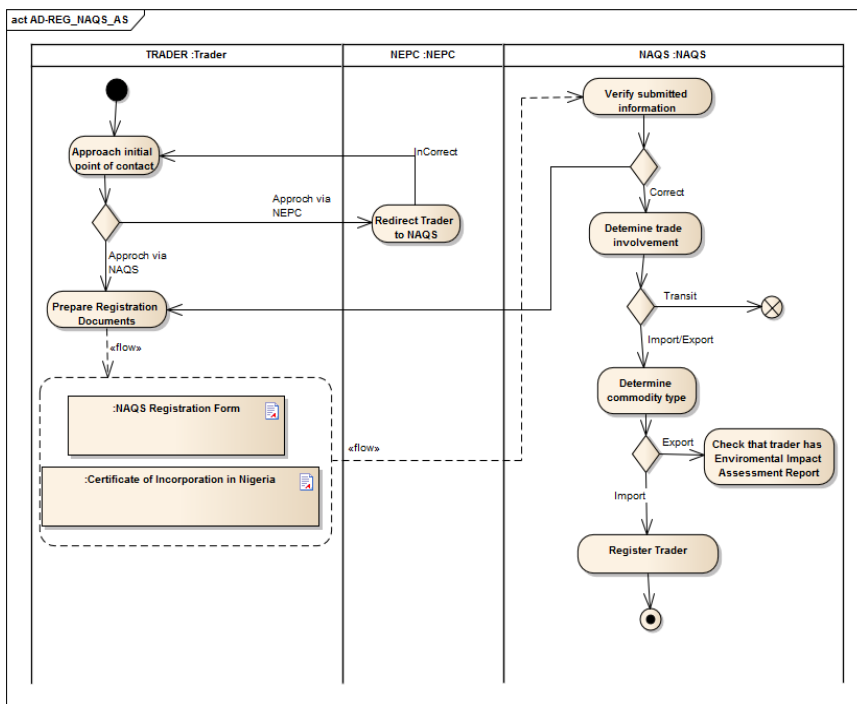


The purpose of a Use Case diagram is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies (such as inclusions or extension relationships) between those use cases. The stick figures represent actors that can have a role. The ovals represent actions/steps in the process and the lines indicate a relation between the actor and the process step.

2. Draw an activity diagram

Activity diagram is an elaboration of each business process displayed in the use case diagram. It also portrays the flow of activities from one stakeholder to another.

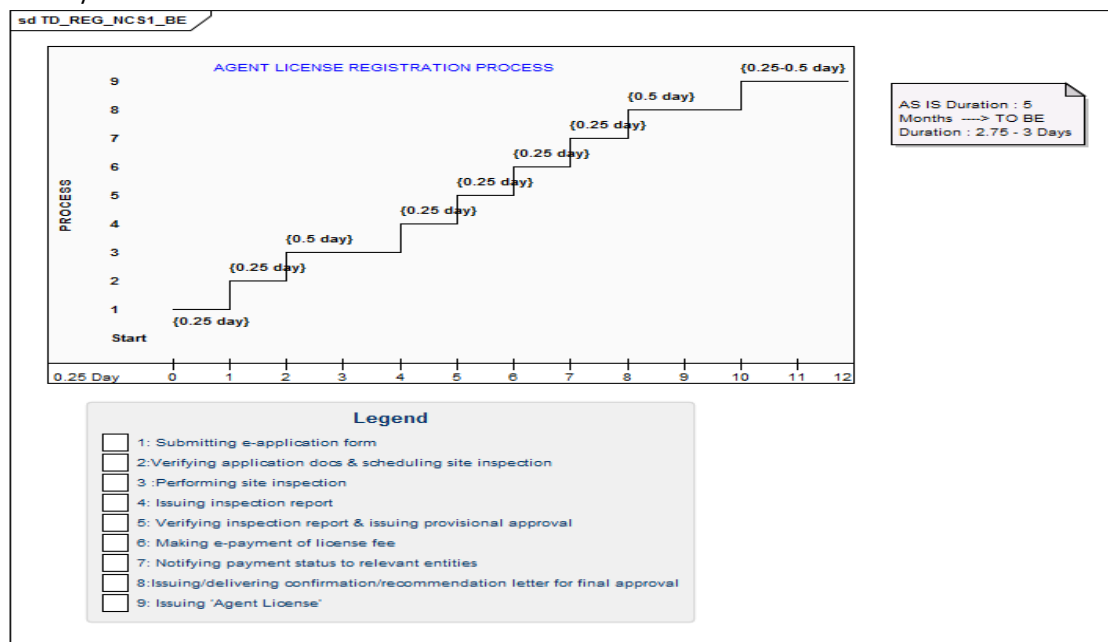
Fig 3. An Activity Diagram showing the elaboration of process flow between Actor/Stakeholders



3. Draw time procedure chart

Timing Diagram is the diagram that shows the time procedure chart for the business process. That is the time taken to finish the process, starting from the beginning of the process to the end.

Fig 4. A Time Procedure Chart showing the breakdown of the times segments involved in the each activity.



- III. Analyze the procedure, flow charts, and diagrams and find the bottlenecks in trade processes especially in term of the time required.
- IV. Add Textual Description:
 - a. In details, segment the procedures.
 - b. Name each process area
 - c. Diagrams attached to each procedure
- V. Make recommendations, based on analysis.

DIMENSIONS OF ANALYSIS

Models are abstractions that help visualize the real world of the business. The abstractions simplify the real world to help analysts examine the only aspects relevant to the subject of analysis.

For example, business process models may only cover the 'what' processes of individual CBRAs, their interactions with the trade and among themselves. These models do not cover the question of 'how' the CBRA carries out those processes. For example, when an activity diagram mentions "CBRA conducts risk analysis" or "importer submits declaration," the models do not get into the question of how the risk analysis is done or how the importer's declaration is validated and processed. This allows the reader to focus on the specific activity that is being analyzed. If there is a need to elaborate on "how", additional diagrams can be developed to provide the necessary documentation to support deeper analysis.

For this documentation, the five dimensions of Chronology, Geography, People, Procedures and Exchanges are examined.

- a) **Chronology** – This dimension projects the events in international trade that take place in a chronological order. Events are discrete points in time that signify a moment in the course of an activity. There are different views on the same events leading to different data concepts of the date and time of the event.

- b) **Geography** – These events take place at locations. The occurrence of an event is always linked to location. Location has implications for legal jurisdiction.
- c) **Parties (People)** – Players that take part in the events. Parties are entities that have rights and obligations under laws and regulations. These parties are actors in use cases. Actors can be generalized into abstract actors based on their roles. For example, the Authority Actor is a generalization from Customs Authority and Agriculture Authority.
- d) **(Regulatory) Procedures** – Regulatory procedures give the character to a process as they bind the actors to certain defined patterns of behavior, thus giving some order and character to the business processes that take place in the course of cross-border transactions.
- e) **Exchanges** – Exchanges signify movement of information between parties in the course of international trade. In the diagram below, exchanges of Business to Government (B2G), Government to Government – or CBRA to CBRA (G2G), Government to Business (G2B) and Business to Business (B2B) have been depicted. These information exchanges are defined in laws and regulations or are governed by mutual agreements.

BUSINESS PROCESSES & LEGAL IMPLICATIONS IN A SINGLE WINDOW ENVIRONMENT

Single Window implies ‘one-time’ submission of data, and it is therefore necessary to keep track the original source of data within the supply chain. Identification of the original source of data helps establish the business process involved in the ‘first submission’, obtain information first hand and maintain quality. These business processes are often rooted in laws and regulation, supported by administrative instructions. Therefore, along with the listing of groups of business processes, this section also points to the regulatory basis for source for those business processes.

For convenience, business processes in a Single Window have been divided into the following groups:

	Group Business Process	Source Material / Legal Basis
I.	Registration/ Regulatory Authorization	SAFE Framework of Standards [AEO Concept], National legislation regulations/ business practices
II.	Application/issue of Licenses, Permits, Certificates, Others (LPCO)	Several international Instruments/ National Regulation
III.	Advance information	[SAFE Framework of Standards]
IV.	Goods declaration /Cargo report/ conveyance report	[RKC Business Processes], IMO FAL Convention, TIR Convention etc
V.	Post release compliance verification	[WCO PCA Guidelines]

Business processes for post release compliance verification listed at V above are not covered in this documentation.

GROUP I PROCESSES - REGISTRATION/ REGULATORY AUTHORIZATION

A typical Cross-Border Regulatory Regulation will begin with a section on the definitions for entities that will have legal obligations in international trade where, how and by whom should goods be entered for import, export and transit. These laws and regulations also cover means of transport and crew.

Starting with the first grouping, Registration/ Regulatory Authorization processes are at the foundation of the Single Window, as data about parties, locations, transport means etc. are first recognized by the national Single Window operator. The registered entities have a legal existence in the respective legislations of the CBRAs. These registration processes may also be viewed in conjunction with regulatory pre-verification

processes under which, the respective regulatory authorities get the opportunity to conduct verification of information provided by users as part of the registration process. These pre-verification processes may be determined by a combination of regulatory and administrative imperatives.

Before access is granted to any of the Single Window services, certain administrative requirements of the National Single Window operator need to be fulfilled. These requirements are described by the registration processes, under which the National Single Window Operator establishes a legal relationship for the various actors that use the Single Window services. Typically, these would be legal agreements to be entered into by the responsible official from the National Single Window operator with the responsible official on behalf of the registering entity. There could also be multiparty agreements, for instance between the trade or transport actor as subscribing parties, Customs/ Partner CBRA parties (with authority to issue regulatory approvals) as relying parties, and the National Single Window Operator as the service provider. These parties with whom customs interacts are called actors. These actors are broadly divided into the following groups:

- a) **National Single Window Operator:** It is assumed that a 'Single Window Operator' will be established as a legal entity, with the mandate to provide Single Window Services. In describing the single window business processes, it is perhaps necessary to mention the existence of National Single Windows in different jurisdictions. There may be a national single window in existence at the country of origin (NSW at Departure), in the transit country (NSW at Transit) and in the destination country (NSW at Destination). The interaction between national single window operators provides the G2G dimension in a Single Window.
- b) **Economic Operators:** Economic operators are parties from Trade and Transport that play a role in a single window environment. Economic operators are often facilitated by intermediaries called Agents, who play certain roles on behalf of the economic operators. These agency roles are defined in laws and regulations in cross-border legislation. Any compliance-related activity that is supposed to be performed by an economic operator can also be performed by its agent. The following diagram depicts the general relationship between actors in a single window. For a detailed overview of actors, please refer to Use Case - Register Economic Operator (R4).

The Group I business processes and the related legal issues involved, are listed in the Table 1 below:

REF	Business Process	Brief Description
R1	Register Cross-Border Regulatory Agency(CBRA)	The Single Window Operator captures the necessary information and performs certain actions to register a Cross-Border Regulatory Agency. [This use case describes how a CBRA is brought on board a Single Window Environment].
Legal Issues: →Regulation defining the facility provided by the Single Window Operator →Regulation that the facility is a legally valid means to fulfill regulatory obligations →Regulation defining the right of the operator to host Single Window Services and the operator's roles and responsibilities therefore.		

REF	Business Process	Brief Description
R2	Register Single Window Service	<p>The Single Window Operator makes arrangements to provisions a service on behalf of a CBRA.</p> <p><u>Legal Issues:</u></p> <p>→ Obligations of the Single Window Operator and the CBRA in relation to the hosted services.</p> <p>→ Legal agreement between the CBRA and the Single Window Operator on security, privacy, data management lifecycle, standards of service etc.</p>
R3	Register Authorized Single Window users	<p>The Single Window Operator makes arrangements to provisions on the Single Window information system, a user belonging to a CBRA or a user belonging to an economic operator that is the recipient of a service defined in R2. As user is an individual belonging either to an economic operator or CBRA that is an entity distinct from the Economic Operator for governance within a Single Window.</p>
<p><u>Legal Issues:</u></p> <p>→ Regulation covering on-boarding procedures.</p> <p>→ Granting rights to the users (individuals from the trade and CBRAs) for accessing the information resources (e.g. web/EDI applications) offered by the Single Window Operator.</p> <p>→ Regulatory definition of what constitutes user identification and authentication, use of digital signatures etc.</p> <p>→ User's conditions of participation in relation to each of the services.</p>		
R4	Register Economic Operator	<p>The Single Window Operator in relation to a cross-border regulation captures all relevant particulars of an economic operator and registers the Operator for the requested services. The economic operator registration leads to the creation of a "Trader Account" which needs to be managed by the Single Window for the life-time of its existence.</p>
<p><u>Legal issues:</u></p> <p>→ Harmonizing legal definitions for business entities that deal with CBRA.</p> <p>→ Regulatory verifications concerning economic operators, identity management processes.</p> <p>→ Managing identities for different CBRAs</p> <p>→ Managing identities between NSWs and Community Systems.</p> <p>→ Managing identities globally between National Single Windows implemented in different regulatory territories. (ISW and GNC scenarios)</p>		

REF	Business Process	Brief Description
R5	Register Authorized IT System	The Single Window Operator makes the necessary arrangements to register the IT systems linked with the operation of Single window services
<p><u>Legal Issues:</u> → Regulation granting rights to the IT applications and IT devices (belonging to Economic operators and CBRA) for accessing the information resources (e.g. web/EDI applications) offered by the Single Window Operator. → Regulation specifying the conditions of participation for each of the services.</p>		
R6	Register Regulatory Location	The Single Window Operator in relation to a cross-border regulation captures all relevant particulars of a regulatory location.
<p><u>Legal Issues:</u> → Legally defined locations where goods (and transport means) are approved for crossing the border, for storage, warehousing, examination, testing or are dealt with otherwise in the course of international trade. Different CBRA legislation defines these locations differently in their respective legislations.</p>		
R7	Register Regulatory Facility	The Single Window Operator in relation to a cross-border regulation captures all relevant particulars of a regulatory facility.
<p><u>Legal issues:</u> Same as those mentioned in R6</p>		
R8	Register Regulatory Product	The Single Window Operator in relation to a cross-border regulation captures all relevant particulars of a regulatory product.
<p><u>Legal Issues:</u> → Regulatory processes that register products recognize the product identities, attributes, regulatory classification, regulatory restrictions, conditions for import and export etc. → Each CBRA may have different ways of identifying and classifying tradable goods/products.</p>		
R9	Register Regulatory Transport Means	The Single Window Operator in relation to a cross-border regulation captures all relevant particulars of a regulatory transport means.
<p><u>Legal Issues:</u> → Laws dealing with regulatory certification of transport means that are used to carry goods in and out of a regulatory territory. These are subject to global regulations.</p>		

GROUP II PROCESSES - APPLICATION FOR LICENSES, CERTIFICATES, PERMITS AND OTHERS

All movement of goods and means of transport across border are subject to tariff and non-tariff regulatory regimes. With the liberalization of trade, most traded goods in the world are not subject to quantitative restrictions. However, there still are a variety of non-tariff restrictions imposed by national laws and international conventions. These restrictions impose conditions that must be met before regulatory authorities permit imports, exports and transit. These conditions are often documented and expressed in terms of licenses, permits, certificates and other documents that suggest that the transactions meet these conditions. Despite the variety of goods that are subject to such restrictions, use cases are very similar. The process include: (i) Application for licenses/permit/certificate/others; (ii) Pre-issuance verifications; (iii) Transactional compliance checks at the import or export; (iv) Post transactional compliance/analysis.

The broad process of application and issuance of a license, permit or certificate remains the same despite differences in regulation. These processes vary for different commodities but with the same underlying patterns. The table below describes the business process.

REF	Business Process	Brief Description
L1	Application of License, Permit, Certificate or Others	The economic operator applies to a Cross-border regulatory agency for a License Permit or a Certificate and receives a response. There are pre-issue verification, post-issue verification and transactional verification processes during which, the LPCO validity, applicability, quantities, amounts, etc are verified.
<p><u>Legal Issues:</u></p> <p>→ Recognition of certificates and licenses issued in another country.</p> <p>→ Delegation of authority for regulatory verification (where such delegation is envisaged).</p>		

GROUP III PROCESSES - ADVANCE INFORMATION

The mandate laid down for customs under the SAFE Framework of Standards requires the collection of information on international supply chains in advance of the transaction. This framework requires advance information to be supplied to regulatory agencies at export and import respectively in the form of pre-departure and pre-arrival goods and cargo declaration. Information on the containers loaded on board the vessel in the form of a Vessel Stow Plan (VSP) and the Container Status (CS) messages give information about the status of a container. Table 2 below provides details of the processes for Advance Information

REF	Business Process	Brief Description
A1	SAFE Goods Declaration – Pre-departure advance export declaration	The economic operator (exporter) submits a pre-departure export data (SAFE goods declaration) for security risk assessment.
A2 & A3	SAFE Cargo Declaration at export & import	The economic operator (carrier) submits a pre-departure and pre-arrival cargo data (SAFE cargo declaration) for security risk assessment at departure and destination respectively

A4	SAFE pre-arrival advance import declaration	The economic operator (importer) submits a pre-departure data (SAFE goods declaration) for security risk assessment.
CS#	Container Status Message	The economic operator (Carrier) files status messages of the container for all container events starting with the booking of the container.
VSP	Vessel Stow Plan	The economic operator (Master/ Ship's Agent) files the container stow plan to the authorities at destination for security risk assessment
<p><u>Legal Issues: common to all processes in Advance Information</u></p> <p>→Enabling legislation for advance reporting.</p> <p>→Legislation often authorizes 3rd parties to submit this information on behalf of the carrier. Liability of such a 3rd party needs to be legally defined.</p> <p>→What is the legal arrangement for Advance Information that is submitted to the NSW at departure to be transmitted for onward use by the NSWs at transit and destination? (Considering that the question of feasibility and desirability such transmissions would be addressed separately.)</p>		

GROUP IV PROCESSES - GOODS DECLARATION /CARGO REPORT/CONVEYANCE REPORT

The processes T1 to T8 in Table 3 are based largely on the revised Kyoto Convention. In addition to the above models, there is the response package model which depicts the business processes associated with a CBRA's response to a declaration.

It is assumed that in Single Window environment, there will be regulatory data harmonization and the data exchange points between the economic operator and Customs will coincide with the relevant exchanges with a partner CBRA. This would imply that the standard regulatory reporting events for customs also be used as the reporting events for the Partner CBRAs. This is a logical conclusion from the principle that one time submission requires harmonized data and documentation.

REF	Business Process	Brief Description
T1	Export Goods Declaration	The necessary arrangements are made to meet with the requirements of the Authority to an Exportation Goods declaration.
T2	Conveyance Report at Exit	The necessary arrangements are made to meet the Authority's requirements to take the means of transport for commercial use and its crew, cargo, stores and passengers out of the Customs territory.
T3	Export manifest (Cargo Report at Export)	The necessary arrangements are made to enable goods and the means of transport for commercial use to leave the Customs territory
T4	Conveyance Report at entry	The necessary arrangements are made to meet the Authority's requirements to bring the means of transport for commercial use and its crew, cargo, stores and passengers into the Customs territory.
T5	Import manifest (Cargo Report at Import)	The necessary arrangements are made to meet with the Authority's requirements to bring goods and the means of transport for commercial use into the Customs territory.
T6	Transit Departure	The necessary arrangements are made to enable goods to be placed under the Customs Transit Procedure.
T7	Transit Destination	The necessary arrangements are made to terminate the

		Customs Transit Operation.
T8	Import Goods Declaration	The necessary arrangements are made and a declaration will be lodged with Customs to bring goods under the Customs procedure; Clearance for home use.
<p><u>Legal Issues: common to all processes in Goods Declaration/ Cargo Report and Conveyance Report</u></p> <p>→ Enabling legislation governing these declarations – not just for customs but also for partner CBRAs [legislation covering obligation to declare – definition of the taxable events, liability of duties taxes and fee, the manner and measure of the various levies etc.].</p> <p>→ CBRA specific legislation that enables the receipt of this data digitally, including logical and security controls specifically defined in the legislation/ regulation. Mandate of general e-governance legislation to move to digital or paperless processes.</p> <p>→ Regulatory Procedures defining the place and timing of declaration to be harmonized between customs and partner CBRAs.</p> <p>→ Authority to access data, use data and process data received are processes covered by CBR Agency-specific legislation. CBR Agency authority to view and make determinations based on data received in the ‘pool’ formed in the Single Window Environment needs to be addressed specifically. All these processes have to be tempered by:</p> <ul style="list-style-type: none"> • Inter-agency data exchange procedure and legal liabilities and obligations of agencies handling the data. • Treatment of data received as part of declarations and reports which are subject to legislation of dealing with rival concerns of data privacy and information transparency. • Action of checking of declaration, confirmation of verification and legally valid notification of regulatory determinations arrived at by authority. • Legislation often authorizes a 3rd party to submit this information on behalf of the carrier or importer. Liability of such a 3rd party needs to be legally defined. Ability to use data and exchange data with Community Systems that act as legally authorized 3rd party suppliers of regulatory declarations and reports. • Legal provisions in a multi-party agreement between the concerned parties to enable filing of declarations through or by a 3rd party is a pertinent legal issue. • What is the legal arrangement for the declaration / reports data that is submitted to NSW at departure be transmitted for onward use by the NSWs at transit and destination? (Considering that the question of feasibility and desirability such transmissions would be addressed separately.) 		

CHAPTER 8: SINGLE WINDOW DATA HARMONIZATION

The objective of data harmonisation in comparison with the WCO Data Model is to eliminate redundancies in required data and duplication in the submission of trade data to Government authorities such as Customs and other regulatory agencies. The ultimate outcome should be one set of standardised data requirements and standardised messages that fully comply with the WCO Data Model. Within cross border transactions Trade will provide the required WCO Data Model data elements by submitting standardised messages to meet government requirements for, export, transit and import. This will facilitate trade, reduce costs and make it feasible to provide more timely and accurate information.

HARMONISATION POLICY, ORGANISATION, AND COMMUNICATION

HARMONISATION POLICY

UN/EDIFACT Recommendation 33 lists key factors in establishing a successful Single Window environment. All of these factors are critical for the development of a Single Window environment. A strong lead agency is critical to a successful outcome of the harmonisation process. It is the lead agency that will be responsible for drafting the planning and committing the resources necessary.

ORGANISATION

It is best to have a project team executing the data harmonisation process. The project team members must have extensive knowledge of international trade procedures specifically the area of regulatory information requirements. The harmonisation project team should also include data architects and Business Process modellers. It is also helpful to dedicate a person to serve as a liaison to the participating agencies. This liaison serves as a conduit for information to and from the lead agency. Also, the participating agencies must identify a primary contact to for organising the agency's data inventory and harmonisation.

COMMUNICATION

Communication of the harmonisation policy, procedures, and steps is critical. After organising the harmonisation project team, the next step is to hold a series of meeting and briefings for all participating agencies to clearly define the roles and responsibilities of the harmonisation project team. After this "kick-off" briefing the agency participants should understand the overall process by which data harmonisation will be accomplished, the purpose of one-on-one meetings with the data architects and business process modellers. They should also identify the work sessions the agency should participate in and the approach planned for these work sessions. Needless to say that the participants are well aware of agency's responsibilities

DATA HARMONISATION PROCESS STEPS

Data harmonisation is an iterative process of capturing, defining, analysing, and reconciling regulatory information requirements. It is highly unlikely that any government will be able to achieve harmonisation of all agencies at one time. Governments should consider prioritising agencies and agencies' requirements. The prioritisation of requirements could be based on volume, revenue, supply chain security, etc. For example, every international trade transaction requires information for Customs, transportation, and statistics and may be considered as the first tier of agencies.

The selection of an agency could be based on its willingness and desire to participate in the Single Window.

The important point is that after completing the first tier of agencies, the Data Harmonisation process steps have to be repeated as additional agencies participate and as additional requirements are identified.

The data harmonisation process steps are defined as follows:

Data Capturing

Data Capturing means making an inventory of identified regulatory agencies' requirements. This can be accomplished in a number of ways such as the reviewing of agencies' forms, automated systems data requirements, regulations, etc. This includes the data element name, data element definition, representation (format or code), when the information is required (declaration, release, clearance) and citation of the relevant authority to collect, validate and view the information. This information can be aggregated in an Excel spreadsheet or work sheets from any other software tool.

Defining

Defining the information requirement is critical. While information is identified by name, the data element definition -what information is conveyed by using that data element- is more important.

Analysing

The process of analysing the information consists of gathering similar data element names and having a full understanding of the definition and the information required.

Reconciling

This is the final step in which there is agreement to use one data element name, a common definition, common code, and standard messaging reconciled with the WCO Data Model standard.

SPECIFIC ILLUSTRATIONS OF THE DATA HARMONISATION PROCESS STEPS

CAPTURING

In order to capture data elements and other information requirements developers of a Single Window environment can begin by reviewing forms. If the country has an automated trade processing system, data elements can be found by using the systems' logical data model. Initially, data can be arranged on a worksheet. The worksheet should contain the following information: data element name, data element description (definition), domain the data element belongs to, representation (alpha, numeric, or alpha-numeric, number of positions, delimiter), domain (code list), mode of transport (marine, air, rail, road), process (export, transit, import), whether it is used for conveyance, crew, cargo or goods (more specific than cargo) or equipment and the data source (exporter, carrier, importer, customs broker, driver, agent, bank, insurance company, psi company, etc).

Another important element is the legal authority to collect the data. It needs to be filed whether the agency is authorised to collect and/or view the data, the source of the legal authority (law, regulation, executive order, etc.) and the expiry date of such authority.

Recommended worksheet columns are as follows:

- Agency data element number - A reference number for the data element.
- Data element name - The name of the data element being defined. The naming of the data element should reflect the common business terminology used by the agency, not a computer related name
- Data element description - A description of the data element with as much detail as possible.
- Representation - The data type can be either N (Numeric), A(Alpha) or AN Alphanumeric and the number of positions as well as whether a delimiter –floating or non-floating- is needed).
- Data domain - If the data element has a discrete list of values or a range of values, provide the list, range or a reference to the list or range. For example, the data element *country* could be restricted to the values in the ISO country code table.

- Mode of transport - Indicate the mode of transport (road, air, marine, rail, pipeline, cable) for which the element is used.
- Process - Indicate if required for export, transit processes or import.
- Category of use - Indicate if required for conveyance, crew, cargo, goods, or equipment.
- Legal permission to collect or view - This information identifies whether the agency is legally permitted to collect or view this element. If authority allows collections, enter the word COLLECT, otherwise please enter VIEW
- Source of legal authority - Cite the source of authority to collect or to view. The authority may be derived from a specific form, a regulation, legislative mandate, MOU¹ or other. Please cite all legal authorities that apply if there are multiple sources. Do not provide the text of the citation.
- Expiration date of legal authority - Provide the date on which the legal permission to view or collect the data expires for the agency. Specify N/A² if this authority doesn't expire.
- Data source - Indicate if the information is provided by Trade, Government, or derived from other sources. <Trade> indicates the data is filed by Trade, <Government> indicates the data is created by a regulatory agency. An example of the latter would be the findings from an investigation. If unsure, enter a letter <U> here for unknown. <Derived> data is calculated by or extracted from a reference file, e.g. the rate of duty could be extracted from a Harmonised Tariff file or derived by the computer system from a combination of one or more other data elements.
- Trade Source - Indicate the trading partner who is the usual source or provides the data. If the data source attribute is <Trade> please identify which party in the transaction is responsible for filing the data element. Suggested values are <T> (importer, exporter, broker, forwarder, etc.). <C> (carrier) or <TC>. If unsure, enter a letter <U> here for unknown
- Timing, when data is required and provided - Identify the point of the transaction's lifecycle at which the agency expects have access to the data element. Suggested values are: <PRE-ARRIVAL>, <ARRIVAL>, <RELEASE>, <CLEARANCE> <POST RELEASE> or <DATAWAREHOUSE> etc.). If unsure, enter a letter <U> here for unknown.
- Agency flow source - If the "Data Source" is <Government>, identify the agency that creates this element.
- Remarks/Comments - Free form text that can be used to annotate the data element in any way

Upon receipt of the worksheet survey from the agencies, the data harmonisation project team must aggregate or merge the agency responses into a comprehensive worksheet. The following is an abbreviated representative sample of this aggregation.

Name	Description	Type	Source	Mode
Port of Unloading	Location where goods are removed from the ship	4 digit proprietary code	Carrier	Ship
Port of unloading	Airport where consignment is taken off the airplane	4 digit proprietary code	Carrier	Air
Domestic Port of Unloading	Domestic port where merchandise is removed mode of transport	4 digit proprietary code UNLOCODE	Carrier Broker Importer	Air, Rail, Ship, Truck
Domestic Port of	Domestic airport where	UNLOCODE	Carrier	Air

¹ Memorandum Of Understanding

² Not Applicable

Unlading	consignment is taken off the airplane			
Foreign Port of Unloading	Foreign port where merchandise is unloaded from the conveyance	5 digit proprietary code	Carrier Exporter	Air, Rail, Ship, Truck
Foreign Port of Unlading	Foreign airport where consignment is taken off the airplane	5 digit proprietary code UNLOCODE	Carrier	Air, Ship

Illustration 1 - Sample aggregation of results of agency survey

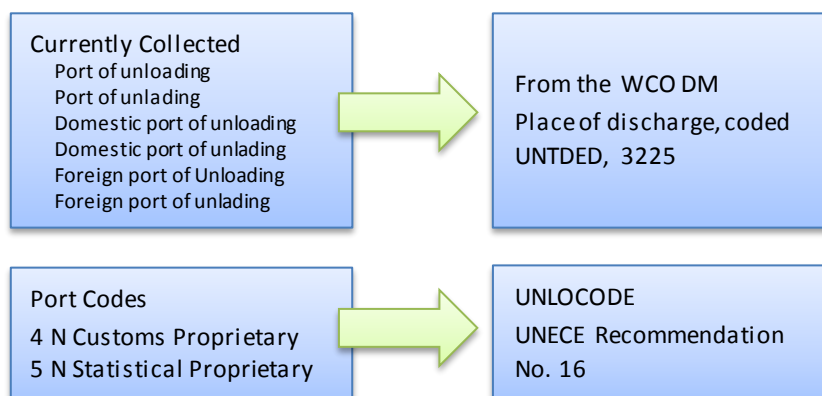
DEFINING AND ANALYSING

This is the responsibility of the data harmonisation project team to conduct the analysis of these elements. The analysis of these six elements revealed a similarity of names (unlading or unloading) were minor variations in the definitions, With regard to "domestic" or "foreign"; the essence of the definition is the location where the goods are removed from the conveyance. It was determined that the terms "unlading" and "unloading" were synonyms. It was determined that the terms "foreign" and "domestic" could be defined by the type of transaction. An export would show a foreign location and an import would show a domestic location.

The analysis also revealed that there were three different coded representations of the element, a four-digit code, a five-digit code, and the UNLOCODE .

RECONCILING

The first step is to reconcile and to arrive at one name. Given the result of the analysis that unloading and unlading are synonyms, it was determined to use the term "unlading." Since foreign or domestic can be determined by function (export or import transaction) these words could be eliminated. The reconciled name is "port of unlading." After agreeing to the term "port of unlading," this was checked against the international standard of the UNTDED. Port of unlading is not a UNTDED term. The UNTDED term is "place of discharge." The issue of coded representation was resolved by agreement to adopt the international standard of the UNLOCODE.



The above illustration portrays the harmonisation and standardisation detailed above.

The lead agency data harmonisation team can undertake much of this work taking the WCO data Model as the foundation, but these decisions must be verified and agreed on by the stakeholder participating agencies. Should there be a requirement not available in the WCO Data Model, the WCO Data Model can be amended.

Given the broad range of data requirements it is more efficient to focus these meetings on specific ranges of data element. One such way to establish these focus groups is using the data element categories of the UNTDED. The use of this categorisation can also be included in the spreadsheet to sort the elements.

- Group 1: Documentation references (0001-1699)
- Group 2: Dates, times, periods of time (2000-2799)
- Group 3: Parties, addresses, places, countries (3000-3799)
- Group 4: Clauses, conditions, terms, instructions (4000-4799)
- Group 5: Amounts, charges, percentages (5000-5799)
- Group 6: Measures, identifiers, quantities (other than monetary) (6000-6799)
- Group 7: Goods and articles: descriptions and identifiers (7000-7799)
- Group 8: Transport modes and means, containers (8000-8799)
- Group 9: Other data elements (Customs, etc.) (9000-9799)

Continuing with the example of "place of discharge" a meeting of the agencies interested in Group 3 data elements: Parties, addresses, places, countries (3000-3799) took place. The agencies agreed that the term "place of discharge" and the UN/LOCODE coded representation as expressed in the WCO Data Model would meet their requirements. Accordingly, these six data elements were replaced by one, and two coded representations were replaced by one.

THE SIZE OF THE STANDARD DATA SET

As governments and their trade communities begin to develop a Single Window environment, there is an understandable concern about the size of the data set. While the data set may be large, the intention is that it will be the maximum set of data that Trade may have to provide. The important message to deliver to Trade is that the entire data set will never be required for any one transaction. This WCO Data Model based standard data set covers all transactions (export, national transit and import), all modes (air, maritime, road and rail), and all requirements of all cross border activities related agencies. It is logically and logistically impossible to require all of the data for any one transaction.

DATA HARMONIZATION – OMAN CUSTOMS

Oman Customs followed the process of "capture, define, analyse and reconcile" for every document and every data element used during the cargo clearance process. For example in Oman, we captured 110 key documents where we defined 3,783 data elements and produced our first draft of a standardized data set, which included exactly 200 data elements. Of these, we were able to map 190 data elements to WCO Data Model v3.3, and for the remainder the Directorate General of Customs, which falls under the jurisdiction of the Royal Oman Police, submitted Data Maintenance Requests (DMRs) to the WCO, which were approved. This is a dramatic reduction and simplification of data achieved by Oman. The WCO Data Model provides a data set that has been developed as a result of years of data analysis work done by WCO Members. As more governments move towards trade facilitation, they will contribute to the WCO Data Model so that it becomes an even more useful data harmonization tool for Single Windows in the future.

As noted in the example of "place of discharge" as given in these guidelines, the elimination of redundancy and duplication actually resulted in a net reduction. Six elements were reduced to one and three coding schemes were reduced to one.

DATA SIMPLIFICATION AND STANDARDIZATION – SINGAPORE CUSTOMS

Singapore Customs uses international data standards extensively in its Single Window. There are many international standard codes published and maintained by international bodies like UN, ISO, WTO and WCO. These standard codes aim to provide uniformity and consistency in the exchange of trade information between trading partners. Examples of such standard code are WCO Harmonized System Codes (HS Codes), ISO3166 Country Codes, ISO4217 Currency Codes and UN/LOCODE for locations like ports and airports. The use of these standard codes in the design of the single window system would ensure that the information submitted conformed to the format set out in these standard codes. Importers importing the same product would use the same HS code, thereby giving consistency in the import declarations. The HS code would also give certainty to traders as they know the classification of their goods and the relevant duties and taxes accorded to that item. Traders can also declare correctly the origin of the goods by selecting the correct two-character Country Code from ISO3166, hence eliminating potential data entry error if traders are provided a free text field to enter the country's name.

IMPACT ON LEGACY SYSTEMS

One problem that Single Window developers may encounter is the effect of the use of the international WCO Data Model standards on legacy systems. For example, if a country uses proprietary coding for locations, legacy systems (screening, targeting, accounting, etc.) are based on the proprietary codings. Until there is an overall conversion to the new data element names and codes, countries and traders may have to implement translation capabilities. This translation must convert the new, international WCO Data Model standards and translate these to the WCO Data Model data element names familiar to users and into those codes used in the legacy systems.

DEMATERIALIZATION OF SUPPORTING DOCUMENTS

Supporting documents are documents required to be submitted in addition to the regulatory declarations. These documents are referred to and relied upon during the release and clearance of goods, means of transport and transport equipment. Supporting documents can be broadly divided into two categories:

- (i) Key business documents that form trade and transport exchanges such as the Invoice, Packing List, Purchase Order, Delivery note, Bill of Lading, Consignment Note etc
- (ii) Regulatory documents such as Licenses, Certificates, Permits and Others – referred to in the WCO Data Model as LPCO.

DOCUMENTS OR DATA?

A commonly question raised by business manager in respect of “supporting documents” is that in a Single Window environment, the aim is to simplify the ‘paperwork’, how are supporting documents relevant? Would all documents not be converted into data? Most people don’t consider small pieces of information as documents and make a distinction between highly structured and unstructured information associate only the former with documents. Structured data is useful for transactional purposes while unstructured data is used for narratives.

Business processes in an automated environment relate both to data and documents. The WCO Data Model represents both structured data that can be expressed as both meaningful units of data, and as documents. Documents are instances of structured data that carry meaning with reference to a business process. It is well understood that business data in transactional documents have to move between documents. For instance, invoices and bills of lading contain information that ‘moves’ into regulatory documents like Customs goods declaration.

WCO Data Model identifies ‘Declaration’ and ‘Response’ as the main the elements of Cross-border Regulatory transactions. The electronic declarations made to the Single Window Environment contain enough information for the regulatory authorities to take regulatory decisions concerning import, export and transit of goods. The information, however, is normally based on a number of other supporting documents, whose references are provided in the Declaration. These references provide means for the regulatory authorities to verify the declared information and help validate them by referring to external sources. Supporting documents provide solidity and certainty with regard to the information provided in the Declaration. It would of course be preferable if the regulatory authorities and businesses can get rid of references to other documents in their regulatory transactions. That however is far from being the practice as governments continue to insist on having access to supporting documents.

In a Single Window, routines of verification on supporting documents can be achieved by accessing the systems that host them. Such access to electronic documents is in fact access to the structured data held in automated systems.

SUPPLY CHAIN AND SUPPORTING DOCUMENTS

The international trade supply chain is a highly complex network of business relationships and business processes. Experts have produced analytical models to depict the supply chain for different purposes.

The diagram below describes the Buy Ship Pay supply chain. This diagram shows that, all along the supply chain, supporting documents are exchanged. They go with the goods and the means of transport from origin to destination, from the seller to the buyer, from the place of export to the place of import.

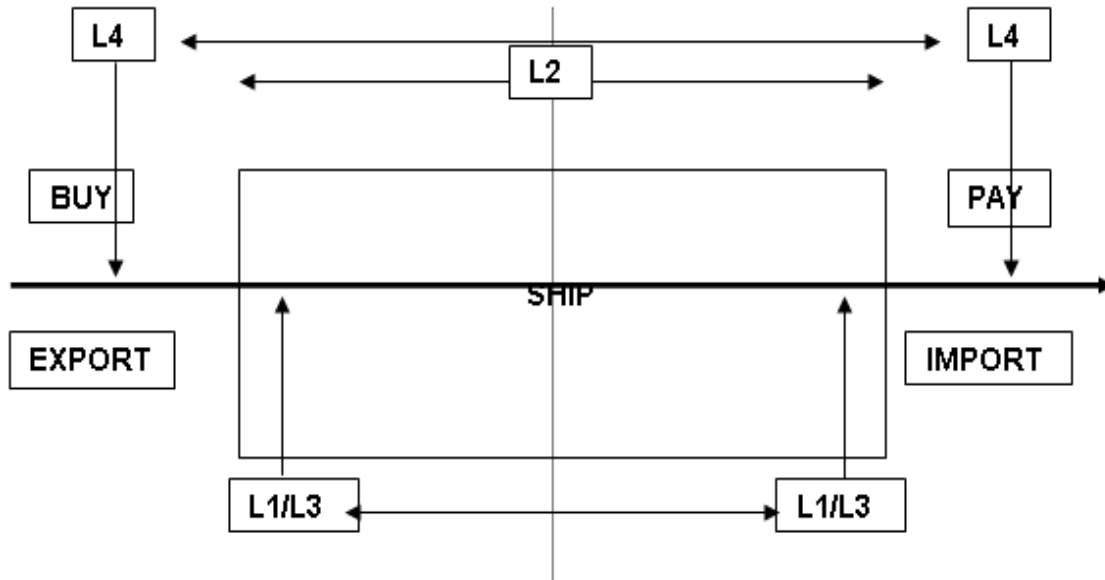


Fig. 1: Supply Chain and supporting documents

From export to import, four levels can be seen:

- The first one (L1) is the customs level at the borders: declarations today are mostly electronically lodged by exporters/importers or their customs brokers;
- The transport level (L2) may include the multiple means of transportation from the factory or the works where the goods were produced and shipped to the delivery destination as required by the buyer. The transport level (L2) includes the stops for controls at the borders where authorities apply controls using automated systems operated by port or airport border management authorities for a cargo control, logistics or traffic purposes. In several countries, these are often the ports and airports Cargo Community Systems. A Cargo Community System is a local federation of actors implementing a computerized workflow from the arrival to the departure of the goods including the customs clearance;
- L3 is the single window that facilitates simplified cross-border regulatory agencies procedures which use dematerialized documents and data. All official requirements including certificate requests (origin, licenses, quality, sanitary...) are collected. The 'One-stop shop' concept can result in the reduction of the number of physical controls. Limited exchange is envisaged between Customs administrations i.e. between L3s.
- The commercial level (L4) - sellers, buyers, banks, insurance companies are exchanging many supporting documents that customs may require for the clearance of the goods or more generally after the clearance.

Supporting documents 'support' cross-border exchanges in international trade. There are several types of cross-border exchanges that take place in the course of international trade. The diagram below depicts the B2B, B2G and G2G exchanges.

Analyzing Cross-Border Exchanges

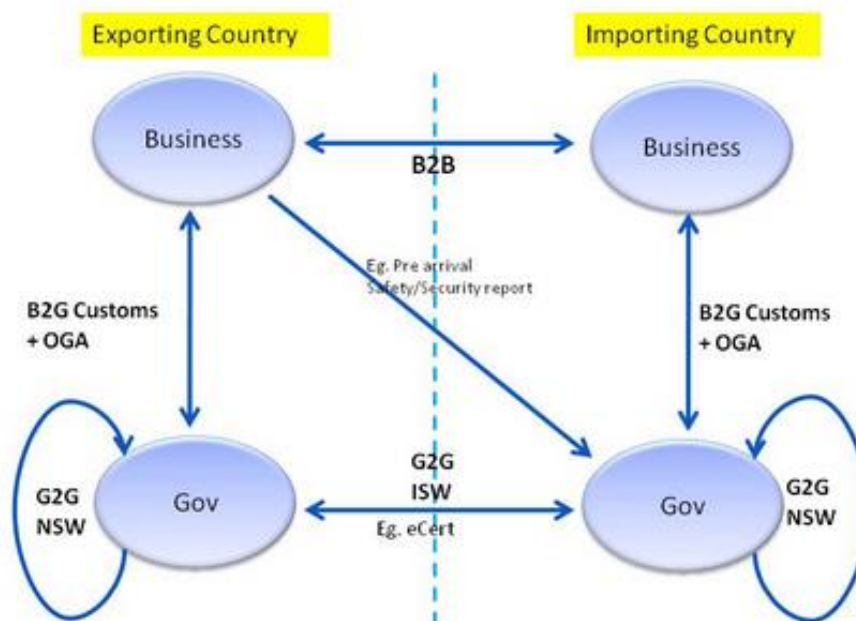


Fig. 2: Cross-border exchanges

In these cross-border exchanges, cross-border jurisdiction is an important issue. While domestic exchanges are governed by national legislation, international exchanges are regulated by international commercial law and international agreements. In the flow of data across frontiers, legal issues concerning the legality and validity of exchanges must be settled.

STRATEGY

In order to achieve dematerialization of supporting documents, it would be prudent to follow the steps listed below:

- identify all supporting documentation required at a national level for regulatory declaration separating trade/ transport and public sector
- establish an inter agencies task force with a mutually defined lead agency
- simplify business processes between agencies
- address legislative/ regulation issues
- undertake dematerialization process including access requirements for private sector supporting document data

COLLECTING BASIC DATA ON SUPPORTING DOCUMENTS

A comprehensive list of supporting documents used in international trade may be prepared nationally. Customs authorities should collect the following data in regard to these documents.

- Name of the Document
- Issuing Authority/ Agency
- Location of the issuing authority/agency
- What is the primary legislation and regulation governing the supporting document?

- Does the regulation prescribe the format of the paper form and/or electronic form? Are there data standards that govern the electronic form? Can the issuing authority be expected to conform with the standard electronic form?
- At what point in the business process is the supporting document issued?
- At what point in the business process is the document relied upon?
- Whether the supporting document holds deductible amounts or quantities?
- What is the frequency of use of the document?

DEMATERIALIZATION PROCESS

The availability of the supporting documents in real-time at an address in the web to Regulatory authorities is an important consideration in the project for dematerialization. Instantaneous access with a mouse-click will greatly facilitate control and cross-checking. To achieve this, the following is suggested:

REFERENCING SUPPORTING DOCUMENTS IN A REGULATORY DECLARATION

Customs declarations such as goods declarations and cargo reports that are filed by actors in the transport and business levels would include references to the supporting documents. The WCO Data Model contains a grouping of data on supporting documents called 'Additional Document'. In the WCO Data Model, information on supporting documents could be provided at different levels eg at the level of the declaration, at the means of transport level, at the level of the shipment, as part of the regulatory goods item and at the level of the product. The Table I of Annex II provides information regarding the data elements that capture information concerning supporting documents could be included in any cross-border regulatory declaration.

SECURE ELECTRONIC REPOSITORY OF SUPPORTING DOCUMENTS

These electronic documents are required to be stored securely in a trusted facility. Such a facility should meet the accessibility, security and reliability needs of the parties involved. To formalize the arrangement of secure storage, the issuer or submitter of the supporting document may enter into a legal agreement with the subscribing party or the relying party to the document. The validity of secure access must be co-terminus with the validity of the original declaration to the regulatory authority. For instance, the repository service provided by the exporters/importers/customs brokers or their trusted service providers must keep the document accessible in repositories for all regulatory entities including the customs authorities and their designated IT systems as long as the goods declaration is legally valid.

This repository service can be provided by a public (eg. Agriculture, defense, culture, etc.) or a private sector body (eg. Banks, freight forwarders, brokers, individual companies, commercial secure storage companies). The access to private repositories could be aligned to trusted trader preferences.

When considering ports or airports Cargo Community Systems, documents or data relative to transport will be made available to authorities.

A global repository service can also be maintained by the National Single Window in charge of gathering all documents going with goods.

The interface between the cross-border regulatory services IT systems and these storage providers should be defined (eg. secured protocols).

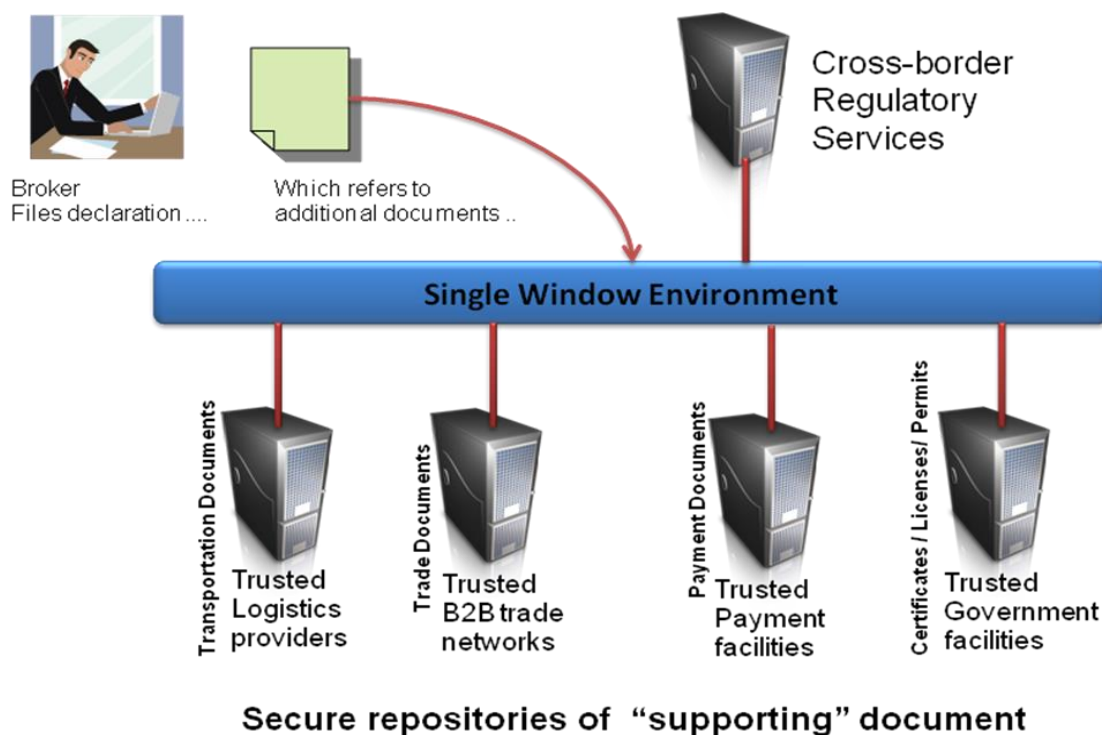


Fig. 3: Secure repository

CONTENT OF THE SUPPORTING DOCUMENTS

This guide does not include the electronic formats for supporting documents. There exist several internationally accepted electronic formats to represent supporting documents. The documents can be stored in the standard format. The metadata about the document layout will provide the means for the subscriber parties to access data items in the document. If necessary, the entire content of the document can be downloaded into the regulatory authorities system. Where electronic documents are not present, as an expedient measure, some parties may need scanned images of the supporting documents. In such cases, the content of the supporting document cannot be processed by a machine as they are not dematerialized.

Today, the control of authenticity and integrity of many paper documents is based on rubber-stamp (with ink) or dry stamp. The visa is stamped by the relevant authority on the export side.

When considering dematerializing these kind of documents the stamp needs to be replaced by something equivalent in terms of value. Every paper based document issued by an authority (or delegated to an authority) on the export side and presented to another authority on the import side can be identified. For example, preferential and non preferential certificates of origin (CO), certificates of conformity, textile import licenses...

ACCESSING THE SUPPORTING DOCUMENTS

The supporting documents stored in the secure repository can be accessed through a secure URL link mapped to the new data element 'Document Location'.

DIGITAL SIGNATURE OF SUPPORTING DOCUMENTS

This document recommends that supporting documents that are dematerialized should be signed using a digital signature certificate. If not digitally signed, the regulatory authorities should keep a time and date stamped fingerprint of the document to protect its integrity during its time life. An incorrect fingerprint indicates that the document has been modified / corrupted since it was fingerprinted.

Electronic signature should comply with XMLDSIG (or XADES) and be included in the e-doc (enveloped signature, time and date of signature are included and are both signed, certificate of the signer is included but is not signed).

REGULATORY DOCUMENTS

Customs and other Government Agencies need to access to regulatory documents which may be systematically controlled in order to clear the goods: mostly these are documents issued by an authority (Other Government Agencies - OGA) working in partnership with customs, for example CITES (Washington convention on international trade in endangered species) / sanitary / phytosanitary certificates authorities.

It would be beneficial if the IT systems belonging to the main OGAs are connected and can exchange data with customs in order to release the goods. This scheme is based on the circular flow of trust between Customs and international authorities like CITES.

For example, a CITES certificate is issued by the export CITES authority. This information is sent to the import side CITES authority. The export customs needs to access to the dematerialized CITES mentioned in the export declaration. It is the same for the import customs. The customs can also update the CITES database modifying the real ex/imported quantity.

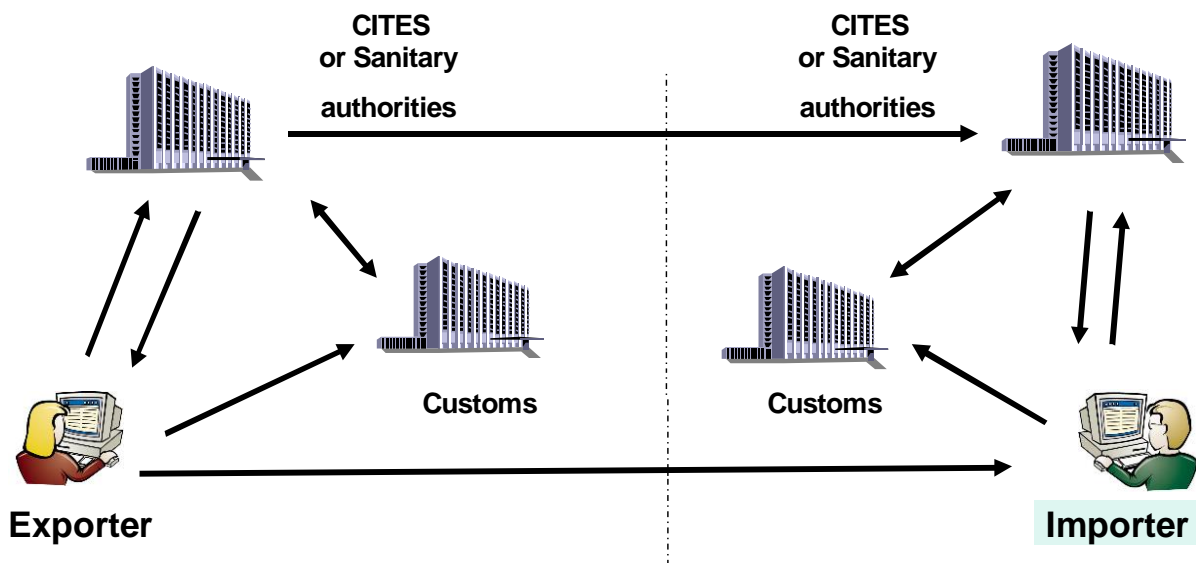


Fig. 4: Customs has an access to OGAs data

A pilot is under way between the Swiss and UK authorities with the objective of using dematerialized CITES certificates. Customs could engage with such initiatives in order to analyze and find a new reprocessing solution.

The question of document content was discussed in 3.3 above. There exists a standard developed for CITES and is maintained by the United Nations Environment Program (UNEP). The eCert standard developed by UN/CEFACT may be kept in view.

OTHER DOCUMENTS

Customs do not request on a general basis certain commonly used supporting documents – i.e. invoices, transport documents. Instead, the customs regulations usually lay down that the importer / exporter – or other entity responsible for paying the customs debt, must avail these documents on request from customs and keep them x years (depending on regulation), giving the customs officers the possibility to scrutinize at an audit or post-control.

There will invariably be initial situations where paper cannot be dropped from the business process as the existing laws and procedures require official seals and signatures. A policy on dematerialization must address the question of a transitional arrangement to use scanned paper documents and to persuade the document issuing authority to move towards an eDocument.

MANAGING A NEW CHAIN OF TRUST FOR AN END-TO-END DEMATERIALIZATION

This project of dematerialization will only have limited effect if undertaken solely at a national level. To be more successful, the management of chain of trust should be addressed at a more global level.

For example, in the case of dematerialization of CITES, sanitary certificates, certificates of origin etc., until the connection between export and import authorities is available (eg. CITES), the import authority may have to formalize an understanding with the export authority to guarantee the authenticity of a electronically signed document circulating between export and import.

An e-doc is trusted if its digital signature is valid – i.e.:

- the e-doc has not been altered (integrity)
- the issuer of the e-doc is safely authenticated

It's easy to check the integrity of the e-doc, but a trust scheme is needed to authenticate the signer. As a mutual recognition of CA signature is still far away, an e-document by e-document / issuer by issuer approach using a Valid Certificate List (VCL) is proposed to answer the question: "who is allowed to sign what?"

Computerized checks, which would lead to reconsideration of time-costly (and often not carried out) controls of paper document:

- the signature is cryptographically correct
- the certificate used for the signature belongs to the VCL
- none of the certificates of the certification path are revoked (CRL)

This VCL - storing all the approved e-certificates - can be implemented on the export or the import side and used to certify the authenticity of the signatory.

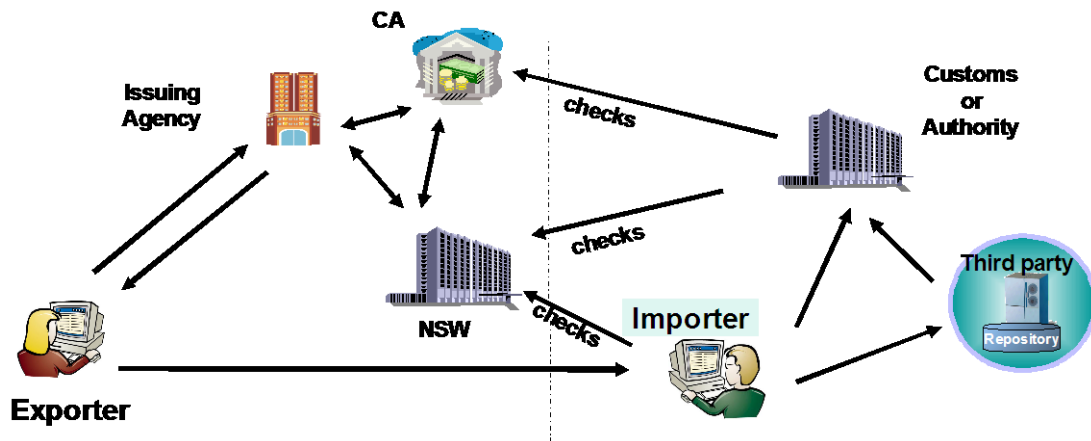


Fig. 5: Import customs has access to e-doc and integrity/authenticity controls

GROUND RULES

The following ground rules should be kept in mind:

E-documents will be referenced in customs declarations;

These references will identify the permanent location of the e-document;

Digital signatures are a means for maintaining authenticity and integrity of the data;

The relying parties (origin and destination countries) agree on the limited question of accepting the national Certifying Authority's (CA) certificates issued to the e-document issuing authority;

The signatures and the archived information are long-living and will be valid beyond the life-cycle of the certificate or the Certifying Authority;

Customs can download e-doc information as and when it needs.