BUILDING A SINGLE WINDOW ENVIRONMENT
The WTO Trade Facilitation Agreement commits countries to the development and implementation of Single Windows. This Part contains an overview of the different approaches to building a cross-border regulatory Single Window environment, and the practical insights with which these approaches provide senior management.
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1. Introduction

In the last three decades, Customs administrations have been developing automated systems with a view to improving trade facilitation and to pursuing effectively their objectives of revenue collection, social protection, and the provision of data and intelligence to government in support of management and policy decisions. These initiatives have gone hand in hand with programmes to modernize Customs and border management, leading to simplification of trade processes and more effective Customs administration overall.

Developments in Information Technology (IT) have enabled governments to make dramatic improvements in delivering services. Each new development in IT has brought with it a new set of possibilities to help bring transformational change to the regulatory environment of international trade. These developments have not just been about technology, but about new business philosophies and architectures that have enhanced convenience and efficiency for the trading community. The emergence of the ‘Single Window’ concept is one such development.

1.1 A Paradigm for Governance

A ‘Single Window’ is a paradigm of governance in which traditional structures of government are transformed into new arrangements that best serve the needs of citizens and businesses. The Single Window is understood as a beau ideal, the highest standard of excellence in the area of delivery of public services. As part of the ‘Single Window’ approach, citizens and businesses receive government services through a single interface. The complex organizational arrangements that go into service delivery are made transparent to the consumers of those services, resulting in increased efficiencies and a reduction in transaction costs.

Such transformation does not take place overnight. It is an iterative process involving several initiatives. The essential elements of such efforts include an examination of the costs and efficiencies of organizational arrangements currently used to offer services to citizens and businesses; how these services relate to different areas of government; and the extent of integration that would be required between government departments or agencies to deliver these services.
The concept of a Single Window has been around for some time in certain areas of government. For instance, local governments in some parts of the world offer an array of public services under one roof through web portals, kiosks or citizen service centres. As part of this approach, different government departments reorganize their back-office operations so that individual services (e.g. the issuing of driving licences, parking rights, or benefits administration) are provided via a ‘one-stop shop’ or ‘under one roof’. This reorganization is aimed at causing the least possible inconvenience to citizens and at meeting all their needs at a single service delivery point. The electronic interface between such governments and citizens comes in the form of citizen portals or websites.

The same principle can also be applied to the complex regulatory processes that govern the movement of goods, transport means and people across international borders. Experts acknowledge that these processes are suffused with costly inefficiencies, a lack of co-ordination among cross-border regulatory agencies (CBRAs), and burdensome procedures and documentation. Therefore, the Single Window concept is appropriate for simplifying cross-border trade procedures and regulation.

In recent times, the term ‘Single Window’ has especially gained currency in trade facilitation circles, as encapsulated in the WTO Trade Facilitation Agreement (TFA). The trade community strongly supports a Single Window approach because it offers a vision of a dramatically simplified interface with CBRAs, whereby the entire government apparatus that deals with the movement of goods across borders is re-engineered to meet the specific and exacting needs of business, while maintaining appropriate regulatory controls.

The following Sections begin with an overview of the concept of a cross-border regulatory Single Window, and seek to provide clarity regarding the terms often used in this connection. They explain why the WCO has chosen to focus on a Single Window environment as opposed to a system or facility. Lastly, they explore these definitions in the context of a Single Window as presented in the WTO TFA.

2. The WTO Trade Facilitation Agreement

The World Trade Organization Trade Facilitation Agreement (TFA) was adopted in December 2013 at the WTO’s Ninth Ministerial Conference, held in Bali, Indonesia, under the Doha Development Agenda, and entered into force on 22 February 2017 after a long period of gestation. Trade
facilitation under the WTO Agreement has a broad scope. The following table provides a summary of its objectives:

Table 1: General aims of the WTO TFA and some essential characteristics.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedy release and clearance of goods</td>
<td>✓ Transparency in regulations</td>
</tr>
<tr>
<td>Expedited movement of export, import, and transit cargo</td>
<td>✓ Predictability in decision-making</td>
</tr>
<tr>
<td>Lower costs of international trade by reducing procedural barriers</td>
<td>✓ Rational, transparent fees and charges</td>
</tr>
<tr>
<td>Co-operation and co-ordination among border agencies within the government and between governments</td>
<td>✓ Customs co-operation, ✓ Border agency co-operation, ✓ Simplifying documentation, ✓ Freedom of transit, ✓ Advance rulings, ✓ Appeal procedures, ✓ Transparent penalties</td>
</tr>
<tr>
<td>Provision of technical assistance in building capabilities</td>
<td></td>
</tr>
</tbody>
</table>

When analysing the TFA Articles separately, it is possible to lose sight of the opportunities it affords each country to give strategic direction to information and communication technology, human resources, and capacity building. However, when the different Articles are taken together, this Agreement provides Members with the possibility of reaching new levels of trade facilitation in terms of transparency, efficiency and predictability. An overall strategy would typically include a programme to introduce a Single Window, as the figure below illustrates.

Figure 1: Measures under the WTO TFA can be divided into three different categories of actions, which can be implemented through effective programme management. The Single Window is one of these programmes.
The WTO Agreement explicitly mentions the Single Window in paragraph 4 of Article 10 ("Formalities connected with Importation, Exportation and Transit"). Paragraph 4 reads:

4.1 Members shall endeavour to establish or maintain a single window, enabling traders to submit documentation and/or data requirements for importation, exportation, or transit of goods through a single entry point to the participating authorities or agencies. After the examination by the participating authorities or agencies of the documentation and/or data, the results shall be notified to the applicants through the single window in a timely manner.

4.2 In cases where documentation and/or data requirements have already been received through the single window, the same documentation and/or data requirements shall not be requested by participating authorities or agencies except in urgent circumstances and other limited exceptions which are made public.

4.3 Members shall notify the Committee of the details of operation of the single window.

4.4 Members shall, to the extent possible and practicable, use information technology to support the single window.

Whilst paragraph 4 of Article 10 contains what is apparently a ‘best endeavours’ measure, when read alongside other Articles, it becomes amply clear that Members must pursue a path towards implementation of a Single Window environment. There are several significant aspects to the WTO definition of Single Window. Specifically, paragraph 4.1 is framed in terms of enabling traders to:

(i) “submit documentation and/or data requirements for importation, exportation and transit of goods ....”. All subprocedures related to import, export and transit are also covered. Thus, the entire set of Customs procedures is intended to be brought under the Single Window.

(ii) “...through a single entry point to the participating authorities or agencies”. This is defined in neutral terms, and does not state whether the entry is manual or electronic. If there has to be single “single entry point” for the entire country, “documentation and/or data requirements” cannot be handled very well in hard copy. Therefore, one must assume that the TFA is speaking about an electronic Single Window. The WTO Agreement refers to “participating authorities or agencies”. The word “participating” does not imply that those agencies or authorities choose to take part in the Single Window. Rather, it refers to those agencies/authorities that participate in importation, exportation and transit procedures.

(iii)

1 "Assessment of Single Window(s)", a report by Hueng Huen Ha of KT Net compares UN/CEFACT Recommendation No. 33 with the WTO TFA. The report can be found at http://www.unescap.org/sites/default/files/Session%201_Hungheun%20Ha.pdf.
“After the examination by the participating authorities or agencies of the documentation and/or data…” This implies that the participating authorities and agencies will examine documentation and data received at the single entry point. If data and documentation must reach the interested organizations or officials, the Single Window will perhaps be electronic. Such an arrangement is possible only if the participating authorities/agencies are connected through electronic means.

(iv) “…the results shall be notified to the applicants through the single window in a timely manner.” It is not enough for the administration to provide a single entry point. It must also arrange for results to be provided through a Single Window. The results need to be construed as broadly as possible to cover the widest range of decisions taken by all participating agencies/authorities: the decision to release, hold, test and/or examine goods, the computation of duties, taxes and fees, and any condition the participating agencies/authorities may impose on the applicant. Thus, apart from mandating a single entry point, the TFA also speaks implicitly about a single response point.

Moving on to paragraphs 4.2, 4.3 and 4.4, the text of the Agreement imposes further requirements:

(v) Paragraph 4.2 underscores the principle of single submission (to complement the single entry point and the single response point), by placing restrictions on the freedom to require the applicant to again submit “documentation and/or data requirements [that] have already been received through the single window”.

(vi) Paragraph 4.3 calls for formal notification by the Member to the WTO “of the details of operation of the single window.” Thus, once a Member makes a Single Window operational, the relevant WTO Committee must be made aware of its existence.

(vii) Paragraph 4.4 suggests that Members should, to the extent practicable, “use information technology to support the single window.” This provision is somewhat superfluous since Members could scarcely implement the other provisions of Article 10.4 without the use of information technology.

While Article 10.4 refers explicitly to the Single Window, there are several other Articles that would require a Single Window-type approach to achieve compliance. For example, Article 1 requires Members to publish information on government regulations and procedures affecting international trade, and applies not just to Customs, but to all other government agencies. As part of this, governments must notify traders and other interested parties of the public channels through which such information is accessible, and establish enquiry points. Whether such an arrangement would be of benefit without the extensive use of information and communications technologies is a moot point – in order to manage publications and enquiry points efficiently, it is prudent to make extensive use of information and communications technologies. One way to provide businesses with comprehensive information about trade compliance is a trade information portal. Several countries have developed such portals. Documenting the requirements of compliance in terms of commodities is perhaps the first step in the development of a Single Window.
It is essential to have an arrangement in place to identify the agencies responsible for the publication of trade information, to define the scope of their responsibilities, and the mechanism for coordinating publication activities, so that traders and other interested parties can obtain coherent and contextualized information\(^2\).

WTO Members are governments, and this Article does not limit the requirements regarding publications and enquiry points to Customs alone. It might therefore be useful to consider a ‘whole of government’ approach when complying with its requirements. That way, traders and other interested parties would not have to visit multiple locations or navigate through different websites to find information about the steps for release and clearance of goods. Part III of Volume 2 of this Compendium contains an approach to ‘functional assessment’, whereby information about different government agencies dealing with the cross-border regulation of trade can be collected systematically.

As regards co-operation between border agencies, the WTO Agreement is categorical. Article 8.1 establishes the requirement that “Each Member shall ensure that its authorities and agencies responsible for border controls and procedures dealing with the importation, exportation, and transit of goods co-operate with one another and co-ordinate their activities to facilitate trade.” Such co-operation is useful for implementing the Single Window concept. It is also argued\(^3\) that several other Articles, though not explicitly mentioning the Single Window, reflect the spirit behind its development. Some of the Articles are as follows:

**Article 7.1.2** Each Member shall, as appropriate, provide for advance lodging of documents in electronic format for pre-arrival processing of such documents.

**Article 10.3.1** Members are encouraged to use relevant international standards or parts thereof as a basis for their import, export, or transit formalities and procedures, except as otherwise provided for in this Agreement.

**Article 23.2** Each Member shall establish and/or maintain a national committee on trade facilitation or designate an existing mechanism to facilitate both domestic co-ordination and implementation of the provisions of this Agreement.

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3. **The Cross-Border Regulatory Single Window**

It is useful to bear in mind that the focus of this Compendium is the ‘cross-border regulatory Single Window’. The latter is a facility dealing with the regulatory aspects of cross-border flows of traded goods, cargo, transport equipment, means of transport and crew.

\(^2\)The WCO carried out an analysis of the Trade Facilitation Agreement in this regard, providing detailed comments.
The term ‘Single Window’ is widely used in international trade, and many efforts have been made to describe what it is. The idea of a ‘Single Window’ for international trade challenges the conventional models of regulatory control of the movement of goods and means of transport because clearance of goods across borders involves several regulatory agencies.

Traditionally, in cross-border trade, the various areas of regulation have been managed by different government departments and agencies, referred to collectively as cross-border regulatory agencies (CBRAs). Customs, plant and animal quarantine agencies, sanitary and phytosanitary inspection agencies, food safety agencies, border police and transport departments, etc. have maintained a presence at the border and managed services in their respective areas of competence. Over the years, executive and administrative competencies have been developed by all these agencies to manage their individual government programmes. Each programme has had its own financing – sustained over extended periods of time – resulting in the creation of programme-specific human and technical resources, and enduring organizational structures and service delivery mechanisms, that have supported trader and transport activities.

The Single Window concept, however, examines regulatory controls through the eyes of the trader and views all interactions between trade and CBRAs without regard to internal separations within government. This approach brings out all the procedural redundancies, any duplication in the filing of information, and the wastefulness involved in the overall effort to move goods across borders. This analytical approach gives rise to a set of solutions that significantly simplify the government-trade interface by reorienting procedures and reorganizing regulatory data requirements.

This simple concept has been embraced enthusiastically by the leadership both in trade and in government organizations. Several terms have been coined in different languages around the world to describe it. In French, it is referred to as Guichet Unique, where ‘guichet’ is understood traditionally as the service window or service counter of a government office. The Single Window approach does what the term in French denotes – it unifies the interface between government and trade. Therefore, in this respect, the French term most suitably reflects the concept that this Compendium tries to expound. In Latin America, the Single Window is widely known as VUCE or Ventanilla Unica de Comercio Exterior – or a ‘Single Window for External Trade’. This is not very different from the international trade Single Window (ITSW) popularized by SITPRO (Davis, et al. 2009), which carried out some important analytical work in this area.
The use of different terms for the Single Window concept is necessary because they suggest differences in scope. For example, ‘international trade Single Window’ conveys the sense of an omnibus facility for trade. Exchanges between participants in an international trade transaction start with the identification of products and trade partners, then go on to shipment and dispatch, regulatory clearance at the border, and payment for the traded goods. The Single Window concept discussed in this Compendium does not cover all the processes that are purely for trade but, rather, only those processes that involve cross-border regulation. Of course, the context in which trade transactions occur must be kept in mind but, primarily, what is discussed is only the cross-border regulatory Single Window, where regulatory formalities are the focus. The distinction between a portal for trade or transport transactions and the cross-border regulatory Single Window is clear: the former falls in the category of a business-to-business (B2B) facility, and the latter is a business-to-

### Business-to-Business Interactions in a ‘Single Window’ Environment

The entire international trade supply chain exists to fulfil the needs of the buyer, who is interested in the value represented by goods supplied by the seller. Developments in electronic business have enabled buyers to use facilities that help navigate the supply chain processes of finding ordering, shipping and paying processes online. Just as the buyer seeks to receive goods, the seller is interested in securing payment for goods. Several online facilities have emerged which perform complex business transactions in an online platform to fulfil the business needs of buyers and sellers, giving them a ‘Single Window’ experience.

Trade hubs, trade portals and port community systems are examples of facilities that allow business-to-business interaction as part of the Single Window concept. Some of these systems are sometimes available to a closed group of users, while others are accessible on open platforms. Developments in cloud computing and e-commerce technologies have resulted in the concept of “data pipelines” which help transport supply chain data of the right quality to the right party at the right time, and include regulatory agencies like Customs. CASSANDRA, a research project funded by the European Union, involves a consortium of 26 innovative industry leaders in the fields of supply chain management, logistics, IT and Customs, and is attempting to do just that. The project aims to make container security more efficient and effective by addressing the visibility needs of both business and government in the international flow of containerized cargo by developing a data sharing concept that allows an extended assessment of risks by both business and government.

Source: http://www.cassandra-project.eu/

government (B2G) facility. Clearly, there is a relationship between B2B services and B2G facilities. For instance, a cargo community system, which is largely a B2B service, would for some processes act as the intermediary between business and government.

The WCO sees the ‘Single Window’ principally as the outcome of collaboration between Customs and its partner government agencies – and in no small measure, of co-operation between government and business.

### 4. Many Single Windows?

As explained in the preceding paragraphs, as well as Customs, other government agencies (e.g. those dealing with agricultural and veterinary inspection, the control of drugs and pharmaceuticals) are entitled to interdict and examine goods crossing the border. The lack of information sharing among these agencies has led to an undesirable situation for the trader, who has to provide the same information to different government agencies. Consequently, multiple inspections are carried out by these organizations at various points in time. The assessment of regulatory risk is made in accordance with agency-specific data, and not based on the complete set of data that government receives from traders.
Any one of the government agencies concerned could propose a project to establish a cross-border regulatory Single Window. For example, the maritime agency may moot the idea of a maritime Single Window to provide all the services associated with electronic reporting by ocean-going vessels. Such a Single Window can cover the entire ship-port interface. In fact, since June 2015, all European Union Member States have been required to accept electronic reports from ships or their agents electronically via a Single Window. Such facilities have been described as “maritime Single Windows” (EU DG MOVE, 2010). It is envisaged that the maritime Single Window will operate alongside other Single Window facilities provided by Customs and trade licensing authorities.

Likewise, cargo community systems or port community systems have been implemented in several countries and provide a single interface between logistics operators at the port/airport and the trade and transport community. These systems have in some cases also acted as the single interface between Customs and the trade and transport community, and provide the means for Customs to exercise controls over the flow of cargo.

Government agencies and cargo communities have evolved stand-alone systems over the years by developing extensive interlinkages to share information and to facilitate trade. Some of these systems have also positioned themselves as ‘Single Window’ solutions. Questions may arise about the oxymoron ‘multiple Single Windows’: Should not there be just a ‘single’ Single Window? If multiple Single Window solutions were to emerge for any reason for different sectors (maritime, agriculture, trade, transport, Customs) in support of international trade, how would these Single Windows interact with each other? Can the responsibility to deliver the ‘Single Window’ concept be split up into different parts and discharged by various organizations through a single point? Is the Single Window a single automated system, or a collection of interconnected systems operated by the different agencies? Should there be a single orchestrator to manage the development of these multiple facilities calling themselves ‘Single Windows’? Would purpose-built stand-alone systems that have been running for years—for example, for import licensing and verification—survive the development of a Single Window, or should all such systems be retired when a Single Window emerges? How does one draw the boundaries of coverage between ‘Single Window’ systems and the existing ‘stand-alone’ systems?

These questions can best be addressed by using appropriate analytical frameworks. As mentioned before, there are different approaches to understanding the Single Window concept. This Part considers four approaches, which are discussed in detail in the following Sections.

4.1 The National Versus International Single Window

The focus of the national Single Window (‘NSW’) in this Compendium is the collaboration between Customs and other partner CBRAs. Such collaboration can also occur between national governments to further simplify trade procedures and international data flows. Data regarding a cross-border trade transaction originates in the country of export; as goods move through countries of transit to arrive at the country of destination, they are subject to the controls applied by different national governments. When national governments collaborate at land borders, they can create a ‘one-stop border post’, whereby countries sharing a land border enter into international agreements. Such agreements enable close co-operation between agencies on both sides of the border so that regulatory formalities associated with import, export or transit are not duplicated.
Customs administrations already collaborate with each other to share sensitive information about enforcement through Customs Mutual Assistance Agreements (CMAAs) (World Customs Organization 2004). CMAAs deal largely with the fight against transnational crime, including smuggling. There are, however, other areas of collaboration, especially in terms of the exchange of information on the international transit of goods: the Customs office of departure receives confirmation from the Customs office of destination about the successful transit of goods, and this helps in the updating of their respective records. There are other areas requiring co-operation between governments. For example, licences, certificates and permits that are issued in one country may have to be used in another country. These possibilities are sometimes referred to as the international or regional dimension of the Single Window.

There are possible areas of co-operation between countries regarding the supply of advance (pre-departure and pre-arrival) information in respect of import and export cargo. Such information sharing is vital for securing national borders, as well as for speeding up the flow of freight. All these possibilities are the subject of discussion in the WCO publication related to Globally Networked Customs (GNC) (Noël Colpin 2010). GNC is a building block of the WCO strategy document “Customs in the 21st Century” and has the potential to change the trade landscape.

4.2 A Controlled Vocabulary of Single Window Terms

The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) has noted the emergence in certain countries of multiple systems claiming to be Single Windows. To the economic operators, the specific role of these Single Window systems is clear. If multiple official Single Window systems coexist in the same economy, there must be a proper way to refer to these systems. To clarify doubts, and to streamline the use of vocabulary in technical literature concerning the Single Window, UN/CEFACT launched a project to produce a "Technical Note on Terminology for Single Window and Other Electronic Platforms". This Note lists the various terms used in this area, and points out that UN/CEFACT Recommendation No. 33 relates to the national Single Window. There could, however, be regional Single Window solutions, and sector-specific Single Windows, such as maritime Single Windows. Technical facilities, such as the ‘single submission portal’ and ‘single environment’, which are available solutions within the Single Window space, are conflated with the specific characteristics of the official Single Window definition under Recommendation No. 33. Thus, the features arising out of systems and programmes under the overall umbrella of a Single Window are defined in terms of their actual contribution to clearance. The terms covered in the document include ‘information hub’, ‘one-stop-shop’, ‘one stop border post’, ‘joint border control’, ‘coordinated border management’, ‘port community systems’ and ‘cargo community systems’.

The controlled vocabulary helps unravel the mystery of having many Single Windows, by bringing together the five basic features outlined in Recommendation No. 33. The following figure illustrates the different types of Single Window in terms of the five basic features.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Exclusive on the market for this type of operator</th>
<th>Standardized information and documents</th>
<th>Government mandate for Single Entry Point</th>
<th>Regulatory processes</th>
<th>Single submission point for individual data elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Window</td>
<td>Must be</td>
<td>Must use</td>
<td>Must have</td>
<td>Must include</td>
<td>Must be</td>
</tr>
<tr>
<td>Single Submission Portal</td>
<td>Can be</td>
<td>Must use</td>
<td>Can have</td>
<td>Can include</td>
<td>Should be</td>
</tr>
<tr>
<td>Single Environment</td>
<td>Can be</td>
<td>Must use</td>
<td>Can have</td>
<td>Must include</td>
<td>May have</td>
</tr>
</tbody>
</table>

Figure 2: The five basic features of Recommendation No. 33 to describe a Single Window, a single submission portal and a single environment. (Source UN/CEFACT)
## Typologies & their distinguishing features

<table>
<thead>
<tr>
<th>Typology</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port Community System (PCS)</strong></td>
<td>✓ Usually defines itself as a neutral and open electronic platform;</td>
</tr>
<tr>
<td></td>
<td>✓ Enables intelligent and secure exchange of information between public and private stakeholders;</td>
</tr>
<tr>
<td></td>
<td>✓ Helps improve the efficiency of data sharing the sea and air ports' communities (sometimes referred to as Port User Groups);</td>
</tr>
<tr>
<td></td>
<td>✓ Can be linked to a single port (whether sea, air, inland, or rail) or a multiple port environment within an economy;</td>
</tr>
<tr>
<td></td>
<td>✓ Can be a public, a private, or a public/private model;</td>
</tr>
<tr>
<td></td>
<td>✓ Can be considered a Single Window system if they satisfy the five key elements of the definition of Recommendation 33.</td>
</tr>
<tr>
<td><strong>Cargo Community System (CCS)</strong></td>
<td>✓ An information technology platform;</td>
</tr>
<tr>
<td></td>
<td>✓ Helps to link-up information on freight flows (import/export/transit);</td>
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<tr>
<td></td>
<td>✓ Passing through an identified port, airport, or multimodal site(s) at a local or national level;</td>
</tr>
<tr>
<td></td>
<td>✓ Involves all parties in cargo freight and logistics including customs administrations;</td>
</tr>
<tr>
<td></td>
<td>✓ Handles a database in which information is collected, processed, stored and exchanged;</td>
</tr>
<tr>
<td></td>
<td>✓ Aims to enhance freight optimization, trade safety and security, cargo tracking and tracing;</td>
</tr>
<tr>
<td></td>
<td>✓ Facilitates customs and administrative procedures;</td>
</tr>
<tr>
<td></td>
<td>✓ Systems might be considered a Single Submission Portals;</td>
</tr>
<tr>
<td></td>
<td>✓ Could contribute to a Single Environment.</td>
</tr>
<tr>
<td><strong>Trade Information Hub</strong></td>
<td>✓ Fulfils governments obligations to provide information to the international trading community for all cross-border regulatory procedures;</td>
</tr>
<tr>
<td></td>
<td>✓ Cannot by itself be considered as a Single Window as they do not allow for the fulfillment of regulatory procedures;</td>
</tr>
<tr>
<td><strong>One-Stop-Shop</strong></td>
<td>✓ A physical location where multiple agencies have representative offices;</td>
</tr>
<tr>
<td></td>
<td>✓ Enables economic operator can perform all of their procedures (paper or electronic) within the same physical location;</td>
</tr>
<tr>
<td></td>
<td>✓ Does not represent or refer to the technical solution which allows one to process all information concerning a transaction;</td>
</tr>
<tr>
<td></td>
<td>✓ Represents and refers to the physical location where multiple procedures can be fulfilled;</td>
</tr>
<tr>
<td></td>
<td>✓ Allows traders to avoid time-consuming travels from one office to another.</td>
</tr>
<tr>
<td><strong>Coordinated Border Management</strong></td>
<td>✓ A cooperative approach by border control agencies (both at the national and international level);</td>
</tr>
<tr>
<td></td>
<td>✓ Seeks greater efficiencies over managing trade flows, while maintaining a balance with compliance requirements;</td>
</tr>
<tr>
<td></td>
<td>✓ Highlights the general principle of coordination of policies, programs and delivery among cross-border regulatory agencies;</td>
</tr>
<tr>
<td></td>
<td>✓ Does not refer to, represent or favour any one solution.</td>
</tr>
<tr>
<td></td>
<td>✓ Considered as the underpinning of any Single Window solution;</td>
</tr>
<tr>
<td></td>
<td>✓ Essential part of dialogue between customs and other agencies within and across borders;</td>
</tr>
<tr>
<td></td>
<td>✓ Promotes partnership between Customs and the business community.</td>
</tr>
<tr>
<td><strong>One Stop Border Post (OSBP)</strong></td>
<td>✓ A concept where the traffic crossing the border need only to stop at one border post.</td>
</tr>
<tr>
<td></td>
<td>✓ Involves officials of neighboring countries work together in the same premises at the Border.</td>
</tr>
<tr>
<td></td>
<td>✓ Handles incoming traffic for the regulatory exit and entry procedures.</td>
</tr>
<tr>
<td></td>
<td>✓ Can include - consolidated border procedures in neighboring countries;</td>
</tr>
<tr>
<td></td>
<td>✓ Must involve simplification of documents and border procedures;</td>
</tr>
<tr>
<td></td>
<td>✓ Joint inspections (when needed);</td>
</tr>
<tr>
<td></td>
<td>✓ Results in less time needed for border crossing.</td>
</tr>
<tr>
<td><strong>Joint Border Crossing</strong></td>
<td>✓ Concept involves two neighboring customs administrations entering into an agreement to operate customs control jointly;</td>
</tr>
<tr>
<td></td>
<td>✓ Coordinate export and import controls, opening hours and competencies</td>
</tr>
<tr>
<td></td>
<td>✓ Ideally, joint controls are conducted in a single customs office where physical and technical infrastructures are shared.</td>
</tr>
<tr>
<td></td>
<td>✓ Taken further the concept may involve officers from each country are authorized to exercise law enforcement measures (e.g. penalties, seizures, arrests) in the other country's territory, within the limits of the joint customs office.</td>
</tr>
</tbody>
</table>

Figure 3: Typologies and their features. (Source: UN/CEFACT Technical Note on Terminology for Single Window and Other Electronic Platforms)
4.3 Developing a Single Window: Concept, Initiative and Environment

The diagram below describes the three phases in the development of a Single Window environment.

Figure 4: Phases in the development of a Single Window environment.

The development of a Single Window typically involves multiple stages – it begins as a Single Window concept, it matures as a formal initiative and, through project formulation and implementation, a Single Window environment emerges.

In discussing the Single Window, a careful distinction must be made between the different terms used. During the exploration phase, the term ‘Single Window concept’ or ‘Single Window approach’ is preferred. When the idea is formally accepted, this leads to a ‘Single Window initiative’. Efforts find expression in a political mandate, governance structures are established, and one or more Single Window projects come into being. The execution of these projects gradually builds the ‘Single Window environment’, serving the purpose of trade and regulatory agencies.

4.4 Why Single Window ‘Environment’?

The reference to a Single Window ‘environment’ reflects the wide observation that Single Window implementation usually involves a union or federation of interdependent facilities, joined by mutually defined interfaces and collectively adopted business processes. The environment comprises the shared space between individual cross-border regulatory agencies, and their respective regulatory roles, legal requirements, business processes and automated systems. At any given time, the above elements of border processing represent the ‘current state’ of the environment.
and could potentially move to another state that is closer to the Single Window concept. The numerous changes required in this undertaking make the exercise highly complicated. The WCO Survey (WCO, 2011 and 2016) has revealed that Single Window projects are being implemented in phases that sometimes extend beyond five years. Each phase and subphase builds upon the previous one, leading to progressive simplification for trade, and more processing elements within the environment. It should also be kept in mind that the targeted environment may not be the result of a single project, but could be the outcome of a series of projects.

4.5 Building a Single Window Environment

The word ‘building’ has been chosen over ‘development’ because, as in the case of a bricks-and-mortar edifice, the Single Window is architected to reflect actual business needs. It is constructed using the relevant engineering capabilities. It is then tested and certified as a facility that is fit for use. In other words, it is commissioned. Like a building that hosts a lifestyle, the Single Window environment hosts business processes and provides a collection of inter-related services. The regulatory framework represents the bylaws of the building that must be observed and respected.

Several national proposals on the Single Window claim that they are not starting from scratch but that they involve the refashioning or overhauling of existing IT systems (Davis, et al. 2009). Taking the ‘building’ analogy further, Single Window projects may sometimes require the dismantling of existing edifices at the site, and the renewing or rebuilding of some existing structures. The reference to building is also about repairing existing structures.

This Compendium deals holistically with the subject, as reflected in its title ‘How to Build a Single Window environment’. It is widely recognized that a one-size-fits-all understanding of the Single Window will not work. Using the information provided in this Compendium, a Customs administration should be able to paint its ‘as-is’ picture that reflects its unique ‘current state of the environment’, and its preparedness across the various policy, technical, infrastructural and practical areas concerned, with a view to charting the path towards the ideal end-state of the Single Window environment.

The rest of this Part examines different approaches to the Single Window environment, with actionable insights for executive management. It starts with the most widely acknowledged definition of a Single Window, as set out in UN/CEFACT Recommendation No. 33 (UN/ECE 2005). It then describes the WCO view of the Single Window as a part of the quest for ‘co-ordinated border management’. Next, it looks at the techno-legal view of the Single Window environment and its similarity to a ‘virtual enterprise’ that is visible through web portals and interfaces connecting a group of co-operating facilities. Lastly, this Part looks at the Single Window as a collection of inter-related services in support of international trade and cross-border regulatory controls. The ‘collection of services’ paradigm helps (i) document the variety of regulatory services in international trade; (ii) define the scope and coverage of different facilities under the Single Window; and (iii) point out the pathways for collaboration. This Part concludes by highlighting the practical and actionable insights arising from each of these approaches.
5. UN/CEFACT Recommendation No. 33

The cross-border regulatory Single Window is a complex undertaking. It is therefore useful to provide a simple description in terms of its essential characteristics. One of the main features of a Single Window is that it helps avoid the repeated submission of data. UN/CEFACT Recommendation No. 33 (Economic and Social Council, 2005) considers this feature and connects it to the question of submission of information by trade to cross-border regulatory agencies. The Recommendation helps link the concept of a Single Window with UN/CEFACT’s broader area of expertise – data standards and electronic messaging.

UN/CEFACT Recommendation No. 33 draws on the Buy-Ship-Pay model\(^4\) to explain the collaboration between Customs and other government agencies in terms of information flows between parties involved in trade and transport on the one hand, and regulatory agencies on the other. It is the first rigorous attempt to collect data and documentation on the design and implementation of a Single Window for international trade. This Recommendation is the basis for the current understanding on the subject. Globally, applications of the Single Window concept are judged on whether they meet the standards required by the definition of a Single Window and the typologies described in the Annex to the Recommendation. The definition of a Single Window, as provided in UN/CEFACT Recommendation No. 33, is as follows:

"Within the context of this Recommendation, a Single Window is defined as a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once."

\(^4\) The Buy-Ship-Pay model developed by UN/CEFACT describes the main processes and parties in the international supply chain.
Figure 5: The five essential features in UN Recommendation No. 33. (Source: UN/CEFACT: Technical Note on Terminology for Single Window and Other Electronic Platforms) (Armen./Tejo, if possible please introduce suitable clipart/ vector images in the empty boxes)

The accompanying Guidelines to this Recommendation describe the most common models for a Single Window: (i) The ‘single authority’ model, whereby an entity co-ordinates between all the relevant agencies to ensure that the logistics chain remains unhindered; (ii) the ‘single automated system’ model, whereby an automated information system processes information or co-ordinates with a group of systems that process the data to be received or sent. Such systems could be further categorized as integrated systems, in which the single automated system serves as a processing hub for individual users from all the agencies concerned, or as 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; and (iii) the automated information transaction system, that serves as a transaction hub and is integrated with all the authorities. Declarations and permits are received electronically in a single application, and it is processed seamlessly by the individual authorities concerned. The response is returned electronically to the declarant.

The Guidelines to the Recommendation suggest the need for a lead agency to co-ordinate between the stakeholders and describe the standards and tools that could be deployed. They provide preliminary guidance on the practical steps to take when planning and implementing a Single Window, listing the key factors to making it a success. The Guidelines provide an overview of services provided by leading Single Windows around the world.

This Recommendation has served as the anchor for all further discussions on the subject. Numerous workshops, seminars, research papers and conference papers have referred to it in highlighting possibilities and benefits. UN/CEFACT has developed further recommendations to describe practical tools and methodologies that support the development of a Single Window.

It should be noted that the focus of the UN/CEFACT Recommendation No. 33 and its accompanying Guidelines is on ICT-enabled solutions for one-time electronic submission of regulatory data. There are equally important organizational consequences when we consider a Single Window as a socio-technical system with important policy, legal, human resource and business implications. These are reflected to a certain extent in successive related UN/CEFACT recommendations, including: Recommendation No. 34 on Data Simplification and Standardization for Single Windows, Recommendation No. 35 on Establishing a Legal Framework for International Trade Single Windows, and Recommendation No. 36 on Cross-Border Interoperability of Single Windows.

UN/CEFACT Recommendation No. 33 remains the internationally accepted definition of a Single Window, but its emphasis on the Single Window as a facility for submitting standardized information with a single entry point has led to the perception in some quarters that Single Window implementation is only a government-managed, large-scale IT application capable of receiving large, single, highly complex declarations and distributing their components to the government agencies concerned.

In developed countries with a highly developed trade infrastructure, such an approach would be disruptive and massively expensive as there are already facilities that support supply chain processes. That landscape often consists of sophisticated IT systems, such as Customs declaration...
processing hubs, port and logistics community systems, licence issuing and verification systems, inspection and certification systems, and e-business service provider systems. Therefore, it becomes necessary to have a broader view of the Single Window concept, rather than create an added layer involving yet another large system which merely links up and orchestrates these existing, well-established and mature systems. The Single Window can also be viewed as a network of co-operating facilities that are bound by trust and a set of agreed interface specifications, in which trade has seamless access to regulatory services delivered through electronic means. The arrangements that exist between cross-border regulatory agencies are hidden from the trader’s view, but these arrangements are also able to drive simplification by streamlining regulatory authorizations for the movement of goods and means of transport along the supply chain. As a consequence, the trader is mostly spared the task of filing the same information multiple times.

Several Western European nations do not yet have a Single Window in place, but their existing systems are already products of years of collaboration between government agencies and trade. In combination with modern risk management practices, the principle of minimizing the data required for release, trusted trader programmes, post-clearance audit and co-operative arrangements for compliance management, these countries have built modern and efficient Customs systems. The fact that the countries can boast some of the world’s best logistics facilities but do not yet have a Single Window in the sense of Recommendation No. 33 suggests that, besides the principle of one-time submission of electronic data, there must be other factors that promote high levels of facilitated trade. Part III of Volume 1 examines the strategic components of a Customs modernization programme and attempts to position the Single Window environment within those components.

Information available from the UK, France, Canada, Korea and Japan suggests that the approach to be followed in most developed countries would be very different from that for emerging economies, LDCs or transitional economies.

What makes the Single Window a bigger challenge for developed countries is that there are traditionally established ways of doing business, entrenched interests within the various regulatory services, inertia from legacy IT solutions, fatigue when it comes to new and large IT projects, and burdensome legal issues. It is helpful to examine the issues in a wider context, and not just in terms of submission of regulatory data.

Advances in IT interoperability and architecture have introduced new paradigms in understanding how organizations can collaborate and bring transformative changes. This progress clearly has a bearing on the way government agencies can collaborate with each other and with the private sector. New engines of collaboration have been invented, and new architectural paradigms have emerged since Recommendation No. 33 was first published.

It is well known that there is no single way to build a Single Window environment. The WCO Survey reveals that different solutions exist around the world, and it is important to understand the similarities and differences between them, as well as what does and does not work, and why. It is necessary to know the different views in relation to the Single Window.
5.1 The WCO Adapted Definition

As mentioned above, the WCO prefers the term ‘Single Window environment’ (which was also the term used in the concept brochure produced as a prelude to UN/CEFACT Recommendation No. 33). The WCO’s website currently gives an unofficial definition of the Single Window environment as a “cross border, ‘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” (WCO 2008). This is largely in line with UN/CEFACT Recommendation No. 33.

5.2 Why is it an ‘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, nor simply a centralized access point to information through a web portal. Rather, it is also a vehicle for providing shared services to users.

Shared services include the computation of duties/taxes, fees and charges administered by agencies at the border, co-ordinated risk management, shared operational controls and orchestration of inter-agency business processes and workflows. The ‘intelligence’ embedded in a Single Window makes it possible to provide the trader with an integrated overview of his transaction. Without intelligence, the Single Window is just a ‘single portal’ or a value-added network (VAN) service that connects the trader with various government agencies.

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

One-time submission implies the avoidance of the repeated presentation of the same piece of information to government agencies. Such submission need not involve the delivery of the bulk of information required for the release of cargo in a single transmission of data. Information may be submitted in multiple transmissions, allowing traders to provide data incrementally, according to the logic of business processes covering cross-border regulatory clearance in its entirety.

One-time submission cannot be achieved without standardizing information and documentation. The word ‘submission’ in ‘one-time submission’ means providing information to a cross-border regulatory agency (CBRA) in a manner prescribed by law, with a view to receiving a decision or a determination from the CBRA. The movement of information between trade and government agencies, and between government agencies themselves, is not merely a question of issuing of information, but also a significant action prescribed in the relevant legislation. The submitted information is generally termed a ‘declaration’ or ‘report’. The submitter of the information to the CBRA is held legally accountable for his ‘submission’.
Single Window business processes are a collection of related and structured activities designed to achieve the one-time presentation of information by trade and transport actors. These processes also include reverse flows of information, from government agencies to businesses. However, in the latter case, the concept implies the issuing of a harmonized and co-ordinated response by the CBRA back to the submitter of the regulatory declaration. Avoiding redundant flows of information from CBAs to businesses 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 point to the ‘intelligence’ aspect of a Single Window environment.

**Incremental presentation of data:** Trade and transport actors submit data to CBAs at different points in time in the course of an international trade transaction. 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 that was part of an earlier submission. The ability to link up the different individual submissions of evidence by a trader is part of the ‘intelligence’ of a Single Window environment.

**Harmonized regulatory declarations:** Different CBAs have data requirements which often overlap. It is possible under a Single Window to specify a harmonized set of data requirements so that the actors concerned are not obliged to repeatedly submit to different agencies the same data for a trade transaction or a transport movement.

**Sharing of information amongst CBAs:** This is a logical consequence of harmonized regulatory declarations and enables the shared, joint or separate application of controls by the respective CBAs.

**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 fulfilment of a regulatory service. Each CBRA may handle its responses independently, but the Single Window must provide a unique harmonized response to the trader.

### 6. The Single Window and Co-ordinated Border Management

Considerable research has been carried out into the operational concept of the Single Window in the context of cross-border trade, in which regulatory agencies provide services to the actors engaged in international trade and transport transactions (the World Bank Group, 2010). The WCO views the Single Window concept as part of ‘co-ordinated border management’, which is the term it uses to describe global efforts at streamlining and simplifying border management systems and procedures, both domestic and international. CBM is a multifaceted concept of high interest and relevance to Customs. Co-ordinated efforts are of far greater value to government and trade than are disjointed, silo-bound efforts carried out by individual agencies. This view helps executive management of all the participating government agencies see their role in a strategic context, and is a means of attracting continued political support and constructive policies.
Co-ordinated border management includes the following approaches:

Co-location and sharing of regulatory facilities: This provides scope for the unification of service outlets, fosters inter-agency co-operation, speeds up communication, enables shared risk management, and promotes unified operational controls by the sharing of operational information.

Empowered frontline officials: Administrative authority is delegated to officials handling the government-trade interface, either by delegating powers within an agency, or by cross-designation between agencies. Empowering frontline officials speeds up decision-making by cutting out handovers, leading to faster service delivery and expedited business.

One-stop border posts (OSBPs): Countries sharing a land border enter into international agreements that enable close co-operation between agencies on both sides of the border so that regulatory formalities associated with import, export or transit are not duplicated.

Single Window environment: The Single Window environment is defined in Section 5.1 above. It is achieved through collaboration between cross-border regulatory agencies and by the extensive use of Information and Communication Technology (ICT). An important consequence of this arrangement is that traders submit all import, export and transit information required by regulatory agencies electronically only once, instead of providing the same information to different government agencies separately.

Terms such as ‘one-time submission of information’, ‘single entry point’, and other ICT descriptions used to define a Single Window environment provide an incomplete picture of its hidden characteristics. The iceberg analogy employed by the World Bank is appropriate as it describes the underlying mechanisms and factors. These fall into three categories – reach, richness and sustainability, as shown in the picture below.
For each of the functional services identified by participating agencies, it is possible to point out aspects requiring extensive inter-agency co-ordination. Part II of this volume analyses in detail the various Customs or border functions and their implications for Single Window services and inter-agency collaboration. It concludes that the latter activity is more unstructured and challenging, but is the key to the success of the former.

Other strategic cross-agency activities include cross-agency risk management (risk management and targeting centres), cross-agency time-release studies, and inter-agency organizational arrangements. The Single Window is treated in the same vein – it is a cross-agency effort to deliver regulatory cargo clearance services at the border, largely through an IT-based system that is supported by cross-agency arrangements that are invisible to the trader. To the trader, it is as if a virtual enterprise is delivering these services. The following Section further explores this view of the Single Window.

7. The Single Window as a Virtual Enterprise

The Single Window is predicated on the exchange of documents and online business processes. It is based on a business model that reflects advances in information and communication technologies, and in internet-driven commerce. Somewhat like the Single Window, an assortment of specialized companies come together to form a virtual enterprise by providing one face to the customer. The Single Window environment is different from that of virtual business. The latter is essentially a business-to-consumer phenomenon, while the former is a business-to-government facility. However, one can gain useful insights from the world of virtual enterprises.

Online shopping, airline reservations and hotels are all examples of internet-driven commerce. In each of these cases, the portal that provides the front end to the consumer is not necessarily the organization that provides all the underlying services. In fact, the portal reveals very little of the
numerous processes, document exchanges and organizational arrangements that go into the delivery of the product or service through internet-based commerce. Much like the EDI links of the 90s and present-day web services, the integrative processes that support these portals help join the business processes and services of different ‘real’ organizations and so deliver a composite business service to the end user. The ‘virtual enterprise’ emerges from these electronic interconnections and offers its services through the virtual interface of the web portal.

In this Section, the Single Window environment is viewed through two key aspects of a virtual enterprise, namely (i) web portals and (ii) a network of collaborating facilities and arrangements between organizations. The following Subsections will explain why the ‘virtual enterprise’ analogy holds promise as a conceptual anchor for a Single Window environment.

7.1 Web Portals

The case of online shopping may be taken as an example. The web portal for online shopping supports a purchase transaction by being the information carrier. The web portal handles data input and output and also orchestrates the business processes of real enterprises associated with the online purchase. The transaction goes through various “states”, such as selection of the articles for purchase, check-out, selection of the shipment option, payment, billing and invoicing, verification of back-end inventory, placement of supply orders with manufacturers or distributors, arrangement of transportation, issue of dispatch advice, physical delivery, processing of receipt advice, and the final cross-reconciliation of accounts receivables by all parties concerned. A typical online shopping transaction may involve numerous business processes and document exchanges, close to half a dozen firms, and their respective and automated systems. The transaction comes through within a few seconds because the pre-orchestrated business processes have been sequentially executed behind the web portal through the exchange of highly standardized electronic messages between various parties, such as the supplier, the payment gateway, the transport company and the customer. The IT systems of all these organizations are fully interoperable, and messaging between them is highly standardized. There are legal agreements between the participating agencies to guarantee the outcomes achieved as a result of the exchange of information.

Organizations participating in an e-commerce platform collaborate and share information and prevent the re-keying of data, ensuring that business processes share the same data throughout the transaction life-cycle. That is how it should be in a Single Window environment.

The web portal can be the most visible symbol of cross-border regulatory Single Window solutions. To begin with, the portal can provide all the relevant regulatory information ‘under one roof’. The portal can serve as the information outlet and the virtual service interface between the trader and regulatory agencies. The Single Window can begin as an information portal. Gradually, as Customs adds transaction-processing capability to the portal, it can become an access point to other services, such as declaration processing, cargo release, duty/tax payment processing and management of bonds and obligation guarantees. Then, as Customs systems establish online connectivity with the licensing and permit processing systems of other cross-border regulatory agencies, and the integration of business processes takes place, the Single Window starts to take shape. Finally, as different portals in the Single Window environment grow by the addition of more sophisticated services, the effect is a transformation of the way these agencies deliver services. An example of this development is the Nigerian Trade Hub.
Several other countries have implemented solutions based on ‘trade hub’ or trade portal concepts. KENTRADE is a Single Window facility launched in Kenya, beginning with a portal which acts as a single point of access to available services.

International Trade Hub-Italia (ITH-Italia) is a technology-enabled facility helping traders, (especially small and medium enterprises) to compete and succeed in the global economy. According to the Italian Ministry of Economic Development, this facility is “more than a one-stop shop or Single Window, as it integrates all the processes related to import-export activities”.

Trade portals could help Single Window initiatives get under way, but with the potential to scale up quickly, propelled by new enabling technologies and forward-looking arrangements between participating agencies. Therefore, even a modest initiative calling itself a Single Window project need to be fostered as a potential cornerstone. Recent developments in the growth of web-based commerce suggest that a virtual enterprise can be created rapidly, flexibly and at low cost (Glushko and McGrath, 2008). Rapid enhancements are possible by starting with a portal and following the information-transaction-integration-transformation cycle. This model of Single Window development holds promise as a model for emerging economies.

A frequently asked question is whether there should be a single web portal or multiple web portals. Although legacy systems play a prominent role in this respect, ultimately, user convenience and accessibility of information will determine how web portals are organized.

7.2 A Network of Collaborating Facilities

As can be seen from the online shopping example, web portals are only a part of the story. The real transactions happen between participating agencies and their respective IT systems. In the example given in the preceding paragraph, the virtual store could execute its business processes by connecting diverse and independent enterprises through document exchange and interdependent operations. In the same way, in a Single Window environment, the trader is given a completely transparent view of the transaction, with its carefully managed series of possible exchanges between cross-border regulatory agencies, Customs brokers, banks, carriers and logistics providers.

Building a Single Window environment requires that participating CBRAs move from a situation where each agency has its independent concept of operations, to one involving process interdependencies and document exchanges. The agencies involved need to define interdependencies and the agreed business process models.
Advanced and newly industrialized economies already have many sophisticated IT systems, with highly developed border regulation and a broad range of cross-border regulatory regimes. Large, greenfield projects intended to usher in a Single Window environment may therefore not always be feasible or even desirable for these economies. Such countries could follow a different set of approaches for charting out the migration paths from current vertical silos into closer and more integrated systems. In a typical advanced industrial nation, the following IT systems are already functioning in the ‘Single Window space’:

- Automated Customs systems for declaration and release processing
- Automated licence management systems for licence issuing and verification
- Systems for veterinary, sanitary and phytosanitary controls
- Cargo community systems for ports and airports that control logistics and cargo flow
- Online connectivity between Customs systems and logistics systems
- Electronic payment facilities with banks

When these systems were developed, careful efforts were made to ensure data interchange between them, and to reduce times and inconvenience to traders. The existing set of interconnections, however, would not amount to a Single Window environment. Nonetheless, they prompt decision-makers to examine the cost of starting Single Window projects from scratch, and the business value these projects can bring.

### 7.3 The ‘Dominant Enterprise’ Effect

We learn from virtual enterprises that the dominant organizations which establish communities of users also build the core rules of interfaces between systems. ICT systems operated by the dominant organization will have a larger number of interfaces in operation, will stand a greater chance of that
organization’s interface standards being accepted, regardless of whether such standards meet ‘international norms’, and will be shared widely within the trading community and the larger ecosystem. This ‘dominant enterprise effect’ can be seen in trading communities such as RosettaNet, or with dominant enterprise resource planning (ERP) systems, such as SAP. Depending on the domain of operation, the standards followed by the dominant enterprises also serve as standards for the entire user community. By implication, cross-border regulatory agencies and their user community would also hold positions of dominance by being monopolies and may ‘dictate’ standards. The Single Window operator or ‘orchestrator’ plays a substantial role in bringing order to the standard interfaces governing interaction within the community.

The readiness of the dominant systems of Customs and of other government agencies will matter, as will that of cargo community systems. The Single Window environment as a network of co-operating facilities can be said to have the following characteristics:

- Single Window environment will be the result of a strategic partnership between existing vertical silos of non-competing entities.
- No organization can take unilateral steps to implement the Single Window concept to replace the existing network of facilities.
- The standards adopted by the dominant IT systems will be followed by the entire community (dominant enterprise effect).
- A Single Window orchestrator will be formally appointed:
  - To manage formal agreements with participating IT systems and organizations
  - To develop and steer the Single Window architecture (business, technology, security and data architectures)
  - To enforce service and interface standards
  - To foster trust among the collaborating entities.

To transition each business service into a Single Window service, all players have to collaborate and adjust their current interfaces as the community moves closer to the target state in a Single Window environment. The following Section provides an analytical view of the Single Window as a collection of services and explains how such transitions might take place.

8. The Single Window as a Collection of Services

In this final Section, the Single Window environment is examined as a collection of services that support the core regulatory functions of import, export, transit and trade facilitation. These services are predominantly enabled by information and communications technologies. The appointed Single Window operators (or orchestrators) provide (or support) the enablement of these services on behalf of CBRAs through a common platform. Broadly, these services result in the regulatory clearance of goods, means of transport and crew.

The offer of a bundle of related services ‘under one roof’ is convenient for business, as the latter can access and consume these services with ease. Looking at the Single Window through the prism of ‘services’ brings a clear appreciation of the issues at hand. The ‘services’ paradigm places at our disposal some useful technical and managerial tools that can help answer many of the potential questions faced when building a Single Window environment.
8.1 Scope of the Cross-Border Regulatory Single Window

To complete an international trade transaction, business and government need to access commerce, transport and regulatory services. These services can be organized into non-overlapping categories and hierarchies – a classification scheme or taxonomy. This Subsection explains that, by preparing the taxonomy of services covering trade, transport and regulation, it becomes easy to identify ownership, responsibility, accountability and the consultative framework needed between all service providers of IT systems for international trade, serving both government and business communities.

The chart below provides an example of the taxonomy of services and the current distribution of ownership of these services among existing community providers. The question asked of the Single Window operator is: For which services would you like to assume ownership?
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<th>In Scope</th>
<th>For Information</th>
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<th>Automated Customs System</th>
<th>Stand-Alone Partner CEREA System</th>
<th>Port Community System</th>
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| Booking Services | ? | | | | | |
| Cargo pick-up | ? | | | | | |
| Transport Billing service | ? | | | | | |
| Cargo Tracking | ? | | | | | |
| Carry in & Carryout services | ? | | | | | |
| Port operations | ? | | | | | |
| Nautical services | ? | | | | | |
| Ship Inspection | ? | | | | | |
| Stevedore services | ? | | | | | |
| Port Entry & Departure | ? | | | | | |
| Transhipment operations | ? | | | | | |
| Fumigation services | ? | | | | | |
| Unloading and loading | ? | | | | | |
| Tally Services | ? | | | | | |
| Cargo Delivery workflow | ? | | | | | |
| Billing for port handling | ? | | | | | |
| Warehouse & port handling service | ? | | | | | |
| Pilot and Tugging services | ? | | | | | |

| Regulatory Services | | | | | | |
| Conveyance reporting | ? | | | | | |
| Advance Regulatory reporting | ? | | | | | |
| Goods declaration for export | ? | | | | | |
| Goods declaration for import | ? | | | | | |
| Goods Release authorization | ? | | | | | |
| Cargo Reporting of export | ? | | | | | |
| Cargo Reporting of Import | ? | | | | | |
| Regulatory product Certification | ? | | | | | |
| Regulatory inspection - eg Veterinary | ? | | | | | |
| Regulatory licensing services | ? | | | | | |
| Security screening services | ? | | | | | |

| Technical Services | | | | | | |
| Electronic Messaging Services | ? | | | | | |
| Application to application services | ? | | | | | |
| Business computing services | ? | | | | | |
| Webhosting services | ? | | | | | |
| Identity management services | ? | | | | | |
| Certifying authority services | ? | | | | | |
| Information security services | ? | | | | | |

Partial Monopoly in ports/airports

Government Monopoly

(Competitive)
The role of the Single Window operator or orchestrator can be assigned in a transparent manner. Through a process of mutual consultation, each participating CBRA (on behalf of the system it operates – whether a stand-alone or community-type system) can arrive at a ‘to-be’ position. The operator or orchestrator can articulate this in terms of the services it wishes to own and be accountable for, and those that it could give up in favour of the Single Window operator or another CBRA.

What is clear from the above matrix is that only those services involving a monopoly provider can be a Single Window service. For example, port services are the monopoly of the port authority, which can be the owner of the maritime Single Window. That community can be part of the Single Window environment, which contains other ‘monopoly’ regulatory systems providing non-overlapping cross-border regulatory services.

The taxonomic analysis becomes even more insightful when the larger services are broken down into more elemental services, and dependencies are established. For example, the service to process import and export goods declarations is dependent on a service that fulfils cargo examination. For cargo examination to occur, scheduling services and calendar services of inspecting staff may have to be used. While services describe the fulfilment of a business need, business processes provide the steps involved in fulfilling a business service. Business processes can be rearranged to fulfil the same service.

Cross-border regulatory controls should be considered to comprise a set of services provided to trade and transport actors by regulatory agencies such as Customs, trade ministries or other government departments that are concerned with trade. Traditionally, these services have been set up by the respective government agencies and logistics service providers, and have therefore been disjointed, discrete services, with little thought given to interlinkages. At the core of the electronic Single Window is the notion of ‘joined-up’ services, in which the focus is on service outcomes for the client. The above matrix helps illustrate the joining-up process and provides a framework to scope Single Window-related projects.

Experts have suggested that a typology and a hierarchy of services is a useful methodology for analysis (Cohen 2007). A reasonable classification that brings out the dependencies is critical for describing the services currently provided and their inter-relationships. It provides a common language for business analysts and technology architects, enabling a platform for effective decision-making. This description can be exploited in developing the business and technology architecture for the Single Window environment. Part VII of Volume 2 deals with this issue in detail.

### 8.2 Example: The Port of Antwerp

The Antwerp Port Community System (APCS) is a collaboration between the Antwerp Port Authority, Antwerp Port Community Operator (private sector), Belgian Customs, and third parties – IT developers. Its conceptualization of the maritime Single Window is based on a clear understanding of the services at the Port, and the development of an explicit knowledge of the role of different organizations in delivering various services, as explained in the table below.
8.3 Service Interactions and Service-Oriented Architecture

The most important part of designing the Single Window solution is to describe the ‘to-be’ state of the trader’s (or broker’s/transporter’s) ‘experience’ of a transaction. This description serves as the binding link for all stakeholders as they engage in a series of activities relating to architecture and design.

The service processes identify what the trader (broker/transporter) has to do with the physical processes, the automatic mode, and what sequence. What is the activity of the system (service outlet) for each similar activity of the trader? Likewise, when the trader moves to the physical interface (for example, to take delivery of the goods), what is the basic description of the interaction?

---

**Figure 7:** Distribution of responsibilities among the various systems in the Single Window environment in the Port of Antwerp. (Source: Presentation by the Port of Antwerp on APCS and the maritime Single Window)

<table>
<thead>
<tr>
<th>Service</th>
<th>Responsible authority/company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea pilotage</td>
<td>Flemish Government</td>
</tr>
<tr>
<td>River pilotage</td>
<td>Flemish Government</td>
</tr>
<tr>
<td>River towage</td>
<td>Private companies URS + Antwerp Towage</td>
</tr>
<tr>
<td>Mooring - unmooring in the locks</td>
<td>Antwerp Port Authority</td>
</tr>
<tr>
<td>Dock pilotage</td>
<td>Concession of Antwerp Port Authority</td>
</tr>
<tr>
<td>Dock towage</td>
<td>Antwerp Port Authority</td>
</tr>
<tr>
<td>Mooring - unmooring in the docks</td>
<td>Concession of Antwerp Port Authority</td>
</tr>
<tr>
<td>Use of port infrastructure - various services</td>
<td>Antwerp Port Authority</td>
</tr>
<tr>
<td>Terminal Management</td>
<td>Antwerp Port Authority</td>
</tr>
<tr>
<td>Stevedoring, ship agents, forwarders, etc</td>
<td>Private companies</td>
</tr>
<tr>
<td>General declaration of the vessel</td>
<td>Customs</td>
</tr>
<tr>
<td>Summary declaration of temp storage</td>
<td>Customs</td>
</tr>
<tr>
<td>Reporting of ships supplies &amp; crew effects</td>
<td>Customs</td>
</tr>
<tr>
<td>Crew &amp; Passenger lists</td>
<td>Federal Police</td>
</tr>
<tr>
<td>Reporting of waste disposal</td>
<td>Flemish Government (delegated to Ports)</td>
</tr>
<tr>
<td>Hazardous Cargo Declaration</td>
<td>Port Authority</td>
</tr>
<tr>
<td>ISPS notification</td>
<td>National Authority for Maritime Security</td>
</tr>
<tr>
<td>Maritime Health Declaration</td>
<td>Federal dept. of Public Health</td>
</tr>
<tr>
<td>Veterinary or Phytosanitary declaration</td>
<td>Federal Agency for Food Safety</td>
</tr>
</tbody>
</table>
What are the resources required for each activity, and what would be the quality descriptors for each activity (idle time, wait time, queuing time, response time, accuracy, reliability, etc.)?

Service outcomes are the result of a series of ‘service encounters’ involving trade and transport actors and CBRA personnel in the process of moving goods across borders. The processing times and incurred cost (along with predictability with regard to time, cost and effort), together with the non-quantifiable behavioural aspects of participants, influence the total service experience. The goal is to provide predictable services that are consistent and cost-efficient. These services have to be imagined, visualized and documented collaboratively by all stakeholders in a Single Window project to produce the ideal service encounter. Such documentation is essential in Single Window design. Discretionary powers of officers, and questions related to delegation of authority and the empowerment of frontline officials, are crucial to this discussion and provide the executive management with critical insights into business processes and trade facilitation.

Interaction design goes beyond typical business use case development. It delves into the details of the experiential aspects of service delivery. Part VI of Volume 1 deals with this issue in greater detail.

Each government agency can provide a separate view of its services. However, the Single Window concept requires that these should be imagined from a whole-of-government and regulatory-agency perspective. Whichever way it is conceived, service-oriented architecture provides a way forward in delivering scalable and maintainable software solutions for a Single Window environment.

Service-oriented architecture (SOA) begins with a strong focus on business services. It does not concentrate on the technical infrastructure (servers, storage, etc.) and its associated engineering services. The fact that this architectural approach is firmly rooted in business makes it a natural choice for the architects working on Single Window projects.

Different aspects of SOA are examined in Part 7 of Volume II of this Compendium. The diagram below provides the logical flow of the ‘collection of services’ approach, where different disciplines related to the services paradigm come into play.

This ‘collection of services’ view of the Single Window can help neutralize the negative energies of competitive behaviour among CBRAAs and focus efforts towards resolving the real areas of inter-agency conflict and overlap. When a Single Window becomes operational, its performance would be measured in terms of the service levels offered by the facility. Thus, the services paradigm helps build bridges between the critical disciplines of interaction design for services, service-oriented architecture, and management of operations services, maintaining the seamless linkage between the concept stages and implementation stage.
9. Conclusion

The four different approaches to understanding the Single Window environment provide different actionable insights on how to build a Single Window environment.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Main Themes</th>
<th>Actionable Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN/CEFACT Recommendation No. 33</td>
<td>Facility for lodging standardized information and documents with a single entry point</td>
<td>➔ Standardizing information and documentation is the key to trade facilitation ➔ Unifying government’s interface with trade</td>
</tr>
<tr>
<td></td>
<td>Individual data elements should only be submitted once</td>
<td>➔ Harmonizing data across cross-border regulatory agencies ➔ Creating combined cross-departmental forms and software applications to enable single submission of data</td>
</tr>
<tr>
<td></td>
<td>Single authority, single automated system (integrated, interfaced or hybrid) and automated information transaction systems</td>
<td>➔ Understanding architectural types, classifying existing Single Windows and charting migration paths</td>
</tr>
<tr>
<td>Co-ordinated border management</td>
<td>The Single Window is part of a wider programme of inter-agency collaboration</td>
<td>➔ Linking the Single Window strategically with the overall performance of border management ➔ Focus on functional integration and collaboratively performed activities (integrated risk assessment, co-ordinated examination, unified cargo control, combined trader account management, etc.)</td>
</tr>
<tr>
<td></td>
<td>Single Window services demand a high degree of inter-agency collaboration</td>
<td>➔ Identifying and managing tasks of inter-agency co-ordination that support Single Window services</td>
</tr>
<tr>
<td>The virtual enterprise</td>
<td>A legal entity with an active virtual presence</td>
<td>➔ Single Window operator to be established formally as a legal person with legally established relationships, rights, obligations and liabilities ➔ Single Window legal mandate can set forth the basis for accomplishing specific goals without participating organizations otherwise losing their functional autonomy</td>
</tr>
<tr>
<td></td>
<td>Web portals can simplify and unify diverse regulatory requirements</td>
<td>➔ Single Windows can begin and grow like cross-enterprise web portals and follow the information ➔ transaction ➔ integration ➔ transformation cycle</td>
</tr>
<tr>
<td></td>
<td>The Single Window as an orchestrated network of collaborating facilities and organizations</td>
<td>➔ Systems within community systems work through legal agreements and will gradually flourish through relationships of trust</td>
</tr>
<tr>
<td>Collection of services</td>
<td>Single Window services can be organized into distinct, non-overlapping categories and hierarchies</td>
<td>→ Danger of the Single Window environment following the standards of the ‘dominant enterprise’, ignoring international standards of interoperability</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>→ Helps identify gaps in IT-supported services in cross-border trade, transport and regulatory domains</td>
</tr>
<tr>
<td></td>
<td></td>
<td>→ Provides a framework to analyse and determine Single Window scope</td>
</tr>
<tr>
<td></td>
<td></td>
<td>→ Creates pathways from business services to Single Window services under ‘service-oriented architecture’</td>
</tr>
<tr>
<td>Service interactions hold the key to user satisfaction</td>
<td></td>
<td>→ Draws management’s attention to interaction design and service experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>→ Follows the established disciplines of service catalogue development and service operation management</td>
</tr>
</tbody>
</table>
FROM CROSS-BORDER REGULATORY FUNCTIONS TO SINGLE WINDOW SERVICES

PART II
VOL 1
The Single Window operates in the area of regulation of cross-border trade. It involves a high degree of collaboration between Customs, tax authorities, trade policy administrators, security agencies and other regulatory agencies dealing with health, safety and environment. This Part brings out those relationships, and outlines the linkages between regulatory responsibilities and the services a Single Window could offer.
1.1 Relationship to Other Parts of the Compendium

2. Customs, Taxation and Border Services

2.1 What are Functional Services?

3. Revenue Administration

3.1 Customs and Tax in a Single Window Environment
3.2 Key Functions
3.3 Possible Single Window Services
3.3 Possible Single Window Services
3.4 Tasks of Inter-agency Co-ordination

4. Transportation and Logistics

4.1 Key Functions
4.2 Possible Single Window Services
4.3 Tasks of Inter-agency Co-ordination

5. Trade Policy Administration

5.1 Key Functions
5.2 Possible Single Window Services
5.3 Tasks of Inter-agency Co-ordination

6. Protection of the Economy

6.1 Key Functions
6.2 Possible Single Window Services
6.3 Tasks of Inter-agency Co-ordination

7. Public Health, Safety and Environment

7.1 Key Functions
7.2 Possible Single Window Services
7.3 Tasks of Inter-agency Co-ordination

8. Supply-Chain Security

8.1 Key Functions
8.2 Possible Single Window Services
8.3 Tasks of Inter-agency Co-ordination

9. Conclusion

Annex I: Al Naadeeb - Qatar’s Multi-Functional Single Window

Managing Risk Factors
Integration Between Trade and Government Agencies
1. Introduction

The Single Window deals with the regulation of the cross-border movement of goods, means of transport and people. It is therefore inextricably linked with the provision of border services and with taxation. Border regulatory agencies, chiefly Customs, deal with operations involving a high degree of inter-agency collaboration.

Countries differ from one another in terms of the responsibilities and functions of their border and tax authorities/agencies. The introduction of a Single Window brings with it the opportunity for each participating authority/agency to assess its current strategic responsibilities and its future role. There is a range of possible candidate services to be deployed as part of the Single Window. For example, Customs administrations must assess the impact of a Single Window on their traditional functions. As each agency reviews its current role, a clear picture will emerge as to the strategic path it must follow in the Single Window approach.

1.1 Relationship to Other Parts of the Compendium

Part I of Volume 1 introduced the concept of the Single Window and described several possible approaches. It concluded, among other things, that a Single Window fundamentally changes the way in which Customs and other cross-border regulatory agencies (CBRAs) provide services to economic operators in the trade and transport sector, and calls for a collaborative effort amongst CBRAs.

Border agencies and tax authorities must come together to implement a Single Window. In this Part, we will analyse in detail the various functions of Customs, tax authorities and other border agencies, and the implications such functions have for services in a Single Window environment. Based on a strategic understanding of the role of Customs among all agencies/authorities, Part III of Volume 1 explains how a Single Window fits within the overall concept of Customs modernization. This analysis will also provide information to help identify the scope of the Single Window project. Scoping will result in the creation of a strategic business case (Part I of Volume 2). It will also help key executives from the participating agencies/authorities to consider the scope of the Single Window within their respective political, legal, administrative and technical environments (covered in different Parts of Volume 1).

2. Customs, Taxation and Border Services

It is widely recognized that Customs plays a vital economic and security role, including in managing the international supply chain, providing social protection, maintaining streams of revenue, and generating valuable statistics for policy making. While Customs can potentially perform many functions, the actual profile of responsibilities varies by country. Its critical role in taxation and border services needs to be understood within the overall framework of economic and border management. This will help in assessing the impact of the Single Window on different Customs functions, the services associated with these roles and offered as part of the Single Window, and the
tasks for cross-agency co-ordination and collaboration. Not every Customs administration has these functional roles. Some roles may not carry the same priority for Customs as they would for other agencies of government.

Figure 1: Functions performed by cross-border regulatory agencies are closely linked to Single Window services.

Additionally, there are some roles which may not be listed as functions performed by Customs or another participating agency, even though these are related to border management. The following checklist can help elicit a more nuanced understanding of the functional profile of all authorities/agencies. The checklist can be completed by each participating government agency. Figure 2 below illustrates how a Customs administration can map its role against specific functions using the well-known RACI matrix:
Figure 2: RACI matrix mapping Customs’ role in respect of each action or project component in a Single Window environment.

In addition to the above, an administration can grade each function in terms of **priority** – ‘**High**’, ‘**Medium**’ or ‘**Low**’. To illustrate, and to explain how this checklist can be used, a few of the key functions are assigned a priority in the table below:

**Table 1: Example of how the RACI matrix can be used to show the respective roles of different cross-border regulatory agencies.**

<table>
<thead>
<tr>
<th>Functional Service</th>
<th>Customs</th>
<th>Trade Ministry</th>
<th>Transport Ministry</th>
<th>Interior Ministry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel clearance services</td>
<td>Responsible (Medium)</td>
<td>Not Involved</td>
<td>Accountable (High)</td>
<td>Responsible (Medium)</td>
</tr>
<tr>
<td>Non-intrusive inspection services</td>
<td>Accountable (High)</td>
<td>Informed (Low)</td>
<td>Responsible (Medium)</td>
<td>Responsible (High)</td>
</tr>
<tr>
<td>Container tracking</td>
<td>Responsible (High)</td>
<td>Consulted (Low)</td>
<td>Accountable (High)</td>
<td>Consulted (High)</td>
</tr>
<tr>
<td>Customs broker licensing</td>
<td>Accountable (High)</td>
<td>Consulted (Medium)</td>
<td>Informed (Low)</td>
<td>Informed (Low)</td>
</tr>
<tr>
<td>AEO accreditation</td>
<td>Accountable (High)</td>
<td>Consulted (High)</td>
<td>Informed (Low)</td>
<td>Consulted (Medium)</td>
</tr>
<tr>
<td>Import licensing</td>
<td>Responsible (High)</td>
<td>Accountable (High)</td>
<td>Not Involved</td>
<td>Informed (Medium)</td>
</tr>
<tr>
<td>Export certification</td>
<td>Consulted (High)</td>
<td>Accountable (High)</td>
<td>Not Involved</td>
<td>Not Involved</td>
</tr>
</tbody>
</table>
2.1 What are Functional Services?

Governments make laws and regulations governing international trade, and businesses must comply with them. These statutes also lay down the authorities, powers and resources to facilitate/enforce compliance. The regulatory procedures derived from the statutes establish the routines for trade and officials. These routines may be seen as discrete interactions between officials and business, with each side fulfilling its formal obligations.

Looking beyond these routines and formal administrative procedures, cross-border regulatory agencies (CBRAs) should appreciate that businesses are their external customers, and are the primary focus of their actions. Regulatory compliance is advanced by developing and sustaining relations with trade. Likewise, CBRA officials should have the means with which to perform their functions. These officials and their organizational units are the internal customers. A service relationship is established between the CBRAs and their internal and external customers.

A Single Window environment needs to be understood in terms of ‘services’ and ‘interactions’. CBRAs deliver functional services which can be categorized into information services, checkpoint services, counter services, compliance services, and enforcement services. At a high level, these services appear quite generic. However, variations emerge between different agencies and different processes as one looks more closely at levels of detail. Specifically, differences surface during the exploration phase and while carrying out the functional assessment, which will be crucial in designing a business-centric service experience. Annex I provides a detailed example of how Qatar successfully developed its Single Window solution ‘Al Nadeeb’, which performs multiple functions for a large number of government agencies.

Figure 3: Example of functional services in a Single Window.
There are six areas which this Compendium has identified as forming part of a Single Window: (i) safety, health and environment, (ii) transportation and logistics, (iii) revenue administration, (iv) trade policy administration, (v) protection of the economy, and (vi) supply-chain security. Regulatory functions are based on legislation and must be performed by regulatory authorities. When performed through the Single Window, these functions provide opportunities for collaboration and/or integration.

Figure 4: Logical link between legislative areas, regulatory functions and Single Window services, reflecting close collaboration in service design, development and delivery.

3. Revenue Administration

The supply of goods in domestic and international trade may involve the collection of Customs duties, VAT, and other taxes on commodities. Customs administrations in many countries are involved in, or closely associated with, the national revenue collection effort and are being called upon to co-operate more closely with tax administrators.

The WCO has produced the Revenue Package, which is a significant knowledge product in this area. The Package brings together existing WCO instruments that can help the administration to protect tax revenues and improve tax compliance. The WCO has also published ‘Guidelines for strengthening cooperation and the exchange of information between Customs and tax authorities at the national level’.
3.1 Customs and Tax in a Single Window Environment

It is of vital importance that Customs and tax authorities work together and have established mechanisms to do so. The Guidelines highlight “some overarching principles and associated benefits concerning enhancement of Customs-Tax co-operation”. The Guidelines also suggest that governments must innovate based on their organizational structure, needs and operational requirements.

This Section focuses on co-operation between Customs and tax authorities in a Single Window environment. Customs and tax are closely intertwined in an economy, and those links are illustrated in the following diagram:

![Diagram of Customs and Tax in the circular flow model of the economy.](image)

**Figure 5: Role of Customs and tax in the circular flow model of the economy.**

The above figure depicts how Customs functions as a sentry, watching over financial and merchandise flows. However, the most critical function that Customs and tax authorities perform is the control on the flow of value through the economy. Assuming that goods and services flow through the economy both between businesses, and between businesses and consumers, Customs and tax authorities – by virtue of their regulatory functions – can access information in respect of each **industry value chain** to detect areas where tax is being evaded.
Using data from tax returns, VAT credit flows and Customs declarations, it is possible to construct elaborate industry value chains. The missing pieces or gaps in the value chain will help in detecting and eliminating tax fraud.

Close co-operation between Customs and tax authorities means that trade can look forward to a seamless interface with them. Firstly, the shared use of business identification numbers between the two government agencies in the context of a Single Window creates the basis for the seamless flow of credit of VAT paid, and for the transfer of information from Customs to tax authorities on importer obligations in respect of domestic tax. Likewise, zero-rating of VAT in respect of goods exported is contingent upon the presentation by trade of the proof of export of goods. Such proof is available in the Single Window, which tax authorities could access to automatically process the trader’s VAT credits and dues.

### 3.2 Key Functions

- Assess and collect duties, taxes and fees on goods that cross the border (for example, Fig.9 in country A, Role→ ‘Accountable’).
> Participate effectively in ensuring that value added tax, excise or other domestic taxes are collected on goods that cross the border (for example, Role→ ‘Accountable’).

> In relation to Customs valuation, facilitate the correct tax treatment of transnational transfer payments (for example, Role→ ‘Not concerned’).

> Resolve and settle revenue and other regulatory disputes expeditiously and equitably.

> Analyse legally obtained data from different sources to profile taxpayers to discover revenue opportunities.

### 3.3 Possible Single Window Services

**Provide online information services concerning:**

> All types of duties, taxes and fees payable at the border for every commodity/tariff item (for example, Priority→ ‘High’).

> Computation method for each type of duty, tax and fee covering not only Customs, but also in respect of other legislation.

> Legal/regulatory authority for the charges and basis of tariff.

> Guidance on tariff classification for commodities. Starting from the description of a product in common parlance, the economic operator should be able to ascertain the HS nomenclature.

> Based on, for example, tariff classification, country of origin or intended end use, guidance on the precise steps involved in the import, export or transit of goods, covering pre-arrival and pre-departure formalities, clearance formalities and post-clearance formalities. The service should also include prerequisites.

> Provide a facility to receive import, export and transit declarations online.

> Online validation and processing of notifications.

> Online calculation and finalization of cross-border duties and taxes.

> Online, real-time assessment of risk, selectivity for inspection and clearance.

> Electronic work-flow for processing release and clearance.

> Online application for cross-border duties, taxes and fee liabilities.

> E-payment of all duties taxes and fees – also refunds and drawback.

> Collection of domestic commodity taxes payable on imported goods.

> Administration of duty/tax rebates and duty-drawbacks upon export.

> Management of in-bond movements.

> Management of obligations regarding deferments and reconciliation.
Sharing of real-time information with internal tax authorities on tax liability of imported goods.

Case management portal to monitor and manage disputes arising out of the enforcement of border regulation.

Dispute settlement lifecycle processes: (i) provide procedural information on how dispute resolution works with each of the regulatory agencies; (ii) issue dispute notices; (iii) fix appointments for the proceedings; (iv) notify adjudicated decisions.

Provide information on service continuity measures in the event of failure of online transaction systems.

3.4 Tasks of Inter-agency Co-ordination

Inter-agency co-ordination functions stem not just from Single Window services, but also from policy formulation. The following tasks have been identified with regard to revenue administration services:

- Locate every regulatory agency that collects a duty, tax, fee or charge for border procedures. These may be central, federal or provincial agencies, or local authorities.

- Examine different industry sectors – each may have its own type or structure of regulatory taxation. For example, the oil industry may have a duty or fee schedule which is entirely distinct from that of the agriculture sector.

- Consult trade and transport sector associations and their intermediaries (brokers) – these parties are always acutely aware of the various types of expenses.

- Compile information about the types of levies (duties taxes and fees) and the underlying legislation from all border agencies. Include even those taxes that are unique to the country, region or provinces/ports.

- Collaborate with partner organizations to build profiles for each type of duty, tax or fee to capture: (i) computation method, (ii) assessment and valuation method (iii) payment method, (iv) tax accounting, (v) security and deferment facilities (along with conditions for deferment), (vi) exemptions from taxes (along with conditions for exemption), and (vii) post-release reconciliation.

- Create standing organizational structures (committees, working groups) to ensure that all new border-related tariffs for duties taxes and fees, and changes to existing tariffs, are reported adequately in advance to the Single Window operating organization.

- Co-ordinate with border infrastructure providers to report fees for different types of services. In collaboration with the domestic commodity taxation agencies, create an enabling environment for the assessment and collection of national taxes on imported goods.

- Document the conditions for collection or deferment of goods and services taxes at the border.

- Co-operate with corporate taxation authorities on the investigation of transfer payments between related parties, and support Customs valuation research through such co-operation.

- Co-ordinate with all relevant border regulatory agencies to put together information on disputes and case management. Respond to disputes in a comprehensive manner by clarifying which administrative authority is to decide on disputes.
Create mechanisms collaboratively by sharing of data and by analysis of industry value chains intended to locate hidden revenue opportunities.

» Monitor, track and analyse industry value chains.

» Institutionalize the sharing of tax compliance profiles between agencies.

» Collaboratively manage privacy concerns that may arise in the exchange of data between agencies.

4. Transportation and Logistics

4.1 Key Functions

» Participate in the creation and management of border infrastructure (for example, Customs, Role ‘Consulted’).

» Ensure quick, safe and orderly movement of means of transport, by promptly providing logistics services and efficiently collecting service fees.

» Ensure efficient and orderly unloading/loading of containers and cargo at ports and airports.

» Ensure that storage, inspections, screening and examination take place in safe and secure facilities, and delivery takes place with minimal disruption to the flow of cargo and at the least cost to trade.

» Ensure that bonded cargo is securely held in the warehouses or under transportation.

» Ensure that means of transport used in cross-border activities meet regulatory requirements.

4.2 Possible Single Window Services

Provide online information to traders and transporters regarding:

» Access and approach to ports, airports and land crossings.

» Location of warehouses, terminals, cargo services and regulatory (e.g. Customs/quarantine) facilities; and

» For each facility, provide a list of services, service hours, service levels and service fees.

» Electronic handling of cargo delivery orders, transport orders, appointment-based drop-offs, and pick-up services.

» User self-service at cargo and container terminal gates. Automated terminal gates.

» Provide Single Window electronic facility for filing conveyance report, enabling entry and exit clearance formalities for Customs and other regulatory agencies.

» Enable the sharing of electronic information on means of transport with the relevant statutory authority, through the Single Window (registration and certification).

» Common referencing for the stay of means of transport (unique stay reference numbers) across all participating agencies so that duplication of information is avoided.
Sharing of vessel profiles and voyage details, arrival schedules, and berthing information among border agencies.

Single point collection of passenger and crew lists, dangerous goods information and vessel security reports.

Single point service for identification and credentialization of logistics personnel who will have access to different secure facilities within the border infrastructure.

Provide online services that guide traffic through the land, air and sea facilities at the frontier (navigation, terminal gate control).

Provide real-time waiting time and queuing information.

Establish online exchange of the Customs response to conveyance reports with traffic controllers at the border.

Provide Single Window services to deal with the allocation of loading and unloading bays/berths, scheduling of cargo operations, regulatory inspections and other services indicated for the purpose of conveyance call.

Provide Single Window services to deal with the licensing of bonded storage and handling facilities.

Provide Single Window service to manage binning and storage locations of cargo and to enable safe storage, retrieval and examination of cargo. The storage place of cargo should be visible to the identified stakeholders.

Provide access to cargo manifest data to all relevant warehouse operators to enable temporary storage and inventory keeping of in-bond cargo.

Provide online registration service for enrolling and retiring means of transport.

4.3 Tasks of Inter-agency Co-ordination

Logistics is largely the responsibility of transport authorities and private sector players. Inter-agency co-ordination functions, whether initiated by Customs or by transport authorities, could stem from any of the following issues:

Co-ordination during the construction and management of border infrastructure. During the design and development phase, specific Customs requirements for space and equipment need to be factored in. This is linked to the suitability of the facility as a Customs bonding service/Authorized Economic Operator status for the airport operator.

In the operational phase of the logistics facility, collaboration with transport authorities and private sector players to align business processes and working hours, etc.

Co-ordination with controllers of road and rail, air traffic and shipping to ensure the security of incoming and outgoing means of transport.

Partnering with security agencies in securing border facilities. In particular, perimeter security of border facilities and cargo security are vital for cargo clearance operations.

Co-operation on entry, exit and access of personnel to and from sensitive installations.
Collaboration with traffic controllers to establish joint operational control centres to enable Customs to exercise control of traffic flows and to facilitate interception of traffic for routine or exceptional examination.

Promotion of real-time sharing of conveyance release information with other regulatory agencies to enable smooth flow of traffic.

Developing a formal inter-agency emergency response procedure and disaster recovery plan for airport, sea port, and land border facilities. Establishing an emergency preparedness chain of command.

Co-ordination with cargo handlers to work out the physical aspects of the smooth release of cargo.

Collaboration with border agencies to regulate bonded storage and handling facilities. Licensing of these establishments often requires the approval of multiple agencies. Such approval processes should be co-ordinated and synchronized among the relevant agencies.

Regulation of fixed/mobile facilities and equipment to operate in the bonded area, which may require general Customs oversight.

Co-ordination with security agencies on service vehicles moving in and out of the secure facilities at an airport. Such vehicles require Customs control to prevent connivance/collusion.

Co-ordination with port authorities to register tugs and pilot vessels or feeder vessels that are intended solely to handle cargo from mother ships, where these ships are also required to be registered/licensed by Customs for operations in the Customs area.

Collaboration with warehouse and logistics operators to facilitate examinations and share control results. Co-ordination with store operators, security agencies and local police to prevent and control pilferage and smuggling from warehouses.

Co-ordination with transportation standards bodies to share and manage information on ocean-going and coastal vessels, registered scheduled and non-scheduled flights, and designated commercial means of transport authorized to ply on international road routes.

Agreement on the agency that maintains data on the registration and certification of modes of transport.

5. Trade Policy Administration

5.1 Key Functions

Periodically review and help fine-tune trade policy measures, including tariff and non-tariff trade measures, and trade facilitation programmes.

Implement Customs measures concerning bilateral, regional and multilateral trade agreements, and agreements on economic co-operation.

Monitor the business environment, trade costs, and cargo release times.
Provide accurate business data to support trade policy development.

5.2 Possible Single Window Services

- Provide an online Single Window portal that provides tariff and non-tariff trade measures for all tariff lines and commodities.
- Provide a Single Window service to all regulatory agencies for delivering trade data and statistics.
- Provide online services for the application of import and export licences, and permits.
- Provide transactional and post-release verification of licences, permits and certificates.
- Provide online services to implement individual trade regimes as required by RTAs.

5.3 Tasks of Inter-agency Co-ordination

- Collaborate with the Trade Ministry to reach agreement on the role of each CBRA in maintaining online information.
- Collaborate with the Trade Department during trade negotiations to present a cogent national position on border measures.
- Co-ordinate with the Trade Ministry to secure effective implementation of Customs measures at borders, including measures for trade facilitation.

6. Protection of the Economy

6.1 Key Functions

- Prevent misuse of trade and travel for the illegal movement of money across borders.
- Implement legitimate measures for protection against dumping, and other countervailing measures.
- Promote flows of investment by meeting industry needs for supply chain facilitation.
- Ensure that counterfeit articles (including counterfeit currency) do not reach markets to the detriment of genuine holders of IPR.
- Protect the economy against base erosion and profit shifting, and prevent illegal financial flows through the trading route.

6.2 Possible Single Window Services

- Provide an online facility for currency declarations by travellers.
- Provide online information on countervailing and protective duties.
» Provide online information on trade and supply chain facilitation measures and other investment promotion measures.
» Provide linkages between the Single Window for international commerce and other Single Windows or online e-government services for businesses.
» Provide an online facility for right-holders to register their IPR.

6.3 Tasks of Inter-agency Co-ordination

» Collaborate with other enforcement agencies that are authorized to take action against money laundering.
» Collaborate with Financial Intelligence Units to implement measures against trade-related money laundering.
» Co-ordinate with the competent agencies to help investigate commodities that require anti-dumping and protective duties.
» Collaborate with other public bodies to provide a comprehensive package for potential investors.
» Collaborate with other government agencies to align and simplify business life-cycle processes.
» Collaborate with right-holders help report goods susceptible to IPR violations.
» Inform other government agencies about the detection of IPR infringements.

7. Public Health, Safety and Environment

7.1 Key Functions

» Implement admissibility (prohibitions), restrictions (licences, permits) and other border measures for goods concerning consumer and industrial safety, environment and public health.
» Prevent and defeat drug trafficking and human trafficking.
» Implement regulations on the movement of hazardous waste.
» Stem the flow of illegal trade in wildlife.

7.2 Possible Single Window Services

» Provide online information about goods that pose safety, environmental or public health hazards.
» Implement an ‘integrated declaration’ for submitting information for clearance of goods, importation, exportation and transit.
» Provide a system to automatically refer items in cross-border shipments to the respective border agencies in the event that such goods require clearance, documentary checks, examination, etc.
Provide for a facility to implement risk-based selectivity on behalf of other agencies for documentary verification, inspection and testing.

Provide for a service to capture supporting documents in dematerialized form.

Provide for licences, certificates, permits and other authorization issued by other agencies to be handled online.

Provide online information about narcotic and psychotropic substances and their respective controls.

Provide for electronic reporting of regulatory information concerning handling and movement of hazardous waste (Basel Convention).

Figure 7: International instruments where border agencies have responsibilities.

- Montreal Protocol
  - Ozone-depleting substances
- Stockholm Convention
  - Persistent organic pollutants
- Rotterdam Convention
  - Hazardous Chemicals
- Basel Convention
  - Hazardous wastes
- Cartagena Protocol
  - Living Modified Organisms (LMOs)
- CITES
  - Endangered species
- Chemical Weapons Convention
  - Chemicals

Typically, border agencies are responsible for implementing prohibitions and restrictions, etc. and perform controls based on national legislation. The Single Window becomes relevant in defining how these services are implemented, and can even be central to that task. The following schematic explains the processes related to the application of controls, starting with international conventions and going through to service delivery via the Single Window.
Figure 8: Typical process followed with international conventions. National legislation needs to be oriented towards implementation of regulations through the Single Window.

7.3 Tasks of Inter-agency Co-ordination

- Collaborate with regulatory agencies to provide information to traders on admissibility and border measures.
- Collaborate with public health authorities to implement border measures so that trade and travel do not pose a danger to human and animal health.
- Collaborate with law-enforcement officials on prevention of drug trafficking.
- Collaborate with the agencies concerned to obtain certification of port facilities for handling hazardous waste.

An example of Inter-agency Co-ordination from European Union

The European Commission offers Customs administrations of the EU Member States an “EU Customs Single Window: Certificates Exchange” solution. This solution allows the Customs IT systems of Member States to connect with the EU certificates’ databases through a unique entry point in the DG TAXUD IT infrastructure. Currently, this connection is enabled using the TRAde Control and Expert System (TRACES) database. However, it is planned to expand its scope to other EU certificates’ databases. The solution allows EU Customs authorities to automatically validate, directly at the source database, a number of health entry documents that form part of the Customs clearance process, thus reducing the administrative burden on trade. The European Commission is working on expanding the scope to include additional certificates. Further developments on the implementation of the EU SW environment for Customs, including a possible legal initiative, are
also being studied. A Customs 2020 Project Group composed of 19 MS and 6 traders’ federations has been set up to this purpose.

8. Supply Chain Security

8.1 Key Functions

» Ensure that critical facilities at the border remain protected from misuse by rogue players.
» Implement border measures (inspection, scanning, vehicle rummaging) to prevent the movement of arms, ammunitions, explosives and WMDs.
» Implement programmes about strategic goods and the export control of dual-use items.
» Implement passenger control processes to stop transnational crime, including smuggling and terrorism.
» Implement programmes to provide assurance that supply-chain players and facilities are trusted and secure.

8.2 Possible Single Window Services

» Provide online information on licensing of dual-use equipment and technologies.
» Provide online information to citizens concerning Customs and border controls.
» Provide an online filing facility for passenger manifests.
» Implement passenger profiling and risk assessment using passenger data.

8.3 Tasks of Inter-agency Co-ordination

» Collaborate with security agencies, as necessary, for monitoring, detection and post-screening of Customs violations activities with security implications (and vice versa).
» Collaborate with coastal and land border security agencies to help optimize resources used for routine border surveillance.
» Work with the security agencies at the border to apprehend people suspected of terrorism and serious crime.
» Partner with enforcement agencies to share intelligence and to enhance controls.
» Collaborate with partner agencies for the implementation of supply chain security programmes.

Not all Customs services will have the same set of priorities. Some functions will be ascribed greater importance than others. Priorities change over time, building a Single Window environment may stretch as much as 20-years, and the evolution of regulatory functions in time will require a continues review and update of provided services.
Accordingly, even though country A and country B may have entirely different priorities, sovereign responsibilities will remain with border management agencies in both countries. The scope of border regulations and workloads may vary over time, and associated functions will become prominent at different times in the operation of a Single Window.

This has implications for architects that are considering Single Window solutions. The architects of the Single Window must provide for the possibility of adding the necessary functional features as the profile of the country develops.

9. Conclusion

This Part illustrates that, by their very nature, the functions of border agency administration involve intensive collaboration with other government agencies. Whether or not Customs implements a Single Window, it is required to engage closely with a number of government agencies and with the private sector to fulfil its roles, goals and mission. The World Customs Organization has recognized this unique challenge for Customs in the future, identifying ‘co-ordinated border management’ as an essential building block for Customs in the 21st century.

There is a logical connection between ‘border agency functions,’ ‘Single Window services’ and ‘areas of inter-agency co-operation’. However, as noted, not all Customs administrations share the same profile of responsibilities. The traditional allocation of tasks among government departments, the historical role played by Customs as a public service, and the strategic role ascribed to it by the political leadership, may vary across geographies and economies. The self-assessment framework provided in this Part may be used to quickly establish an accurate map of functions that are nationally mandated to a Customs administration. This functional map may then help identify the
portfolio of services (‘collection of inter-related services’) to be delivered through the Single Window environment.

The desire to perform and excel in these services must fit in with the overall strategic map of the Customs administration, an aspect which is discussed in Part III of Volume 1. Inter-agency co-ordination tasks are far more complex than the technical and engineering aspects of building the Single Window environment. As Customs engages with other agencies on different aspects of co-ordination, it will need the continued support of policy leaders. Part IV of Volume 1 discusses the ways in which such support can be secured, and policy momentum maintained.

**Annex I: Al Nadeeb – Qatar’s Multi-functional Single Window**

(Note: The following draws on information in an article which appeared in the February 2014 issue (No. 73) of WCO News, by Dr. Waiel Said, E-Government Portfolio Director, Qatar Customs, and on information on the website [http://www.customs.gov.qa/eng/QCCSW.php](http://www.customs.gov.qa/eng/QCCSW.php).)

Qatar introduced its Single Window ‘Al Nadeeb’ after a careful study of the strategic and operational role of Customs and the functional requirements of some government agencies/ministries. While the main goal was to review and improve all Customs operations and procedures, building an integrated community ready to work via a Single Window electronic system which conforms to international and regional standards also facilitated a number of regulatory functions. Qatar has been able to integrate all government agencies and the private sector involved in Customs procedures through the Single Window. The Single Window has also reduced time spent on cargo clearance and inspection rates to a matter of minutes, and plays a key role in facilitating trade, promoting economic growth and ensuring Qatar’s national security. The project has also helped improve staff and technological capabilities to reduce times in finalizing Customs clearance procedures. The following figure illustrates the wide range of cross-border regulatory agencies whose functions are covered by Al Nadeeb.
In a bid to provide the State of Qatar with one of the world’s most efficient, reliable and trustworthy Customs clearance services, the Qatar Customs Clearance Single Window, an automated system known as Al Nadeeb, was officially launched in the country during September 2013, in order to provide better communication and integration with the trade community.

In the past, Qatar’s Customs clearance process was long and laborious, with a 100% physical inspection approach which caused significant delays at border crossings, ports and airports. Qatar Customs believes that the new system will assist it in achieving a prestigious global business ranking, while spearheading the enhancement of Customs laws and regulations for the greater trade community. Al Nadeeb will, therefore, ensure that Qatar is able to trade more efficiently internationally by delivering competent, transparent and reliable trade services.

Al Nadeeb was developed to improve the clearance process by simplifying current procedures into a highly efficient systematic process. The introduction of the system and its superior capabilities in processing declarations will enhance Customs’ reputation with the public, airlines, airports and other important stakeholders.

Managing Risk Factors

The system will assist in reducing risk factors that are present in the import and export process by utilizing the robust features put in place for declaration submission, online payment and enhanced Customs inspection, as well as auto-routing of the declaration to the relevant government agency. Al Nadeeb is an intelligence-enabled risk management framework with systematic application of management procedures and practices that provide Customs with the necessary information to address movements or consignments that present a risk.
With this holistic risk-based selective system, Qatar Customs will be able to focus resources on high-risk areas, while increasing the productivity of the clearance process for low-risk shipments. The automated process will build risk profiles, which can then be consistently applied to all imports and exports, and is significantly faster and more accurate in comparing a given set of data against all currently active risk profiles that can easily be kept up to date.

**Integration Between Trade and Government Agencies**

Al Nadeeb has been integrated with trading communities and other government agencies to benefit the entire trade community in the State of Qatar, as well as internationally, as highlighted below:

**Ministry of Interior:** Al Nadeeb ensures seamless electronic integration with the Ministry, which is responsible for immigration, drugs prevention, traffic and civil defence. The system enables national security and all other areas of concern to be protected, by providing accurate and immediate information on companies and restricted goods and their movements in and out of Qatar.

**Ministry of Business and Trade:** To safeguard Qatar’s import and export processes, it is vital that Al Nadeeb matches a company’s importing activity with its registration, including the validation of a transaction date.

**Trading community and clearing agents:** Al Nadeeb has made it possible for traders and clearing agents to pay duties and submit declarations online, as well as for traders to authorize clearing agents electronically and to follow up on the status of their declarations 24/7.

**Other government authorities:** Qatar Customs co-ordinates and co-operates with approximately 17 different government agencies that control goods, to ensure that imported and exported goods comply with the laws and regulations of Qatar. Al Nadeeb communicates automatically with the relevant authority, enabling automated decision-making in respect of approvals, rejections or conditional releases.

**Gulf Co-operation Council (GCC) Free Trade Zone:** As part of the agreement with the GCC, Al Nadeeb facilitates synergy with all GCC ports by providing them with instant information on imports and exports, thereby keeping them in the loop to ensure smooth transfers between relevant ports.
SINGLE WINDOW
AS PART OF CUSTOMS MODERNIZATION
The Single Window operates in the area of regulation of cross-border trade. To deliver large-scale change such as a Single Window requires a thorough analysis of the strategic implications for Customs, which must accommodate all the changes associated with the Single Window into its programmes and priorities. On its own, the Single Window will not deliver the benefits of trade facilitation: it needs to be accompanied by other aspects of Customs modernization which contribute to creating the Single Window environment.
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1. Introduction

The Single Window brings together information (documentation and data requirements) from all participating authorities/agencies. Economic operators must submit data or documentation related to import and export clearance at a common, unified interface. Responses are also expected to be delivered to the applicant/economic operator through that unified interface. On its own, the facility does not ensure speedy and predictable clearance. Other elements must be in a position to provide rapid clearance at low costs to trade.

Countries that are implementing Customs modernization have put in place programmes to introduce the reform of administration and border services. Many of these plans involve significant investment in human resources, modernized border procedure services, and information technology services. The introduction of services based on Single Window principles adds another layer to Customs’ strategic programme of action.

This Part helps put the Single Window in the context of the wider modernization agenda, and shows what aspects are impacted by, as well as have an impact on, Single Window implementation. This understanding becomes useful as countries develop their reform agenda and strategic plans, as it puts different aspects of modernization into perspective and assists with prioritizing actions. Governments should not expect Single Window projects alone to deliver the business goals of trade facilitation. Other trade facilitation initiatives must be put in place. The measures contained in the WTO Trade Facilitation Agreement describe other strategic initiatives that governments might pursue.

1.1 Relationship to Other Parts of the Compendium

Part II of Volume 1 lists various border functions and the opportunity for governments to introduce services as part of the Single Window approach. Not all services have the same priority when it comes to implementation. This Part discusses how to identify those services that could meet the strategic priorities of the organization. In selecting and prioritizing the strategic functional and service areas to be covered by the Single Window, it is possible to identify preferred projects and define the strategic business case for the Single Window. The development of a strategic business case and the identification of priority projects is discussed in detail in Part I of Volume 2.

2. Why Strategic Management?

In Part II of Volume 1, we noted that Customs is widely recognized for the critical economic role that it plays in managing the international supply chain, providing social protection, maintaining streams of revenue, and generating valuable statistics for policy making.

Over the years, Customs has discharged these roles effectively, but the political and economic forces of the 21st century have created new drivers for change. Governments must respond to industry needs arising out of rapid globalization and continued growth in trade volumes, the sensitivity of commerce to costs, the geographical mobility of trade flows, and the proliferation of trade
agreements. Industry is growing impatient with inefficient and outdated border procedures, and is expecting governments to create conditions that enable it to follow modern logistics practices leading to predictable processes in the international supply chain.

Additionally, governments are getting increasingly concerned about supply chain security. Apart from disrupting trade flows and causing loss of human life, a terrorist incident can result in disastrous economic consequences for the affected trade lanes. These factors have created another set of drivers that influence regulatory policy on cross-border trade.

In the previous Part, we saw how the Single Window concept impacts different Customs roles and functions. These drivers have significantly altered the way Customs discharges its responsibilities. There has been a shift in the role of Customs from an agency that collects duties and taxes, to one with greater border management responsibilities. Even in those countries where Customs is still a significant source of revenue, it is increasingly called upon to provide wide-ranging support to government policy, especially in international trade and the protection of domestic industry and the domestic economy.

These challenges make strategic management an essential condition for the building of a modern Customs organization that is capable of fulfilling its mission. The following Subsections will look at strategic management in the Customs context, and at how the Single Window fits into this strategic context. There is a need to be client-focused – not just to elicit suggestions from trade, but also to seek its participation in promoting regulatory compliance. Customs needs to join hands with industry in a partnership that helps utilize the traders’ capabilities to further its regulatory objectives.

### 2.1 What is Strategic Management?

Strategic management is defined as the process of creating an operational strategy for an organization, based on a mission and vision to keep the team on track with its goals and objectives. The 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.

A plan setting out a vision for trade facilitation over three to five years would typically cover the following four business areas:

**Institutional framework:** This includes the strengthening of regulatory agencies involved in trade facilitation and the co-operation between such agencies, trade infrastructure, and consultation mechanisms with the private sector.

**Legal framework:** This covers import and export procedures, clarity in trade legislation, tariff and non-tariff restrictions, and compliance requirements.

**Electronic business and documentation:** This includes procedures for submission of data by traders, electronic filing infrastructure, workflow processes for import, export and transit, submission of supporting documents, and digitization.

**Specific trade facilitation programmes:** This includes trusted trader/Authorized Economic Operator, measures to balance controls and risk, and measures to reduce release times, etc.
2.2 Being Client-focused

Placing the Single Window within a strategic framework implies examining the impact of the initiative on the government’s various trade facilitation policies. In the preceding Sections, several categories of programme were mentioned. A theme that runs through all these programmes is the need for Customs to remain ‘trade-friendly’. The fundamental pillars of this approach are set out below.

2.3 Regulatory Transparency

The norms of regulatory transparency require industry to be allowed to have a say in the way government creates regulation. Experts state that the establishment of consultative processes reduces the costs to trade, while improving efficiency in implementing regulatory policies. Regulatory transparency improves further when trade has a legal right to regulatory information. Likewise, it is also helpful if governments are required to publish such information *suo motu*.

2.4 Consultation

Consultation should cover all aspects of trade, including regulatory policies, proposals on procedural legislation, and operational aspects of service delivery. Consultation with industry is a requirement under the provisions of the Revised Kyoto Convention (World Customs Organization, 1999). The principles of giving early notice of proposed regulations/legislation and of inviting public comments involve giving a formal hearing to interested parties on policy proposals. Most countries already follow these principles, and they are the very ones that are vital to Single Window project development. Such consultation processes not only enable trade input, but also deepen the trust between trade and CBRAs.

Individual cross-border regulatory agencies should intensify their discussions on service design and delivery. Consultation will become all the more necessary in the future, as regulatory Single Window solutions will rely increasingly on the trader’s data and processes. A clear understanding of regulations will help foster quality compliance from the trade chain. A Single Window project has a better chance of success where partnership with industry is comprehensive and covers all aspects of the project.

2.5 Client Outreach

The WCO SAFE Framework of Standards promotes the concept of the Authorized Economic Operator as a partner with regulatory authorities in facilitating security and speed in trade. Client outreach enables us to expand the circle of willing partners. Businesses that have the capacity and willingness to track and monitor their activities provide the logical starting point for client-outreach programmes for promoting voluntary compliance.

2.6 Aligning Regulatory Agency Goals with Goals of Businesses

The following table illustrates the possibilities of close strategic alignment between the strategic goals of regulatory authorities, and goals that companies would set for themselves in their own interests.
<table>
<thead>
<tr>
<th>Business Goal</th>
<th>Regulatory Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product recall capability:</strong> The ability to withdraw or remove products from the supply chain for business reasons.</td>
<td><strong>Consumer safety:</strong> To monitor and control cross-border movement of goods which are potentially unsafe to consumers.</td>
</tr>
<tr>
<td><strong>Product life-cycle management:</strong> (This applies to different product types differently.) The ability to track product information from the conception and design stage, through to manufacturing, shipment and delivery, all the way until consumption and disposal.</td>
<td><strong>Regulatory classification of goods:</strong> The ability to determine the exact product composition for a production batch.</td>
</tr>
<tr>
<td><strong>Inventory management:</strong> Control over delivery schedules – Just-in-Time delivery.</td>
<td><strong>End-use monitoring:</strong> Capacity to track and report end use – for example, of high-technology dual-use items.</td>
</tr>
<tr>
<td><strong>Fast turnaround of vessels:</strong> The ability to rapidly and efficiently unload and load containers.</td>
<td><strong>Supply chain security:</strong> The ability to locate a consignment to subject it to inspection and control. Enhanced possibilities for control.</td>
</tr>
<tr>
<td><strong>Maritime safety and security:</strong> To locate and isolate unsafe containers. To apply the correct handling procedures for dangerous cargo.</td>
<td></td>
</tr>
</tbody>
</table>

The above table illustrates that there can be programmes and arrangements that work to the mutual advantage of Customs and trade. The more that traders are in control of their logistics and regulatory processes, the better they can help CBRAs exercise controls. The more visibility the trader has for his traded products, trading parties and consignments, the more opportunities the authorities will have for applying regulatory controls. If businesses can convince Customs officials that their internal control processes can support and supplement those of Customs, and that Customs can access these ‘internal’ controls, then a bond of trust can be established between Customs and the trader. The ‘authorized supply chain’ emerges when businesses along the entire supply chain are included in the ‘trusted’ category.

### 2.7 Where does the Single Window Fit In?

What is the relationship between the Single Window and other components of a national strategy on Customs modernization and trade facilitation? Experts agree that the development of a Single Window environment is a key strategic element in linking up trade facilitation initiatives. Because the Single Window impacts all stakeholders in international trade, it has far-reaching implications for Customs. The ‘trusted trader’ concept, Authorized Economic Operator regime and the authorized supply chain need to become part of the business architecture of a Single Window solution. Single Window solutions can also leverage the information models supporting traders’ processes and activities. The Single Window environment needs to be an integral part of this process of engagement between Customs/CBRAs and trade.

In Part II, we saw that the services of a Single Window cut right through the major Customs functions and have a horizontal impact on the entire Customs organization. Customs is the largest and most important cross-border regulatory agency. It has wide-ranging responsibilities, and it enters into every international trade transaction, both in the physical sense of examination of cargo, and in the sense of information gathering. Customs covers the full reach of border processes and has
well-developed competencies in border regulation. Customs’ involvement, track record and capacity have encouraged governments to see it as the natural agency to take up the initiative of the Single Window. The WCO Survey held in 2010 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 primary stakeholder, simply because of its broad business coverage at international borders. The Survey further revealed that Customs-oriented business processes dominated Single Window functionality. Therefore, pursuing the Single Window concept is a strategic decision for Customs.

If Customs has the political backing, urgency, budgetary authority and necessary know-how, it could strategically assume a lead role in the Single Window initiative. That said, there is a need to follow the strategic management process to help define alternatives and appropriately position the choices about Single Window.

The Single Window initiative should be placed within a larger strategic framework for Customs. The issue of ownership and responsibility for a Single Window is a complex process. Decision-making about the precise role that Customs could seek in a Single Window project also falls in the territory of strategic management. Part IX of Volume 1, ‘Managing Transition to a Single Window’, is devoted to this aspect and provides strategic guidance.

To obtain political backing and budgetary support for its chosen role, Customs needs to document its strategic business case that sets out a Single Window as a part of its organizational strategy for effectiveness. Experts recommend that organizations should follow the strategic management cycle shown in the diagram below.

![Figure 1: The Strategic Framework for Customs Modernization, as described in the WCO Capacity Building Compendium.](image-url)
3. Current Strategic Positioning of CBRAs

The activities involved in diagnosing the current situation and developing the strategic plan are part of the strategic management process. The process helps executive management find a place for the organization in the future, while taking into account the current environment. Also called ‘strategic positioning’, it requires a systematic analysis of contemporary trends that influence the organization’s future.

One of the considerations to be taken into account when determining the organization’s strategic position on the development of a Single Window is the ‘as-is’ position defining current arrangements of service delivery. These existing methods will have a significant impact on consideration given to the development of ‘to-be’ services. Part III of Volume 2 (‘Functional Assessment’) describes the methodology for capturing the ‘as-is’ position in respect of the current regulatory responsibilities and functional capabilities of each participating CBRA. The ‘as-is’ framework meets the current set of regulations in force and will also have to be supported in the Single Window environment. The current operational interfaces and modes of engagement between Customs and trade will define the baseline for the ‘to-be’ service design. Any change from this baseline would require a redesign of business processes.

Another consideration is the legislative support to be given to the ‘to-be’ process. Does legislation permit the ‘Single Window’ mode of submission of data by traders? Can one government agency make legally valid decisions based on information received as part of a process laid down in the legislation of a partner government agency? Is sharing of data permissible under national privacy laws?

Similarly, there are considerations for the interoperability of IT systems which provide the interface between government agencies and traders. Many of these IT systems belonging to different government agencies were set up in the past, when hardware, software and data networking were combined to create monolithic IT systems with a rigid architecture. Achieving interoperability by interconnecting such systems poses a unique set of challenges.

Most importantly, however, the current policies and programmes of each cross-border regulatory agency will profoundly influence the ‘to-be’ processes and, consequently, the design of services. Each agency will have a strategy for trade facilitation and a service delivery approach for the future. It is quite likely that all the partner agencies will have their own long-term goals and programmes, along with their political direction and budgetary support.

It may be useful for Customs to study other participating CBRAs’ documents which describe their current strategic outlook and their proposals to facilitate trade over a three to five year period. In the absence of such documents, the current strategic position of these agencies may be derived from their major policy announcements in the last three to four years.

The analysis of the strategic position of Customs and partner agencies will quickly reveal the different strands of strategic planning for modernization. The next Section discusses the vital aspects of Customs modernization initiatives.
4. Inside a Modern Customs Organization

A brief examination of the performance of major industrial nations with regard to trade facilitation reveals that the ‘Single Window’ has historically not been a significant factor in achieving success. Over the years, most countries that have been assigned a high ranking on the World Bank’s trade performance scale ‘Doing Business, Trading Across Borders’ (the World Bank Group, 2010) either did not have a Single Window solution, or were still in the process of developing one. These countries have been operating advanced logistics systems to support rapid flows of goods. Included in the general picture for these countries are modern Customs practices, such as risk management, post-clearance audit (PCA) and trusted trader programmes, coupled with traditional EDI-based inter-agency messaging – but seldom a Single Window solution.

On the other hand, a country’s performance according to widely accepted measures of logistics efficiency (such as the World Bank’s ‘Logistics Performance Index’) can potentially improve, simply by establishing a Single Window concept for international trade. The available data from these indices suggests that, while the Single Window is just one aspect of effectiveness in trade facilitation, it may be quite an important one.

Governments that have already implemented a Single Window, but only as an electronic facility, are progressively adopting further programmes to introduce risk management, post-clearance audit, trusted trader programmes and client outreach. This way, there is a better chance of achieving high levels of trade facilitation.

A study of the regulatory environment in some of the advanced industrial nations reveals that the key performance measure for trade facilitation – short and predictable release times – is achieved only when some interlinked policies and programmes 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.

4.1 Distinguishing Features of Modernized Customs

We begin the examination of Customs administrations with a simple tick-list of the defining features that an analyst of trade and logistics infrastructure can easily find in any advanced industrial nation that performs very well on trade facilitation and logistics measures. This tick-list can be used as a self-checking exercise.

Table 2: Distinguishing features of a modern Customs administration.

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Defining characteristic</th>
<th>Observable features</th>
<th>True</th>
<th>Partly True</th>
<th>Not True</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cargo release is mostly automatic</td>
<td>Most of the cargo is released based on the declaration, and without regulatory examination at the time of release.</td>
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<tr>
<td></td>
<td></td>
<td>Intervention is by exception. Documents are not examined at the port/airport/land border while cargo awaits release.</td>
<td></td>
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<tr>
<td></td>
<td>Simplified procedures</td>
<td>Release on minimum documentation.</td>
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<tr>
<td></td>
<td></td>
<td>Two-step declaration process, where the first phase involves</td>
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<td></td>
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<tr>
<td><strong>Simple tariffs and clear regulations</strong></td>
<td>Submission of release data.</td>
<td></td>
<td></td>
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<td>---</td>
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<tr>
<td></td>
<td>Separation of release from clearance.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Accelerated release procedure for accredited or certified clients.</td>
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<tr>
<td><strong>Practical use of risk management</strong></td>
<td>Low variability in rates of duty; few types of duties and taxes.</td>
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<td></td>
<td>Accessibility to advance rulings and binding rulings on tariff classification, valuation and origin.</td>
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<td></td>
<td>Transparent methods of tax computation, facilitating automation; few ‘conditional’ exemptions from duties and taxes.</td>
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<tr>
<td></td>
<td>Low tariff rates (mostly found in industrialized economies).</td>
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<tr>
<td><strong>High capability of compliance</strong></td>
<td>Risk management is an organization-wide process, with a systematic effort to implement risk-based controls.</td>
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<td></td>
<td>Risk management is embedded into strategic, tactical and operational processes.</td>
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<td></td>
<td>Organizational structure supports risk management.</td>
<td></td>
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<tr>
<td></td>
<td>Automated systems help risk assessment and selectivity. Intervention is by exception.</td>
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<tr>
<td></td>
<td>Automated targeting capability.</td>
<td></td>
<td></td>
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<tr>
<td><strong>Developed post-audit controls</strong></td>
<td>Government takes proactive steps in publishing compliance information.</td>
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<td></td>
<td>Voluntary compliance is supported through client outreach programmes.</td>
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<tr>
<td></td>
<td>Trade members remain invested heavily in compliance management.</td>
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<tr>
<td></td>
<td>Arrangements made for receipt of automated information.</td>
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<tr>
<td><strong>Certified client base</strong></td>
<td>Maintaining client account information is a matter of organizational routine.</td>
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<tr>
<td></td>
<td>Organizational units and skills exist for post-clearance audit, and assignment of audit tasks follows the principles of strategic risk management.</td>
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<tr>
<td></td>
<td>Post-clearance audit is the basis for compliance tracking and measurement.</td>
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<tr>
<td></td>
<td>Legal support for on-premises audit and access to client’s information systems and data.</td>
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<tr>
<td><strong>Efficient information exchange</strong></td>
<td>Existence of Authorized Economic Operator programmes, trusted trader/authorized operator programmes.</td>
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<tr>
<td></td>
<td>Transparent norms of certification based on independently verifiable audits.</td>
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</tr>
<tr>
<td><strong>Standard and simple</strong></td>
<td>Electronic data interchange systems interlink various stakeholders – connecting traders, ports/airports, logistics providers, regulatory agencies and banks.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
|  | Highly standardized and simplified messaging has been
5. Putting the Jigsaw Pieces Together

Michael Porter introduced the notion of strategy as an **activity system** (Porter, 1996), (Harvard Business Review, Nov-Dec 1996, 60-80) that creates a strategic fit among the organization’s activities. A system is defined by its elements and the interconnections that exist between them. **Activity systems** are **non-linear** ways of thinking about these interconnections. Each interconnection reinforces the organization’s strategy, and together the map brings out the defining features and capabilities of the organization by the reinforcing patterns of activity systems.

5.1 Achieving Short and Predictable Release Times

The above table describes some of the defining characteristics of a modern Customs administration. These features can also 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 logistics facilities must ensure that cargo moves rapidly and reliably through border facilities. Predictable and quick release is meaningless if the logistics processes cannot keep up with the pace of regulatory release. The regulatory and physical processes come together with the support of IT systems-based timely flows of information. The diagram below depicts this relationship and the interconnections between some of the key features of an advanced cargo clearance system.
The adjectives used in Figure 2 should be noted: reliable and orderly cargo delivery, efficient information interchange, and mostly automatic cargo release. If even one of these adjectives were to be replaced by its opposite, the whole system would fail to deliver short and predictable release times.

This examination provides an insight into how most of the advanced industrial nations have already achieved high standards in the border processing of cargo. It indicates that, as well as a Single Window solution, much more needs to be accomplished to achieve the targeted efficiencies in cargo clearance. The management of expectations from a Single Window project is vital, and the other elements that underpin fast moving trade must be borne in mind.

5.2 What Does Automated Release of Cargo Involve?

Closer examination gives a clearer picture of the entire system, with its policy strands and programmes. 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 control rates cannot be achieved without the effective use of risk management, high recorded levels of compliance by clients, and reliance on post-clearance audit by Customs. In all such cases, Customs follows simplified procedures, providing guaranteed release with minimum documentation. Industrialized nations tend to have low tariff levels, along with simple tariff regimes. Added to this, non-tariff restrictions and regulatory requirements are transparent, allowing traders easy access to information on regulatory compliance, and enabling them to be efficiently prepared to meet these demands.
Figure 3: Different elements of Customs modernization must come together to ensure that most cargo is released automatically.

Further, economic operators who demonstrate high levels of compliance will not just have to remain invested in their internal capacity to comply with regulations, but will also have to maintain a clean track record. Customs can promote high levels of compliance through client outreach, training, and certification programmes. A certified client base provides reasonable assurance of compliance. The reliability and quality of the client certification process are ensured through formal and legally backed initiatives and programmes, such as ‘Authorized Economic Operator’ (AEO), which Customs operates in several countries. The processes of providing regulatory authorization should not fall behind the physical processes of cargo movement. This can only be ensured when declarations for goods and cargo are submitted in advance, and through efficient information exchange facilities.

5.3 Dynamic Information Interchange

The following diagram looks at the key aspects of electronic data 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 interconnections between information systems. Standardized information is also the basis for building a consistent and meaningful collection of information. These blocks of information are useful in data interchange when they follow the logical order of the information-creation business operations involved in trade and transportation transactions.

The actions and activities taking place in the course of commerce and transport operations lead to the progressive build-up of data. Contemporary studies on time release point to the process of document preparation for import and export as the principal source of delay. The principle of progressive build-up leads to the gradual completion of information needed by regulatory agencies, cutting the lead time dramatically in document preparation. In the absence of the use of electronic means for
the progressive build-up of data, there is usually a last-minute scramble for information collection, and the need to maintain confidentiality regarding information has implications for the channels of information flow. Not every player in trade and transport has simultaneous access to all the 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 of cargo movements prevents the ‘regulated parties’ from making advance submissions of information. Therefore, support for supply-chain visibility is a key factor in the enablement of rapid clearance.

Figure 4: Efficient information exchange implies standardized data and processes.

5.4 Efficient Supply-chain Logistics

Lastly, the physical and logistics side of operations must match the pace of regulatory approval. There are many aspects to this. The services that form onshore infrastructure include tugging and pilotage, terminal handling, container yard management, tally and accounting, intra-terminal and intra-port-facility movements, and warehouse management (binning and retrieval). The diagram below depicts these inter-relationships.
Figure 5: Cargo delivery capabilities should match the speed of automated regulatory release. Green indicates the role of logistics operators.

Experts (Clark, Dollar, and Micco, 2004) have documented that poorly performing ports have a direct negative impact on trade volumes, and that this is visible in smaller and less developed economies. The quality of onshore infrastructure is an important determinant of transport costs. Studies have reported that port infrastructure is a major determinant of carriage costs. According to the above paper on poorly performing ports, these costs account for up to 40% of predicted transport costs for countries with a coastline, and up to 60% for landlocked countries. Also, if a country that is currently burdened with relatively weak infrastructure (for example, in the bottom quarter) can upgrade it to the same level as that of the top quarter, “it can result in the reduction of transportation costs by as much as 20% to 50%”.

Therefore, investment in port and airport modernization clearly pays off, and has to go hand in hand with other regulatory simplification initiatives. These investments are large and complex. They involve the use of high technology and long gestation periods. Returns on investment are typically spread over decades. The analytical framework of ‘activity systems’ used in this Part provides a clear perspective regarding the strategy for Customs modernization. The expectation of short and predictable release times is the result of a series of interdependent activity systems that range from port infrastructure to simplified Customs procedures, and is mediated by several interdependent factors.

The following diagram gives the entire picture of activity systems. It has been 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 only as strong as its weakest link. The framework also provides the opportunity to arrive at a strategic positioning of each component of the activity system.
6. Implications for the Single Window

In all of this, where is the Single Window environment? A Single Window project can be used as a vehicle for enabling or promoting each of the ovals in the above diagram (save the three olive-green ovals in the top left corner, which are the preserve of logistics infrastructure and not of concern to Customs). The Single Window initiative can impact on a number of Customs modernization efforts. In addition, Single Window projects may help in enabling the strategic components of a modern Customs administration and can have a positive impact on the different strands of modernization. Likewise, the launch of a Single Window project is an important ‘given’ in formulating various programmes for Customs modernization.

The fundamental principles of Customs modernization become normative for all participating CBRAs in the Single Window initiative. For instance, if Customs follows risk management practices, it becomes imperative for other government agencies to follow suit. The same logic applies in respect of trusted trader programmes, post-clearance audit programmes, client outreach programmes and simplified procedure regimes. Participating CBRAs will be able to share their best practice with other agencies.
7. Conclusion

The establishment of clear and accepted strategic goals is vital for the Single Window environment. A ‘Single Window’ is not just about creating a facility that receives import, export and transit-related regulatory information at one point; it is also a strategic response of the organization to meeting its trade facilitation and security objectives.

The WCO Capacity Building Compendium provides a series of analytical frameworks for strategic management in the context of organizational development, and this is relevant in preparing the strategic business case for elaborating a Single Window environment. This Part recommends that any Single Window project must position itself as an integral part of the organization’s strategy for effectiveness. Available data suggests that Single Window projects alone cannot produce the desired outcomes in trade facilitation. A comprehensive programme for responding to the needs of businesses and governments must incorporate a broad range of measures, including the adoption of inter-agency co-ordination in risk assessment and control procedures.

The Single Window environment is capable of facilitating trade by improving speed and efficiency. However, the ‘Single Window’ solution needs to be seen in the context of a broader thrust towards Customs modernization, which has many dimensions. As an IT solution, it needs to be considered in conjunction with a host of other measures, such as those described in the WTO Agreement on Trade Facilitation and in the Revised Kyoto Convention, to radically transform the way regulatory authorities exercise control over the supply chain.
Implementing a Single Window is no small task. Between 20 and 50 public authorities dealing with different aspects of border regulation must come onto a single platform and deliver services to industry and commerce. Political will is often said to be behind successful Single Window projects. In practice, political will translates into sustained routines of policy making to support ongoing efforts to implement a Single Window.
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1. Introduction

Although there is a universal acknowledgement of the need for policy reform regarding trade facilitation, practical measures have always been difficult to implement. It is true that there is virtually no incentive for governments to perpetuate slow, unreliable and inefficient processes at the border, and the political leadership strongly favours the construction of a robust cross-border regulatory infrastructure. However, it has not been easy for the leadership to create organizational structures committed to pursuing this aim over a sustained period. It requires a persistent policy push from different wings of government. It also calls for an engagement model with stakeholders, supported by a communication plan, that can sustain reforms by reaching out to diverse organizational cultures.

The leadership should promote inter-agency efforts to harmonize procedures, and the dismantling and re-alignment of existing systems. Programme managers should be assured of support through the ups and downs of the Single Window initiative. Very often, a simple statement of intent on the part of the political leadership is treated as a sign of political will. Just the desire at the highest level to launch a Single Window, or even a presidential decree, may not be enough. It must be backed by established policy routines that follow through with a well conceived reform agenda for action.

1.1 How is this Part Organized?

The Sections below describe the challenges and hurdles faced by policy leaders. They also use a policy development model to explain how and why a Single Window may get onto a government’s agenda for action. The penultimate Section outlines some key points to help maintain the policy momentum. This Part concludes that executive management from Customs and other border agencies must become acutely aware of the problems that may give rise to the demand for a Single Window, the policy areas that contribute to the development of the Single Window initiative, and the importance of stakeholder communication in achieving strategic objectives.

1.2 Relationship to Other Parts of the Compendium

Part I of Volume 1 discussed the concept of a Single Window environment; Part II of Volume 1 related that concept to the wide spectrum of Customs and border agency functions; Part III explained that the ‘Single Window’ must be pursued as a component of the holistic strategy for Customs and border services modernization. This Part is aimed at providing executive management and border agencies with an overview of the policy considerations in the development of Single Window solutions, enumerating the key factors that would foster purposeful discussion among key stakeholders and decision-makers. This Part also highlights the different openings or ‘policy windows’ that routinely arise. These policy windows help sustain the interest and attention of policy leaders in introducing a Single Window.
2. The ‘Single Window’ is a Policy Challenge

Implementing a Single Window is no small task. Between 20 and 50 public authorities dealing with different aspects of border regulation must come onto a single platform and deliver services to industry and commerce. Political will is often said to be behind successful Single Window projects. In practice, political will translates into sustained routines of policy making to support ongoing efforts to implement a Single Window.

2.1 Involvement of Multiple Agencies

The Single Window concept envisages a virtual interface between business and government. Different government departments have to play the role of service providers through this common interface. Issues discussed in a Single Window pass through various ministries and departments. A survey conducted by APEC (APEC Secretariat, 2007) on the Single Window revealed that there is a significant number of government agencies involved in regulatory processes for international trade. By their very nature, interdepartmental issues are very complex.

2.2 Battles for Turf

Owing to the role ascribed them in laws and regulations, cross-border regulatory agencies enjoy a monopoly presence at the border. Border agencies have a strong incentive to perpetuate their hold, and there is not enough incentive to co-ordinate. These organizations view their traditional areas of responsibility as their ‘turf’. This turf has tradition and prestige, and is not to be given up to another agency. Myths may surface about the Single Window being a power grabbing exercise by another department and raise further difficulties for the Single Window project.

The level of sophistication in the development and implementation of trade regulation may vary between countries. The geographical and political make-up of a country also has an impact on the relative importance of government departments and their functional portfolios. These variations make generalizations difficult in terms of the problems and solutions involving turf battles.

2.3 Linkages with Existing Programmes

As explained in the previous Part, the Single Window is in itself not a silver bullet. It is one of the many aspects of trade facilitation. The Single Window programme must somehow fit within the overall programme of Customs modernization, infrastructure upgrades, human resource development, integrity management and the broader development of trade regulation.

These issues are not just for Customs. All participating government agencies will face similar challenges with their respective projects and programmes. When a Single Window project is mooted, all departmental projects and programmes become the focus of attention, and programme/project managers come under pressure to explain their raison d’etre. Business processes and regulatory procedures will be subject to scrutiny, and organizational cultures will be dissected and analysed.
In government, years of traditional incremental budgeting has led to a culture in which managers have routinely justified budgetary allocations. Existing programmes and budgets have tended to be self-perpetuating. Such an organizational culture works strongly in favour of the status quo.

The new approach would require each cross-border regulatory agency to review its existing programmes. The principles and assumptions based on current programmes will be challenged by the new, Single Window-based concepts of operations for cargo clearance. Likewise, the proposed architecture of information technology (IT) under a Single Window project would challenge not only current investment in IT, but also subject existing IT resources to new demands.

### 2.4 Long Gestation Periods

Single Window projects involve tasks that are complicated and time-consuming. The development of border infrastructure requires extensive co-ordination and high levels of investment. The procedure for making legislative changes is also prolonged. Business process analysis and data harmonization must be carried out by dedicated technical resources belonging to different government agencies and trade. These activities involve collaborative and consultative processes that need to be sustained through multiple iterations over an extended period.

Issues concerning physical infrastructure in and around ports and airports are not easy to resolve and may sometimes involve multiple agencies from federal, provincial and local governments. In the case of land borders, these issues call for international co-operation. Additionally, Single Window projects require significant budget outlays and complex financial arrangements, and are therefore subject to the oversight and control of elaborate procedures set out by government’s financial controllers.

### 2.5 The Avoidance Response

All of the issues cited above have the potential to divert the attention of the heads of cross-border regulatory agencies to other more ‘pressing’ matters needing immediate attention. In cross-border trade, there is no dearth of such ‘pressing’ problems and, in the face of many current challenges, the executive management has enough ‘justification’ not to take on yet another initiative, such as a Single Window. Executive managers are content to try to avoid that burden. Another reason for avoidance may be due to misconceptions about the coverage and size of the potential Single Window project, and the lack of appetite for such large projects within the executive leadership of a cross-border regulatory agency.

The points listed above often lead to a potential for loss of focus. This is the biggest policy management problem around the Single Window. This issue also presents a high threshold at entry. Part of the answer lies in the political processes leading to the formulation of the project. The political mandate, policy structures and routines, project governance and stakeholder engagement models, add up to a package that can help create conditions for sustaining the project.

To understand these processes, it is necessary to establish why and how a Single Window would get onto the government’s agenda for action. But getting it on the government’s agenda is not enough; it is also necessary to sustain the momentum of policy development. The following Sections examine the different types of discussions that could lead to the considerations for a Single Window.
3. Getting a ‘Single Window’ on the Agenda

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

Figure 1: Adapting the ‘three streams’ model to policy development for introducing a Single Window.

3.1 The ‘Problem’ Stream

The ‘problem’ stream comprises identification and recognition of a set of related problems. This 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 about the issues involved.
Focus Events

Events that focus the government’s attention on the gap between existing conditions and the desired state often create this stream. There is no dearth of such incidents in the area of trade facilitation, as national and international bodies work ceaselessly to highlight the bottlenecks impeding hassle-free trade. Seminars, workshops, trade negotiations and investment road-shows, etc. fall into this category.

Indicators

Apart from focus events, key macroeconomic indicators are published by international organizations and often help highlight the problem areas. The annual ‘Doing Business’ report (“the World Bank Group,2010”) ranks economies on their capacity to facilitate business, claiming to provide objective measures of business regulations and their enforcement. Part of the report, entitled ‘Trading Across Borders’, is dedicated to issues concerning trade facilitation. It has drawn the attention of the political executive all over the world. Governments are developing programmes that are aimed explicitly at overcoming the handicaps highlighted in this report.

The World Economic Forum produces a Global Competitiveness Index in its ‘Global Competitiveness Report’ (World Economic Forum, 2010). The Report assesses the ability of countries to provide high levels of prosperity, which in turn depends on levels of productivity achieved nationally. The Index determines a nation’s competitiveness and posits this as the key determinant in international trade. Defined as a set of institutions, policies and factors that determine the level of productivity in a country, the competitiveness assessment is based on publicly available data and executive opinions. By including tariff levels, trade barriers and burdensome Customs procedures in its calculations, the Report draws the attention of policy makers to a nation’s ability to compete in global commerce.

The World Bank produces the Logistics Performance Index (Avris, Munstra, Ojala, Shepherd, and Saslavsky, 2010). This Index positions itself as “a comprehensive statement that has been created to help countries identify the challenges and opportunities they face in trade logistics performance.” It helps highlight problems in the areas of transportation, warehousing, cargo idle-time and border clearance, and payment infrastructure.

Transparency International produces a Global Corruption Perceptions Index, which deals with corruption in the public sector. Owing to their monopoly position, high public visibility at borders and to perceptions of corruption, cross-border regulatory agencies are particularly susceptible to being attacked on integrity issues.

The Single Window concept, will attract greater interest, among the policy elites, in the light of these publications.

Problems Reported from the Field (‘Feedback’)

The above indices and indicators contribute to a top-down flow of the ‘problem stream’. There are equally potent streams of information that arise from the grassroots and flow all the way to the top. The reporting of problems from the field contributes to this bottom-up flow of information. The private sector, through formal and informal consultative processes, provides the necessary input to the regulatory agencies on current regulatory problems, and there is a steady flow of reports from
operational managers to policy makers. Systematic efforts (such as the Time Release Study) also provide clear indicators of the time taken by various agencies.

Problems may sometimes be reported at the highest levels. Investors, both domestic and foreign, may complain about the time taken to clear goods and report the lack of a conducive environment as being the main obstacle to committing serious investment.

Each of these reports points to a series of problem areas, often involving both public and private sector players, institutions, regulations and solid infrastructure. These reports and globally published indices attract media attention and create public awareness. The public authorities concerned are put under pressure to explain why public performance is so poor. Stakeholders will use the statistics and indices as a means of supporting analysis and justifying the need for change.

3.2 The ‘Policy’ Stream

Governments establish policy programmes in different areas of governance, and various sections within the government are tasked with the formulation of strategic alternatives and proposals in their respective sectors. These organizational units give shape to new ideas or policy proposals that require the government’s attention. This stream involves the formulation of alternative decisions for the policy agenda. While the ‘problem’ stream is primarily factual and based on hard evidence on the ground, the ‘policy’ stream involves the intellectual analysis of policy options and alternatives. Experts suggest that big ideas exist in hidden clusters within government departments, external think-tanks, and industry research bodies. Some of the individuals within these organizations can step up their involvement and play the role of policy entrepreneurs (Kingdon). Policy entrepreneurs are thought leaders with “deep and abiding commitment to a particular change”.

The policy streams that are relevant to Single Window processes can be located in Customs modernization policy and in 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 are directly linked to the Single Window initiatives and involve career civil servants with years of professional expertise in diverse areas. Senior executives in Customs should actively seek such civil servants’ collaboration in Single Window projects and ask them for appropriate advice. Some of these areas of policy expertise that are linked to the Single Window are listed below.

Trade and Regionalization Policy

The Ministry of Trade usually directs government policy on trade facilitation and, in some countries, the Single Window squarely falls within its purview. Similarly, the related questions on regionalization and border trade policies are largely within the purview of the Trade, External Affairs Ministries and of the border police, where Customs is often the key facilitating department. Owing to their leading role in trade negotiations, Trade Ministries may sometimes find that they hold the brief for trade facilitation issues. The WTO Agreement on Trade Facilitation has provided new policy impetus since it includes the Single Window as a measure which the Members of the WTO must endeavour to adopt.
Logistics Planning and Industrialization Policy

Trade logistics planning is a specialized area for which government requires expert input. In several economies, there are dedicated units that help governments identify industrial zones and locations that could be the source of goods for international trade. To keep up with the flow of goods, there is a need to plan for freight transportation infrastructure. Creation of industrial parks and transportation corridors calls for long-term investment of a high order.

Capacity planning for logistics infrastructure depends upon assumptions on cargo dwell-times (which is the flip side of release times), and the efficiencies of cargo terminal operations. These assumptions, usually classified under ‘port efficiency’, are significant factors in determining the operating capacities in place and can influence investment decisions. High cargo dwell-times, along with high variability in clearance times, have an impact on port facility planning. Policy planners that work on these policy issues may find that the Single Window is the solution to problems of ‘port efficiency’. For example, logistics specialists in APEC member economies have highlighted logistics chokepoints (see above). While a few of these chokepoints relate to infrastructure, nearly half of the chokepoints relate to Customs and cross-border formalities (APEC Secretariat, 2009).

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**APEC Supply-Chain Connectivity Framework Chokepoints**

**Chokepoint 1:** Lack of transparency/awareness of the full scope of regulatory issues affecting logistics; lack of awareness and co-ordination among government agencies on policies affecting logistics sector; absence of single contact point or champion agency on logistics matters.

**Chokepoint 2:** Inefficient or inadequate transport infrastructure; lack of cross-border physical linkages (e.g. roads, bridges).

**Chokepoint 3:** Lack of capacity of local/regional logistics subproviders.

**Chokepoint 4:** Inefficient clearance of goods at Customs; lack of co-ordination among border agencies, especially relating to clearance of regulated goods ‘at the border’.

**Chokepoint 5:** Burdensome Customs documentation and other procedures (including for preferential trade).

**Chokepoint 6:** Underdeveloped multimodal transport capabilities; inefficient air, land, and multimodal connectivity.

**Chokepoint 7:** Variations in cross-border standards and regulations for movement of goods, services and business travellers.

**Chokepoint 8:** Lack of regional cross-border Customs-transit arrangements.

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The role of the Central Bank in a Single Window:

While in many cases Customs is the co-ordinator, playing a leadership role in Single Window projects, in some countries, such as Colombia and Peru, projects relating to the Single Window (‘VUCE’ – *Ventanilla Única de Comercio Exterior*) are being steered by their national ministries of external trade. In some Central American countries (e.g. Guatemala and El Salvador), that facility is being managed by the Central Bank.
Builders of large-scale infrastructure, such as ports, airports, expressways and land-border stations, will inevitably look at the soft regulatory issues that support or hinder the steady flow of cargo. Development of a Single Window will probably emerge as a policy option that links the national logistics infrastructure with the overall national vision for competitiveness.

**Human Resources and Civil Service Reform Policy**

In many economies, the rationalization of the size of the civil service is a major area of concern for governments. Reduction in public expenditure arising from salaries and benefits to civil servants is a standing policy item for many governments and forms a critical area of long-term policy planning. Policy managers in this field prepare for occasions when governments agree on the need for wide-ranging human-resource restructuring programmes. The reasons for restructuring include downsizing the overall complement, or the creation of new government departments/agencies to better reflect the government’s strategic priorities.

Large scale redeployment of the workforce due to the merging of functions, or to the reallocation of business between organizational units, provides a significant opportunity to introduce the question of the Single Window.

Governments around the world have given high priority to electronic governance. It is well known that electronic governance helps improve the overall quality of governance. It raises the quality of life of citizens and reduces costs of doing business. Most countries have central units that manage the overall policy on e-governance. These units monitor the use of electronic means of delivery of services, investigate long-term policies and vision, and help formulate both short-term and long-term projects that may be taken up by individual government departments. This wing of the government also seeks to maintain alignment between projects run by different government departments, to ensure that services delivered through various programmes do not overlap and that each project ultimately delivers the government’s long-term vision.

**E-Governance Policy**

E-governance policy is not just about services provided by different government departments. It is also about technical standards to ensure interoperability and a common infrastructure for e-governance. Governments are keen to optimize infrastructure resources such as data centres, networking, hardware, software, contact centres and citizen service centres by enabling their shared use between government departments. This not only optimizes resources across government departments, but also fosters joined-up services. These are some of the themes for policy development on e-governance. The Single Window for international trade could easily be an area where managers of e-governance projects have a natural role to play.

It is essential for Customs executive management to maintain a direct link with experts in this area, to be aware of the master plans for e-governance services to businesses, and the government-wide standards that are being promoted. It is beneficial to collaborate with these experts as this supports the task of developing all national programmes on e-governance.
3.3 The ‘Political’ Stream

The political stream represents the visible clusters of support for an agenda. It is in this stream that the government’s agenda (the list of issues for decision) is formulated. Items of economic governance and industrial regulation have always been high on any government’s agenda. With the 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 complicated. In today’s information-driven world, businesses expect the government to address these complex problems through faster and more efficient processing of information. Therefore, it is not difficult for political leaders to look to the ‘Single Window’ and put it on the agenda.

However, the Single Window is a facility that straddles traditional departmental boundaries. Each ministry/department is under separate political oversight, and is supported further by a network of organizations with diverse stakeholder interests. Each department will have its budgeted government programmes which civil servants administer. Interest groups create and maintain their respective hard-fought turfs.

The Single Window concept is not a ‘zero-sum game’. The key to resolving issues in the political stream is through negotiation and compromise, based on the principle of ‘Pareto optimality’, where one CBRA could ‘gain’ from a change in allocation of responsibilities and resources, even as other agencies do not lose theirs. The politics behind the distribution of business/authority arising from the Single Window initiative can be channelled through structured discussions. A matrix of responsibilities, accountabilities and levels of engagement for different ministries, departments and agencies can be used to untangle the realities of trade regulations at national frontiers.

Fighting for the leadership role is often about cornering resources and gaining organizational prestige and pride. It is also about the less obvious agenda to corner resources without assuming responsibility and accountability. The following matrix illustrates an example where the Trade Ministry is given the lead role. The model provides an opportunity to establish that responsibility, accountability and authority have to go hand in hand. The model can be used to assure individual agencies that their roles have not been, and will not be, taken away when the Single Window comes into being. For the sake of discussion, the functions of different agencies can be re-arranged experimentally to assess the impact. The changed situation would bring the focus back onto questions of competencies and the track record of the various participating organizations. Here, the perceived strategic roles and the areas of business assigned to each agency by the government also play a part. Change from the current position involves risks in terms of lost capacities, however, it creates opportunities in terms of organizational innovation.

The claims to be the ‘lead agency’ and to hold the position of authority should be matched by the willingness to assume responsibilities, and the readiness to be held accountable for outcomes. Track records in performance and competencies could help make the task of decision making easier. It will be borne out that ‘lead agency’ is a highly differentiated role, and that there is not much scope for exclusivity.
Leadership Area (can be made more detailed)

<table>
<thead>
<tr>
<th>Strategic Role in the Single Window Environment (an example where the Trade Ministry takes the lead role)</th>
<th>Impact of Change from Current Role/Co-ordination Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>Responsible Accountable Responsible</td>
</tr>
<tr>
<td>Project</td>
<td>Responsible Accountable Consulted</td>
</tr>
<tr>
<td>Technical</td>
<td>Accountable Responsible Not Concerned</td>
</tr>
<tr>
<td>Operational Business</td>
<td>Accountable Consulted Responsible</td>
</tr>
<tr>
<td>Operational – IT</td>
<td>Consulted Accountable Consulted</td>
</tr>
</tbody>
</table>

Recognition by the political leadership that there is fragmentation in terms of ownership and responsibility is half the solution. But unlike in the past, issues can no longer be pigeonholed and contained within individual agencies, as businesses are increasingly demanding better co-ordination among government agencies. In fact, businesses are expecting government agencies to harness information technology to deliver a seamless experience, and sooner or later the political leadership will have to pay attention to these demands.

Customs executive management could find itself facing the political fall-out from the uncoordinated handling of trade or security-related issues. Principally, the ‘political stream’ of the demand for a Single Window could emerge from persistent negative reporting or adverse publicity on cross-border procedures. The highlighted inefficiencies will attract more criticism when associated with a fragmented response from different government agencies, leading to even greater demands for transparency and co-ordination. Therefore, several strategic initiatives are under way around the world – especially in the industrialized economies – to establish co-ordinated border management and ‘joined-up’ government services.

The political stream can also build up in the course of other high-profile, government-wide initiatives. These include the major overhaul of fiscal policy, ‘stabilization’ of the external sector, sometimes supported by multilateral agencies, government ‘transformation’ projects, and industrial ‘corridor’ projects.
4. Maintaining the Policy Momentum

In the last Section, discussion centred around three independent streams that inform policy making processes. Policy decisions emerge when the three streams converge under the right conditions.

Government’s decision to implement a Single Window will first emerge as a policy decision. That decision could be the outcome of a strategic business case presented to the government. At this stage, the government’s in-principle approval of a Single Window solution is obtained.

The policy decision of the government will be followed by preparations for establishing the preferred project or projects that create the Single Window environment.

There will be a significant time gap between the policy decision and the identification of the Single Window project and its implementation. This period is crucial for rallying stakeholder support for
the strategic business case. The much-abused term ‘lack of political will’ is the inability of the political executive to ‘dirty its hands’ by thrashing out issues of responsibility and accountability, and getting all the agencies to be engaged effectively in their assigned roles.

The degree to which the leadership supports the execution of the preferred project is also a question of political will. It is at this stage that the political fall-out of the project will be felt, and the premise of the project will be called into question. This process needs to be carefully managed through a series of steps, as discussed below.

### 4.1 Create a Brand

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 necessary is to build a set of precepts that should be repeated like mantras in the course of meetings and discussions. Project titles and acronyms should not 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 in the WCO Data Model project to promote the use of harmonized data for a Single Window is ‘Cross-border Transactions on the Fast Track’.

Attractive project branding can help draw and maintain the attention of 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 designs 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.

### 4.2 Identify and Involve Subject-Matter Experts

The preceding Section explained that there were several policy drivers for the development of a Single Window project. Industrialization, trade logistics policy, human resource restructuring, Customs modernization, and e-governance were identified as the policy areas that have a bearing on the development of the Single window concept. Each of these sectors will have ‘thought leaders’ that can act as policy entrepreneurs. They can bring considerable professional expertise from their respective policy areas and are willing to articulate their position forcefully. Customs executive management is advised to cultivate such resources for achieving their strategic objectives. These experts can be separately or individually included in structures that help the organization receive timely inputs.

### 4.3 Maintain Visibility

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

4.4 Tap into Existing Stakeholder Networks

Most Customs administrations follow a formal process of consultation with private and public sector stakeholders about trade facilitation and operations. As a result, Customs executives will have developed close interpersonal links with some influential stakeholder groups. Creating momentum for the Single Window will involve tapping these contacts for constructive engagement with the Single Window concept and the development and implementation of the preferred project.

Existing stakeholder groups, such as electronic data interchange (EDI) working groups or port operations facilitation groups, could be involved. Different stakeholders will have different goals for a Single Window project and concrete proposals will arise from these varying aims. Getting stakeholders and decision makers to recognize the real problems is part of maintaining the policy momentum. Experts argue that the manner in which government identifies problems determines how they will ultimately be addressed.

Stakeholder communication for the express purpose of arriving at an executive mandate is a critical activity during the policy modelling phase. What happens at the early stages of stakeholder mobilization has a decisive impact on the entire policy process and its outcome.

As the United States has pursued its Single Window through the Automated Commercial Environment (ACE), Customs and Border Protection (CBP) has leveraged many avenues to successfully engage and address the needs of the trade community stakeholders, leading to a better product for all.

The Commercial Operations Advisory Committee (COAC) advises the Secretaries of the Department of the Treasury and the Department of Homeland Security (DHS) on the commercial operations of CBP and related DHS and Treasury functions. The Trade Support Network (TSN), a broad membership of brokers, importers, carriers, software developers, etc. representing all segments of the trade community, provides valuable feedback to CBP on any technical requirements to support trade modernization initiatives. The TSN is further divided, by trade processing topic, into a collection of committees, subcommittees, and cross-committee groups who provide tactical feedback on system functionality, recommend trade requirements, and collaborate with the ACE Business Office on areas such as legal and policy issues and business processes. A small subgroup of TSN members, known as the Trade Advisors and Technical Advisory Group, agree to undergo an extensive CBP background investigation, granting them clearance into technical and operational development, and thereby allowing yet another level of stakeholder input.

CBP makes parallel efforts with its internal stakeholders, via the Customs Support Network, which comprises active CBP personnel from across the country, further segmented into a change network of subject-matter experts, Field Readiness Co-ordinators and ACE Ambassadors. Subject-matter experts provide input from their respective areas, covering a wide scope which includes technical, policy and legal areas. The Field Readiness Co-ordinators and ACE Ambassadors make up a cohort of nearly 250+ CBP field personnel serving as local ACE experts, advocates, and points of contact. The Field Readiness Co-ordinators and ACE Ambassadors are CBP staff who have volunteered to take on collateral duties as ‘boots on the ground’ advocates for the ACE transition and as a first line of ACE support for their colleagues.

In addition to trade stakeholders, to leverage our Partner Government Agencies, CBP works closely with the International Trade Data System programme (currently comprising over 47 Partner Government Agencies) to identify and document needed system improvements to further facilitate business operations and further agency missions.
Feedback from support networks like the examples above should be leveraged to determine criteria for forming a consultative model that will support iterative dialogue and collaboration between stakeholders.

4.5 Seize Opportunities

Creating goodwill among stakeholders and seeking their support and involvement is an ongoing process. In the ordinary course of events, there will be occasions when support for the project has to be raised with those sufficiently empowered to take decisions. These opportunities could be regular formal meetings, seminars, workshops or speaking events. These events present an opportunity for the executive to promote the Single Window project.

5. Conclusion

Customs authorities the world over have to treat Single Window projects with the utmost priority as they face increasing demands from public and private sector stakeholders for improvements in trade facilitation and performance. Trade associations, governments and development partners, among others, will voice their requests and reasons for accelerating reform in trade procedures through the ‘Single Window’. It is, therefore, imperative for Customs administrations to understand why and how the Single Window can get onto the government’s agenda for action. Based on this understanding, Customs administrations should pursue a calibrated course of action to create a policy consensus in favour of the course chosen.

To convert broad understanding and in-depth knowledge of the Single Window concept into functioning systems, CBRAs go through processes that direct the thinking of the political leadership towards a Single Window initiative. This Part has discussed possible ways to maintain policy momentum and underscored the essence of the much misunderstood term ‘lack of political will’. Converting general support from the political leadership into sustainable policy routines is the key to success. This Part describes how the convergence of three independent process streams occurs.

(i) The problem stream deals with the process of imparting visibility and clarity to the challenges of the present, and the need to move to a different state of affairs, such as a Single Window solution. This stream comprises the following:
   a. Focus events, such as seminars, workshops and formal review meetings;
   b. Widely published international indices and rankings on trade facilitation and competitiveness; and
   c. Feedback and reports from the field.

(ii) The policy stream comprises ‘hidden clusters’ of policy within government, which by themselves would not be able to start a Single Window project but are centres for thought leadership. This Part identifies four significant clusters of expertise that are typically external to the Customs organization and which can have considerable influence on any Single Window initiative: trade and regionalization policy, logistics planning and industrialization policy, human resources and civil service reform policy, and e-governance policy.
(iii) The politics stream, which represents visible clusters of support for the agenda, is the actual process of getting the Single Window into government’s programme of action. The political problem of allocation of responsibilities and accountabilities between departments is discussed under this stream.

Whether or not the political structure in our Member countries allows for Customs to wield influence on the central policy issues, DGs and other executive managers will benefit from having a grasp of the strategic implications of a Single Window. Whatever the eventual outcome, Customs is usually the key stakeholder (or perhaps driver) of Single Window development and implementation. Senior Customs officials should prepare themselves to face up to the ‘thought leadership’ their governments will expect of them in discussions that will take place in the course of developing business cases for the Single Window.

Different stakeholders will have different goals from a Single Window project; from these goals, policy proposals will arise. In any given situation, Customs administrations will have to have the ability to draw the attention of the political executive to the key issues. Agenda setting is about getting decision-makers to recognize the real problems. Experts argue that the manner in which government recognizes problems determines how they will ultimately be addressed.

Stakeholder communication for arriving at an executive government mandate is a critical activity during the policy modelling phase. What happens in the early stages of stakeholder mobilization has a decisive impact on the entire policy process and its outcome.
The crucial decisions in the early stages of any Single Window initiative relate to the formation of governance structures. The formal structures will determine reporting relationships and project governance. Efficient administration is vital to the success of the project.
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1. Introduction

The earlier Parts of Volume 1 discussed how to prepare the ground and mobilize support for the Single Window concept. They explained that, despite the challenges in policy planning, it was possible to obtain a convergence of views and to build consensus on the way forward. When the political leadership is convinced about the need for a Single Window approach and demonstrates a willingness to steer different agencies towards “the mindset for cross-agency collaboration” on future initiatives, it is time to act.

This Part elaborates the concrete steps that should be taken to launch the Single Window initiative. The creation of a political mandate and the establishment of governance structures will be covered. The question of financial management and innovation in partnership with the private sector will also be discussed.

![Figure 1: The different phases involved in implementing a Single Window environment.](image)

When senior management in each CBRA develop a mindset geared towards cross-agency collaboration and agree that adopting a Single Window approach is in their strategic interest, they present a strategic business case to government. The approval of the strategic business case signifies the formal launch of the Single Window initiative. The block in the middle of Figure 1 will be the focus of this Part.

2. Mandate

The mandate for 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 organizational structures and the assignment (including reassignment) of technical, financial, and regulatory authority to achieve these aims. The mandate
must 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 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 terms of reference for a Single Window initiative comprise the following:

- **Statement of objective and purposes**
- **Definition of terms used**
- **Activities/services covered by the Single Window concept**
- **Establishment of the organization acting as lead agency, and the identification of partner agencies/CBRAs:**
  - Legal definition of the entity acting as lead agency
  - Financial dispensation for the lead agency, and operating philosophy
  - Lead agency organizational and consultative structures
- **Powers vested in 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**

The draft structure of the mandate needs to be presented to the government along with the strategic business case (please refer to Part I of Volume 2). It is essentially about the identification of goals and objectives, and re-allocation of authority. There is a danger, if the mandate is not clear, that default organizational structures, the current allocation of powers and resources, and existing modes of operation will prevail. The extent to which the mandate can be explicit may perhaps vary according to the political and administrative culture.

Once the mandate is established, work can begin on identifying the preferred projects. The detailed process of drawing up business cases for the preferred projects is discussed in Part I of Volume 2. The rest of this Part describes some of the particular issues.

### 3. Creating Empowered Organizations

The objectives and purposes identified, and the activities/services to be covered by the Single Window, form the initial part of the mandate. Parts I, II and III of Volume 1 provide insights on how a government can go about identifying the objectives of the Single Window initiative and determine the overall scope of services.
The establishment of the organization which will act as lead agency, and the identification of partner agencies/CBRAs, is the next big question. The Single Window environment needs a lead agency to co-ordinate decision-making and to orchestrate border management activities across multiple agencies. This issue was briefly discussed in Part IV of Volume 1, which explained that the role of lead agency comes with a package of responsibilities and accountabilities which can vary and be configured in many different ways. Customs or its partner agencies have to elect or claim the roles they seek to play (based on their respective strategic outlook). In any case, the lead agency has to be driven by the 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 must address four key issues:

(i) Extent to which the lead agency is an ‘operator’ or an ‘orchestrator’;
(ii) Degree of organizational restructuring and reallocation of powers envisaged;
(iii) Legal characteristics of the operating entity;
(iv) Involvement of private bodies in the decision-making and operational structures.

3.1 Single Window ‘Operator’ or ‘Orchestrator’?

The responsibilities of the Single Window lead agency can vary considerably, depending on the answers to the following:

Is the primary role of the lead agency to define, manage and enforce the interfaces, data standards, service standards and business process?

If the answer is Yes, then the lead agency is more of a Single Window ‘orchestrator’ than ‘operator’.

What is the degree of centralization and sharing of IT systems between CBRAs?
If there is a high level of concentration of IT systems, the lead agency may find itself in the role of Single Window ‘operator’ and will, to a great extent, be called upon to operate IT systems, as opposed to letting individual CBRAs manage their systems.

![Figure 2: Extent to which lead agency will operate IT systems determines its role as System Operator or Orchestrator.](image-url)
3.2 Reorganization of CBRAs

The Single Window initiative presents government with a unique opportunity to reorganize 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 involved in reorganization. Centralization of regulatory authority will lead to the ‘single authority’ model.

![Figure 3](image)

Figure 3: Extent to which Lead Agency has the authority to inspect, release etc., determines the model of the authority.

These important aspects were briefly discussed in UN/CEFACT Recommendation No. 33. What emerges from instances of implementation around the world is that there is no single model which is universally applicable, and that there could be variations along the lines described above. Authority and accountability go hand in hand. Lead agency authority should be assigned only to that body which can deliver and can be held to account for failure. This could be an existing entity, such as a government department. It could even be an inter-agency body, created specifically to fulfil the mandate, and with the legal and administrative authority to act. The issues concerning reorganization are discussed in Part IX of Volume 1.

3.3 Legal Personality of the Entity

The above discussion provides two different aspects to understanding the functional role of the lead agency: (i) the degree of involvement of the lead agency in the operational dimensions of the Single Window, and (ii) the extent to which the lead agency will possess functional authority. The configuration of this functional role will influence the options for the type of legal entity that will be the lead agency. The legal entity could take the following forms:

- A government department with specified executive and agency powers and responsibilities established in law or regulations;
- An autonomous entity created through a legislative Act;
✓ A body established by company law, whether private or public;
✓ Any other voluntary association of entities covered by other national legislation;
✓ Joint venture with commercial entities.

There are, however, possibilities for the involvement of the private sector in the operation of the Single Window. This issue is discussed in detail in the following Subsection.

### 3.4 Public-Private Partnerships (PPPs)

Part II of Volume 2 is dedicated to the topic of public-private partnerships. The following questions can be examined as part of this discussion:

- Will 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 the period of operation of the lease or contract?
- Is the private sector 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 fees, or will government partially or wholly fund 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?
4. Structures of Governance

Governance is about the allocation of roles and responsibilities. It is also about clarity and transparency, how risks are managed, and who is accountable for what. The mandate that creates the organizations having the relevant powers also needs to very briefly specify the governance structures. There are several ways to describe these structures. However, for the purposes of analysis, this Section uses the following diagram to explain the issues involved:

Figure 4: Single Window governance structure model.
In this example, the political mandate creates a governing body as the lead agency, which is headed by an executive director who formally reports to the lead Ministry (for example, the Ministry of Finance). The governing body, whose membership includes all key stakeholders, is empowered through the mandate on the 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 from 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 role as the orchestrator. A few major projects will constitute the core of the Single Window. For these, the Executive Secretariat has direct control; however, for other projects that are run by the respective CBRAs, it may be involved in indirect supervision.

The illustration above suggests that a Single Window environment could include multiple projects – some within the direct operational control of the Single Window authority, and others where the body merely specifies conformance with operational standards.

The organizational structure that governs the Single Window environment will be different in the various countries. The reporting structure, lead agency configuration and distribution of executive powers within the structure will differ from country to country.

In general, there are three layers: the ‘consultative’ layer, involving representatives of the private sector, CBRAs and domain experts; the ‘decision’ layer, comprising the governing body that has managerial responsibility for approving standards and for running projects; and the ‘execution’ layer, responsible for project implementation. Responsibilities range from orchestration to operation. Not all projects that are part of the Single Window environment will be operated by government departments or the Single Window authority. In some cases, the legacy systems of government agencies will also continue to play a role within the Single Window environment.

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**Single Window Operator or Orchestrator**

The example below provides an overview of how the lead agency for the Single Window initiative is engaged in managing the expectations of multiple stakeholders linked to the project. It illustrates the need for the Single Window orchestrator to deal with multiple projects, and the main projects and agencies responsible:

- **Building blocks of e-governance that support identity and authentication infrastructure for IT projects across government departments** *(Responsible agency: government CIO)*
- **Government gateway that helps transmit transactional data between government agencies** *(Responsible agency: government CIO)*
- **Participating VANs that handle transactional data between business and government** *(Responsible agency: VAN operator (private sector))*
- **Automated Customs clearance systems operated by Customs authority** *(Responsible agency: Customs)*
- **Cargo community system at each port/airport operated by a private consortium** *(Responsible agency: cargo community system operator – public-private partnership)*
- **Maritime Single Window developed by maritime authorities** *(Responsible agency: maritime Single Window operator – port authority)*
- **Licensing and inspection systems run by veterinary authority** *(Responsible agency: Ministry of Agriculture)*

In this example, the Single Window orchestrator does not deal with any project on its own. Rather, it provides and maintains the relevant standards, and polices compliance.
A different view of organizational structures is also possible, indicating the hierarchy. That structure, too, is a question of national preference. The complete organizational structure, providing clear roles, responsibilities and reporting structures, is preferred. Responsibilities within the structure need to be explicitly specified. The mere fact that a particular department is acting as the lead agency and serving under an administrative Ministry does not give it any special privileges. For any structure to be sustainable over an extended period, the delicate balance between authority, competence, responsibility and accountability needs to be maintained.

![Diagram of another governance structure for Single Window.](image)

Figure 5: Example of another governance structure for Single Window.

## 5. Conclusion

The successful political resolution of the main questions will lead to the launch of the Single Window initiative. This Part discusses the creation of formal structures that will support the building of a Single Window environment. After government approval for the strategic business case, the political mandate is established, leading to the creation of high-level structures, with roles and responsibilities assigned to different agencies. The structures will assume the characteristics of a Single Window ‘operator’ or will serve as an ‘orchestrator’.

This Part enumerates the generic organizational types that will support the Single Window projects. For example, one option is to set up new government departments that span traditional departmental boundaries. Other examples cited are special-purpose instruments for financial governance, and empowered structures to support informed, inclusive and consultative decision-making processes. Possibilities of private sector participation and partnership are also outlined, and various models of public-private partnership discussed. This Part also suggests that business cases for the preferred projects should be approved and implemented in stages, with each stage launching new Single Window services.
DESIGNING SINGLE WINDOW SERVICES

PART VI
VOL 1
Stakeholders will have high expectations of the ability of the Single Window to remove many of the irritants faced by industry in import and export procedures. Service and interaction design come in handy. Designers must think through the problems and come up with solutions well before the first line of code is written. Policies and procedures must support design concepts that minimize interaction between authorities and traders, who should be able to use a variety of self-service options.
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1. **Introduction**

Regulatory authorities are service organizations, and the Single Window environment is the medium through which services are delivered. Part I of Volume 1 discussed the Single Window environment as a collection of services produced in the course of interaction between trade and cross-border regulatory agencies. Such 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. Various technological and human resources, including skill, ingenuity and experience, are brought to bear by the participants in these service operations in pursuit of value preservation.

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

In Part I of Volume 1, we briefly examined the links between different aspects of service design and noted that interaction design was an important part of it. Interaction design requires a combination of inputs:

- Business process models
- Technology architecture
- Functional and non-functional specifications
- Physical evidence

Any design process must consider the question of business value. Features of a Single Window solution that add to costs without adding value need to be eliminated.

1.1 ‘Business Value’ in Border Services

Before delving into the question of designing services, it is perhaps necessary to understand the nature of ‘business value’ in a Single Window environment. Cross-border regulatory agencies tend to define the business value of their services purely in macroeconomic terms. Protection of society, maintaining the streams of government revenue, and protecting national borders from danger are how Customs and its partner agencies often describe the contribution to the economy and society. At that level, it is hard to visualize ‘business value’ for the individual economic operator. For the firm engaged in cross-border trade, regulatory services are frequently viewed as processes to be endured and as necessary operational expenses. Regulatory authorities are not given to pleasing their clients, and economic operators must not be found to be on the wrong side of the law. Enforcement of regulation is, however, a limited view of regulatory services.

Cross-border regulatory services help preserve value for economic operators in different ways. Cross-border regulation, which is often seen as necessary for the greater good of society and the
economy, is now increasingly aimed at benefiting the individual consumer of goods traded across borders. In any case, these regulations cannot be wished away. Regulatory services, if efficiently performed, can improve the predictability of delivery times and reduce logistics costs. Variability in delivery times and costs lead to increases in operating expenses and therefore diminishes economic value for the consumer.

The costs of non-compliance with regulations relating to duties and taxes are evident. Non-compliance causes avoidable financial strain on the firm by way of fines, penalties and legal expenses, to name a few. Non-compliance may be due to ignorance of statutory provisions, or plain negligence on the part of the economic operator. The financial consequences of non-compliance involve inevitable loss of value to the firm, and consequently to its customers. While most cross-border regulation is aimed at protecting the health and well-being of society as whole, it is increasingly being aimed at product safety and quality – attributes that add tremendously to customer value. In that sense, the regulatory checks provided in the international supply chain give assurance of customer value. Apart from financial losses, non-compliance may also result in loss of reputation to the firm, with even greater economic consequences. This aspect makes cross-border regulatory services not just cost centres, but also strategic players in the value chain, helping to ensure and preserve customer value.

In conclusion, the value of cross-border regulatory services is achieved by preventing unnecessary consumption of resources, or unwanted change or damage to the normal flow of cargo. Each useful and accurate piece of information that a web portal provides, each feature that reduces effort and cost in terms of data entry, and each interaction that leads to predictability, adds to value for participants.

2. Designing 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 restructuring 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 groups – virtual and physical. Online submission of information and documentation is in the virtual domain, whilst face-to-face interaction between the trader and officer falls into the physical domain.

The convenience and accessibility of the location of service outlets, layout, service counters, waiting times in queues, dead time between operations, and physical conditions at the service desk, are all important questions for interaction design. However, even more important are certain ‘soft’ issues which can only be addressed at the design stage. If a specific interaction between the officer and the trader involves multiple and highly subjective outcomes, then there is potential for user dissatisfaction. ‘Built-in’ complexity and variability in interactions reduce the level of predictability and increase the chances of manipulative or corrupt behaviour. In such types of communication, the trader will get the feeling of not being in control of the transaction. The effort, therefore, should be to identify such situations at the outset and to eliminate them as far as possible. The following Section deals with questions of interaction design.
2.1 Classifying Interactions:
The ultimate success of a project will be assessed through feedback received from stakeholders, and based on the achievement of predefined service metrics. The interaction of the trader with the IT systems interface is one aspect of the service experience. The other type of interaction is with personnel in front-offices of CBRAs. Together, these interactions will determine the overall character of stakeholder feedback. Therefore, it makes sense to pay attention to this aspect at the design stage.

Understanding Service Interactions:
The following is a simple list of interactions that take place in a cross-border regulatory system.

- Broker’s back-office enters details of the invoice into the online form for filing declarations;
- Customs broker’s employee approaches warehouse to seek release and registers his statement;
- Truck driver crosses no-man’s-land to approach border post to apply for release;
- Transporter enters the terminal gate to report goods for export;
- Exporter checks web portal on the status of goods;
- Importer waits with his documents for examination by Customs official;
- Manufacturer rings the veterinary officer to arrange an appointment for the certification of live animals.

Is there a way of classifying these different types of interaction? The discipline of service management provides some answers. Project managers and designers of Single Window services need to focus on these processes at the design stage.

Interactions occur in space and time, and for cross border regulatory services; time is the biggest variable and has to be counted as money. The discipline of interaction design introduces time and ‘ease of use’ as two important variables in user experience, and seeks constant improvements in both. Overall user experience is the sum total of the entire process, and includes several tangible and intangible aspects of design. Figure 1 below illustrates the context of interactions.

Fundamental to interaction design are the business process models. These define the ‘state’ of the process which outlines the settings, and provide the platform for determining the functional specifications. The non-functional specifications can also be provided as part of the requirements. In Figure 1, the human factors of design can easily be identified. The factor ‘variability of output’ refers to the various possible outcomes of interaction. The higher the variability of output, the greater the challenge to management, and the greater the chance of user dissatisfaction and loss of predictability. This is a point of great interest to executive management. Reducing the complexity of tasks involving user interaction is an essential aspect. Complexity can be reduced by defining scenarios and establishing routines. Intensive user training can improve the competence of individual users in dealing both with physical and virtual interactions.
2.2 Standardizing Cross-agency Controls

Different cross-border regulatory agencies define controls differently. Each organization has priorities based on its perception of risk, and risk-analysis and mitigation practices. The benefits of a Single Window environment cannot be fully realized until controls by different agencies are coordinated. Co-ordination of checks is a process of co-determination of priorities. This can be done through integrated risk-assessment systems which process harmonized risk rules drawn from different agencies and provide prioritized instructions for control. Alternatively, each agency assesses risk separately, and priority and choice of monitoring methods are determined through coordination. In either case, there is potential for delay in the selection of control methods and priorities for action. This can pose serious problems for the trader, who will stay in ‘no-man’s-land’ until regulatory agencies decide on a course of action.

In addition to agency priority, there is also the question of application of standardized controls. The Guidelines to Chapter 6 (Section 7) of the Revised Kyoto Convention (World Customs Organization 1999) provide a detailed explanation of different types of Customs controls. The performance of documentary, physical, and non-intrusive controls, and methods of drawing samples, are activities...
that can be standardized to a fair degree. Nuances of control depend on skill and knowledge about modi operandi. Regardless of the situation, for every context of control, performance and output should be standardized as far as possible. Variability, vagueness and uncertainty in the performance of control activity can lead to adverse outcomes for trade, as well as for regulatory agencies.

### 2.3 Designing for Co-creation and Self-service

Each party in the international supply chain can help another in achieving value. The Customs broker will save time if the supplier can reliably provide the correct HS classification and other regulatory attributes of the traded product. The Customs broker is then able to prepare accurate goods declarations. Regulatory authorities will consider these to be sound if they come from a reliable broker. Over time, there will be reduced levels of examination for transactions of this kind. The broker benefits because fewer resources are used to support the control of goods, and may be deployed for other tasks. The regulatory authorities gain too as they can use fewer resources in verifying such declarations. Both parties can benefit even more by directing resources to areas of non-compliance, creating a virtuous cycle of value preservation.

Each party has a perspective on what helps protect value in the course of regulatory clearance. The gains are often complex and subjective, and are mediated by knowledge-intensive processes. These depend on whether the parties have an understanding of the application of laws, regulations and technology. In the supply chain, each party has to ensure that exchanges of information are correct, accurate and timely. Every exchange that has these attributes saves money for everyone down the line. The processes also include bartering for value – the more compliant an economic operator, the less ‘trouble’ there will be from regulatory authorities. The more quickly the forwarder provides information, the faster the declaration can be filed, and the greater the chances that the haulier will receive the delivery of goods at the appointed time. This bartering often takes a formal shape in the form of a service agreement among the parties involved. Even regulatory authorities have formally established programmes that certify efficient and compliant traders as ‘authorized’ economic operators – an arrangement which guarantees value preservation. Single Window services play a critical role as they provide the essential platform for all these exchanges.

### 2.4 Collaborative Processes

Cross-border regulatory services involve the collaborative sharing of information. The supply chain process requires the exchange of information between the participants through business-to-business collaboration platforms. Such platforms help co-produce information needed by members along the supply chain. There is also a role for CBRA systems in the Single Window environment. Regulatory information and controls are interspersed in the regular flow of cargo across borders.

Time release studies (TRSs) have revealed that the preparation of the goods declaration consumes the most time, effort and cost for traders. CBRA systems in the Single Window environment. Regulatory information and controls are interspersed in the regular flow of cargo across borders.

Time release studies (TRSs) have revealed that the preparation of the goods declaration consumes the most time, effort and cost for traders. CBRA systems treat the processes involved in gathering data to meet exacting regulatory requirements as part of the trader’s responsibility, and are content to defend the time taken to prepare declarations and to examine goods. It is, however, not well understood that CBRA systems can influence the process of making regulatory declarations. Information which only CBRA systems can provide (e.g. in respect of different commodities, the data validation process for making complete and accurate declarations, guidance on data quality and procedures) is extremely relevant to the whole process. CBRA systems can provide interactive facilities that help prepare goods declarations.
Providing such services does not in any way limit CBRA capacity to hold traders accountable for their data submissions.

Figure 2 below illustrates a hypothetical process involving a facility that permits collaboration between the trader, carrier, broker and CBRA. The data required for a declaration is gradually built up by the broker as he gets access to different data sets from the trader and the transporter. Information is allowed to be accessed collaboratively, and with the progression of the ‘state’ of the transaction, incremental data is generated. Each piece of data adds to the information that CBRA seek to collect. In a system that promotes real-time collaboration, there is access to relevant information by all parties concerned and thus no time is lost between the business event and regulatory reporting. The use of web services technology allows the realization of these exchange scenarios in straightforward and affordable procedures.

This contrasts with paper or email-based systems where the broker receives faxes in which the information has to be interpreted and entered into computers. Such processes are time-consuming, error-inducing and non-transparent. The design of the solution for a Single Window environment should not only encourage it, but also actively provide for it.

Figure 2: State transition and information access rights in a Single Window environment.

2.5 Progressive Build-up of Data

One of the principles of system design is to provide for a gradual build-up of data so that the burden of document preparation is minimized. The order of information creation is depicted in the following Figure.
Figure 3: Government cross-border regulatory message (GOVCBR). The structure illustrates the logical order for the creation of supply chain data.

It is possible, by following this logical order of information creation in trade and transport, to develop small messages that incrementally provide regulatory information to the government. That is the essence of Version 3.0 of the Government Cross-border Regulatory Message (‘GOVCBR’). GOVCBR is a United Nations standard message which was established as part of the WCO Data Model project.

### 2.6 WCO UCR: The Electronic Access Key

Information about a cross-border transaction grows with each trade and transportation event. For efficient operations, it is necessary to re-use information that is already stored in the computer systems of traders, transporters and community systems. Easy access to information depends on access keys. Document references are a good way to obtain information – but to move away from documents and access meaningful units of information directly, it is necessary to use other identifiers, such as the UCR, product identifiers, package identifiers, etc.

The following figure highlights the importance of the UCR as an access key. Once a UCR is generated in the early stages of the transaction, it remains a very stable access key throughout the transaction.
2.7 Designing for Transparency

The design of information systems can impart transparency by providing timely information to trade players. Transparency is the basis for accountability. The design concepts that give transparency for trade are discussed below.

Publication of Regulatory Information

Most services listed in Part II relate to publication of information. Most information should be presented and published in such a way as to be easily used by automated systems. Tariff and non-tariff requirements for goods need to be submitted unambiguously. Information involving ambiguity or fine print, or requiring a high degree of interpretation, promotes discretion and should be avoided as far as possible. If the user can understand where to find information and can access the appropriate resources for help, this also promotes user confidence.

Wizard-based Interaction

Wizards are interactive tools on the user’s screen that guide the user through a procedure from start to finish. Providing clear information about the current position of the user in the chosen procedure, wizards can also provide an estimate of the time required for completing the process.
promote transparency. For the trader, they develop a sense of being ‘in control’ of the transaction. This is especially important since, in a Single Window environment, routing of some transactions will involve workflows and movements of control procedures between agencies. Due to differences in regulation, separate procedure wizards may be necessary for some commodity groups.

Access to Decisions and Timestamps

Transparency is improved by providing users with access to regulatory decisions and timestamps of events. Capturing timestamps not only helps with the execution of time release studies (TRSs), it also provides a way of assessing the promptness of actions by officials. As far as possible, and as generally required by regulations, all decisions have to be reasoned and fair. Standard 10.3 in the General Annex to the Revised Kyoto Convention (World Customs Organization 1999) requires that the affected person be given, upon request, the reasons for decisions or omissions by Customs. Providing reasoned decisions adds to transparency and fairness.

2.8 Designing for Accountability

In a Single Window environment, accountability primarily concerns ‘after-the-fact’ verification of regulatory authorizations given by the system about import, export and transit. It also concerns the role and contribution of individuals and systems to service levels (or the lack of such contribution), and the information trail that reveals points of delay and inefficiency. The accountability mechanisms rely on the audit of information stored in the databases of IT systems.

The ability of the system to call to question individuals for their actions is dependent on its trustworthiness. A system will be considered ‘trusted’ if it has the necessary security controls, and the characteristic of being ‘trusted’ needs to be certified. This goes for any system, and not just for those in the Single Window environment.

In the EDI, auditing mechanisms were developed and incorporated as part of the protocol in the interchange agreement. Since the Single Window environment also involves extensive interaction between the IT systems controlled and operated by partner CBRAs, similar mechanisms are in place. To summarize, designing for accountability includes the following considerations:

- What would be the agreed audit protocols?
- How do we define the power of auditors?
- What is the responsibility of the officers (defined during the design of interactions)?
- What requirements do these aspects of audit place on communication and computing resources?

There are trade-offs involved in producing answers to these questions, and these are management decisions. It is a good idea to include the formal audit structures at the design stage and to obtain endorsement of the audit mechanism from government and professional information systems auditors. At the design stage, technical input from the highest-level national statutory audit body is useful and may even be relevant.

The advantages of a Single Window environment include removal of paper-based processes, reduction in human interventions, and no rekeying of data for filing declarations. Paperless
processing does not imply the absence of a paper trail or loss of auditability. Digital data helps Customs to link up transactional information for post-audit purposes.

Through efficient design, management should be able not only to detect fraud faster, but also to prevent defects and losses, through better internal controls. The Single Window environment provides the ability to substitute manual controls for automated ones, but it is management’s responsibility to ensure that these controls are built in at the design stage, and implemented by the vendors. Rigorous testing of these controls must also be performed, and software should be certified by qualified professionals.

3. Designing for Interoperability

Investment in information infrastructure yields ample returns. Therefore, executive management must make sure that it follows mature processes that make information systems interoperable, reusable and scalable. The question of reusability and scalability is also discussed in detail in Part VII of Volume 2 of this Compendium.

Interoperability is broadly categorized as platform, data and process interoperability, and can be invoked by the participating companies on an ad-hoc basis to support the regular flow of business (Ulankiewicz, et al. 2010). Much like utilities that can be tapped and used quickly, interoperable systems should not require extensive customization and integration effort. The ‘interoperability vision’ is realized when the interaction between systems becomes cheap, fast and reliable. Interoperability lets software applications running on different technology platforms communicate with each other using various communication protocols. The lack of ability to share information between computer systems is often a question of cost.

The Single Window concept is premised on efficient data exchange between business and government on the one hand, and between CBRAs on the other. For business data to be transferred between two CBRAs, their systems should interoperate. Information technology vendors often make exaggerated claims (Glushko and McGrath, 2008) about the capability of modern technology tools to ‘seamlessly connect’ with each other. Seamless connectivity is easier said than done. Even though each new device and item of technology has brought about improvements in productivity, in terms of the processes for interconnecting between information systems, there are clearly many problems which need to be addressed.

CBRAs operate different IT systems that may have been built over several years. Technological platforms, application software, business processes and business semantics may vary across systems. The more mature the individual IT systems, the more difficult it is for them to interoperate.

The information models of CBRAs must match with each other, and in sophisticated IT systems, models are already frozen at the time of commissioning, with little that can be done to undo them. In other words, the earlier the systems are developed, the more difficult it becomes in future for systems to work with each other.

Regardless of whether we are dealing with legacy systems or new systems for development, the most challenging type of interoperability is semantic interoperability, which is at the core of a Single Window environment. Even though data collected by CBRAs is roughly about the products,
locations, facilities, means of transport, etc., semantic differences will prevent one CBRA from using the data collected by another. Bridging these differences is essential for promoting collaboration. Better interaction can be addressed through the methodology provided in Part V of Volume 2 (‘Data Harmonization’).

The process of arriving at interoperable data sets (semantic assets) is a complex one and requires sustained support from executive managers, who should provide an opportunity for collaboration, as well as platforms to share data standards through a repository. Participants in the Single Window environment should be able to access the repository and produce conformant implementation.

### 3.1 WCO Data Model

The WCO Data Model is defined as “a maximum set of carefully combined and harmonized data requirements derived from cross-border regulation. These requirements are mutually supportive and will be updated on a regular basis to meet the procedural and legal needs of cross-border regulatory agencies such as Customs, controlling export, import and transit transactions.”

The Data Model is based on the Revised Kyoto Convention, which requires Customs administrations to request minimal data to ensure compliance with Customs laws. Customs authorities will therefore, at most, need the data elements listed for each Customs procedure in the respective data sets. These self-imposed limits discourage future increases in data requirements.

Version 3.0 of the WCO Data Model captures the essential patterns of a cross-border regulatory declaration. To avoid repetitive submission of data, it is necessary to have a harmonized data set. The process of arriving at a harmonized national data set is explained in Part V of Volume 2 (‘Data Harmonization’). Using the simple solutions provided by the WCO Data Model, it is possible to put together a common declaration format for all regulatory goods.

Besides making possible a simple regulatory declaration, the WCO Data Model encourages the reuse of information. The Data Model also provides common patterns of reuse. Figure 5 below illustrates the possibilities of reuse within the WCO Data Model, and demonstrates that it provides a simple solution to a complex design problem.

The discipline of using the WCO Data Model ensures that any new data requirement for cross-border regulatory procedures follows a thorough analysis of needs and decisions, based on international standards. It should also consider trade’s ability to provide the information in the ordinary course of its business.
4. **Assurance Process in Service Design**

This Section addresses the processes available to management for obtaining assurances that the envisaged project meets user expectations. The purpose is to arrive at documentation that holds the delivery team responsible for the outcome. There are several types of documents that executive management must require from project teams. A few are listed below, explaining the qualitative and quantitative aspects of design.
4.1 Business Use Cases and User Stories

Business processes can be documented in many ways and can be studied at different levels of abstraction. Business process documentation enables the analysis of process steps regarding business value. It also identifies key points of responsibility in the entire process flow. The goal is to detect and eliminate process steps that do not add business value, and to locate main process points that are vital to performance.

Use cases are increasingly being utilized to capture and communicate detailed, functional requirements from the business managers to the information technology solution providers. Business process models can be drawn at different levels of abstraction. For executive management, business use cases are of value as they describe the processes and the expectations of stakeholders at a very high level. Use cases need to include functional and non-functional requirements. Functional requirements are easy to understand and are rooted in business logic and government regulations. However, executive management should insist on the clear and thorough specification of non-functional requirements, such as usability, performance, security and adaptability, along with clear metrics for acceptance. Non-functional requirements are perhaps the most challenging area in requirements management.

Business use cases should be illustrated pictorially, using simple diagrams which explain the exchange of information and the flow of decisions. Such descriptions come in handy for stakeholder consultation. The functional and non-functional requirements taken together provide a sound basis for service level specifications. Good business use cases are also the basis for solution acceptance procedures.

Distinct from use cases are ‘user stories’: narratives which, in everyday business language, capture in a few sentences what the user wants to achieve. Although this style of capturing requirements is preferred in particular types of software development methodologies (e.g. ‘Agile’ development), user stories can still be used as the basis for eliciting requirements in an iterative fashion.

User story example 1:
“I <as a truck driver> cross no-man’s-land, park my truck and swipe my card in the machine. Upon swiping the card, the machine displays my truck number and provides a sticker with a barcode. I stick the label in the designated spot on my import report document and wait for my turn. I enter the number on the touch-screen kiosk; it displays the expected time when my turn will come. After 5 minutes, the electronic display board announces my reference number and directs me to approach counter number 6. My documents are stamped, and I proceed with my truck to the exit gate.”

This user story can be expanded, and people can work on different stories to achieve different solutions for the same scenario, with examples. User stories can help build up management’s vision of the use of technology. Alternative user stories can be discussed iteratively, and each interaction can be checked for improvements and opportunities for using self-service or technology-based interactions.

User story example 2:
I <as a truck driver> cross no-man’s-land and reach a point where I am greeted by a border guard, who takes my document and scans the 2D barcode against it. He checks my passport and driving licence and advises me to proceed to the baggage check. I remove my baggage from the baggage
hold of the truck and walk into the room with the metal detector. In the meantime, the vehicle and the container on the trailer are scanned using a repositionable gamma-ray scanner. After passport control, I take the truck to the exit gate, where I again present the 2D barcode at the scanning point, and the gate opens automatically, indicating the release of cargo. I wave and smile at the border guard before proceeding.

4.2 Service Blueprinting

Service blueprinting looks at a business process as a series of interactions, and holds that positive experiences of the interaction will improve the overall quality of provided services. Service blueprinting refers to a design tool based on process flow diagrams, in which front and back-office operations, and all intermediate layers, are described. Each man-machine and face-to-face interaction is described as it happens, in a sequence. For each communication, the standard execution time, expected wait time, and points of failure are captured. Alongside this, the risks of failure or deviation are identified. Possible exceptional situations and failure points are also documented, along with mitigation and service recovery strategies.

Figure 6: Service blueprinting of cargo examination process.

Models are tools for communication, and a ‘service blueprint’ is a service model. The above figure is an example of the service blueprinting that defines the ‘touch points’ for users. Managers can, at the design stage, easily gain an understanding of the ‘to-be’ picture, which they always use at the time of acceptance testing.
4.3 Service Level Specification

In the design of Single Window services, service level specifications must be recorded to produce a shared understanding of the availability of service (working hours of the Window), performance, and quality in terms of minimum guarantees regarding the time taken to perform each business step. Service level specifications in business terms can become the basis for the specification of the underlying IT services. The latter are defined more in terms of uptime guarantees, mean time between failures (MTBF), and mean time to repair (MTTR) in the case of breakdown. Service level specifications can become part of service level agreements, which lie at the heart of contracted performance.

Cross-Agency Service Level Specification

If service level specifications are defined in terms of individual CBRAs for the whole transaction, then the purpose of the Single Window approach would be defeated. One of the key agreements that CBRAs must reach among themselves is the service levels they intend to provide collectively. It follows from this that there will be a standard approach to all service design, starting from business process design, going through to data modelling, interaction design, physical infrastructure and the service desk.

5. Conclusion

This Part describes the process of developing Single Window services. The taxonomy of services helps identify and prioritize the sequence of deployment. Handling Single Window projects in terms of business services helps executive managers to track the business value as the rollout of projects happens. When success criteria for projects are defined regarding delivery of business services, it allows management to estimate the cost of services accurately and to produce benchmarks. The services paradigm not only helps provide useful frameworks for solution architects (service-oriented architecture), it also opens up possibilities for using the discipline of interaction design, which can make all the difference in user satisfaction, both for the traders and for government officers.

Service design covers online communication between the trader and the web portals, using a variety of end-user devices and access channels, and includes the choreography of face-to-face interactions at service counters. The outcome of the design process will impact not only business processes, workflows and electronic form design, but will also significantly influence the project concept. For instance, the manner in which information is submitted to a Single Window is also a question of interaction design, where traders who are in possession of incremental information can seamlessly provide it, and that submission will reflect a natural progression of ‘state’ in the trade or transport process. Gradual, stagewise submission of data results in a corresponding incremental change in the regulatory status of goods/cargo. Undoubtedly, the WCO Data Model is a highly useful instrument to support this concept.

When services are ultimately rolled out, IT-enabled service management can be employed to track project performance efficiently, completing the full cycle for a Single Window service, starting at the drawing board and going all the way up to production and realization of business value.
DEALING WITH LEGAL ISSUES

PART VII
VOL 1
Single Window systems must operate in an enabling legal environment. The Single Window operator must be duly authorized to act on behalf of the public authority as the single entry point. National legislation must provide for functional equivalence between electronic and paper-based methods. Thirdly, regulations must provide for agency-specific requirements to be formally replaced with those of the Single Window.
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1. Introduction

This Part deals with the question of the enabling legal environment for the Single Window. In the absence of enabling laws and regulations, the Single Window could face hurdles. As the Single Window initiative takes shape, the project leadership must assess any gaps regarding legislation. Part VII lists the legal issues that must be tackled in building a Single Window environment, and the ways of dealing with them. It contains a description of the features of the Single Window environment from a legal point of view.

This Part relies on existing knowledge on the subject (e.g. UN/CEFACT Recommendation No. 35 and the analogous aspects of a virtual enterprise), while trying to distil findings from implementation of the Single Window around the world. Furthermore, it points out the most problematic legal questions, clarifying and illustrating their significance.

The Section entitled ‘The Single Window: Key Legal Characteristics’ provides a description of the most important legal aspects of a Single Window, and the respects in which they differ from those of traditional, stand-alone systems operated by cross-border regulatory agencies (CBRAs).

The next Section provides a ‘life-cycle perspective’ of the Single Window, starting with its business definition, going through to its establishment as a legal entity, its operations and, finally, its renewal phase, when there is a fresh look at its raison d’être.

The final Section deals with legal issues that may arise from cross-border regulatory regimes and business processes in a Single Window environment. Part VII concludes by highlighting the main lessons for executive management.

2. The Single Window: Key Legal Characteristics

As governments take steps in establishing a Single Window environment, they will be required to bring the initiative under a formal and legally sound regime. Cross-border regulatory agencies that have been running automated systems in their own right are already required to handle the legal implications for their operation. The theme of this Section is that a Single Window environment comprising automated systems is also bound by similar requirements, but may have certain additional characteristics that distinguish it from the traditional CBRA IT systems.

2.1 Defined Legal Authority

Automated information systems and their public manifestation (e.g. web portals, interface specifications and access channels) must have a legally defined existence. Without that legal definition, such systems cannot participate in the fulfilment of government’s regulatory obligations. Such facilities will be operating in a national jurisdiction, and will be governed by national legislation prescribing all legal requirements and limits for their operation.
Traditional stand-alone systems are underpinned by the authority in national law that brings the regulatory services into existence. Customs law and its secondary regulatory structures provide for the existence of the IT system that operates Customs clearance services. For example, Section 126D of the Australian Customs Act 1901 mandates the Comptroller-General of Customs to establish and maintain such information systems as are necessary to enable persons to communicate electronically with Customs, thereby giving those systems legal authorization. There is a further expression of this mandate through statutory provisions which specify the technical interface with these information systems.

Each organization that participates in international trade has a distinct service to provide. But the possibility of collaboration with other agencies opens doors for participation in a Single Window environment – a concept which covers different government agencies joining forces to provide a sophisticated service. Such operations cannot be handled efficiently if each agency, on its own, provides the service in a disjointed fashion. Information and communication technology functions as the engine that moves these connected entities, big or small.

The United Nations Network of Experts for Paperless Trade (UNNExT) has published the document ‘Electronic Single Window Legal Issues: A Capacity-Building Guide’. It covers the wide-ranging legal issues that are related to the development and operation of a Single Window environment. The Guide also touches upon the fundamental legal concepts and approaches derived from e-commerce that apply to the Single Window environment. The Guide points to the need to systematically examine the processes that can be employed to identify and assess those potential gaps in domestic law that might hinder the establishment of a Single Window and its full operation, or hinder the (cross-border) legal interoperability of the Single Window with other government and non-governmental entities participating in the Single Window environment. The basic legal elements necessary to operationalize the Single Window are also examined. The Guide acts as a checklist and helps experts and policy makers to develop a ‘legal gap analysis’, which is a major step in developing the appropriate legal framework.

### 2.2 Legally Enabled Entity

The Single Window concept involves collaboration between information systems running services which are operated by individual CBRAs or by trade, each with its legal existence. In other words, it should be fully established in law.

One of the approaches is the creation of an entity that is distinct and set apart from these others. Governments, however, have a choice as to the type of entity that needs to be established. Some possible options are:

- A government department defined in law or regulations with specified executive and agency powers and responsibilities.
- An autonomous entity authorized by legislation or by executive order.
- An entity established by company law, whether private or public.
- Any other voluntary association of entities covered by other national legislation.
- A joint venture with commercial entities.

Current trends point to the predominance of government departments and government-controlled organizations as the entities running the Single Window environment.
The Single Window operator needs to maintain ‘neutrality’ or be at ‘arms-length’ from the regulatory agencies and their automated systems, each potentially having a distinct legal personality.

If third parties in trade and transport transact with a Single Window as if it were a CBRA, then this will have to be formalized as a relationship between the Single Window operator and the participating CBRAs, and that relationship should be based on sound legal principles. By specifying that the Single Window operator is the sole carrier of data into and out of the CBRA, the government gives it a unique legal status. Observance of procedures by the regulated entities will depend on the Single Window operator performing its statutorily assigned functions effectively.

The Single Window may be identified by its visible manifestation, such as its web portal. However, it is the organization that it represents that matters from a legal standpoint. The Single Window operator or orchestrator will not only serve the participating organizations, but also function as their enabler. The operator assumes liabilities on behalf of the CBRA user. But if the operator is government-owned, it will enjoy sovereign immunities. The Single Window has to have a legal personality and a real identity. In the absence of these attributes, it cannot be held liable.

In the ordinary course of events, the Single Window operator needs to be an entity that can conclude a contract. For instance, the Single Window Operator should, in its own right, through its web interface, enter into contracts for user registration on behalf of the CBRAs.

Rules of operation of the Single Window may require separate statements of responsibility for each participating CBRA. Alternatively, all participating CBRAs could be held jointly and severally liable for Single Window operations.

It is not envisaged that the Single Window operator be responsible for any damages caused to trade. Healthy cross-border regulation exempts bona fide actions of authorities. The same principle would apply to the Single Window operator acting in good faith on behalf of the CBRA. However, to place responsibility on the Single Window operator and hold it to the consequences of its actions or omissions, there need to be two kinds of agreement, as outlined below.

The first is the ‘master-service agreement’ between the Single Window operator (or orchestrator) and the CBRA. This includes the performance of obligations, representations and warranties, which are often supported by service level agreements, interconnection security agreements (ISAs), etc.

The second is the ‘end-user’ or ‘terms of use agreement’ governing the client relationship between the Single Window operator/orchestrator and the trade user. This may cover IPR and licensing, service levels, performance guarantees, any user fees, administrative fines, penalties, remissions and refund policies.

The Figure below helps locate the stage at which the Single Window operator is appointed.
Figure 1: Legal issues should be settled before going ahead with the Single Window project.

Web technologies make it possible for the Single Window to maintain a virtual presence, but it is still necessary to endow it with a legal personality, and it should be possible to identify the members responsible for the Single Window.

Where the Single Window operator is an extension of the government, its existence is straightforward. However, if the Single Window operator is an entity that has private sector holdings, it has to have a legally defined structure, e.g. have a registered office and executive agents that have a legal personality in order for third-party entities in the trade and transport sector to perceive the Single Window as a ‘going concern’ with which they can do business.

The Single Window operator should be able to enter into interchange agreements and memoranda of understanding for data exchange with other agencies.

2.3 Functional Equivalence

It is common to see legal requirements which assume or prescribe the use of paper-based documentation. In moving to electronic commerce methods, there should be enabling national laws to permit trade-related and regulatory documents to be electronic. When communications between contracting parties or those subject to government regulation require certain documents to be in writing, to have signatures affixed or to be presented in the original, this imposes restrictions on digital commerce. Electronic means of communication, of documentation and of record-keeping, etc. which use computer-based methods are functionally equivalent. Functional equivalence is a basic requirement not just for the Single Window, but also for all automated information systems.
supporting electronic commerce and e-government. The following is an excerpt from Singapore legislation.

**S 25(1) of the Electronic Transactions Act 2010**

“(1) Any public agency that, under any written law —
(a) accepts the filing of documents, or obtains information in any form; (b) requires that documents be created or retained; (c) requires documents, records or information to be provided or retained in their original form; (d) issues any permit, licence or approval; or (e) requires payment of any fee, charge or other amount by any method and manner of payment, may, notwithstanding anything to the contrary in such written law, carry out that function by means of electronic records or in electronic form.”

Similarly, under Indian legislation, Section 4 of the Information Technology Act 2008 reads as follows:

“4. Legal Recognition of Electronic Records

Where any law provides that information or any other matter shall be in writing or in the typewritten or printed form, then, notwithstanding anything contained in such law, such requirement shall be deemed to have been satisfied if such information or matter is:

(a) rendered or made available in an electronic form; and
(b) accessible so as to be usable for a subsequent reference.”

### 2.4 Identification, Authentication and Authorization

The online services accessible to users on the web portal of a Single Window are the proverbial tip of the iceberg. In addition, the Single Window must adopt a secure and legally sound solution in order to provide access to diverse applications and business processes of participating CBRAs, and to give Single Window users a sense of seamless access.

UN/CEFACT Recommendation No. 35 suggests the adoption of an ‘identity management’ solution. The Single Window solution needs to provide ‘rule-based and role-based’ access to heterogeneous systems. Identity management solutions that are based on open standards can promote interoperability by federating and managing identities of users across different organizations. It is also necessary to isolate and decouple the access control mechanisms from the underlying application and database resources which may be hosted on disparate platforms.

There is hardly any legislation which explicitly addresses identity management systems (European Commission (TURBINE Project), 2009). However, privacy and data protection law squarely applies to data held in identity management systems. Some other regions have also pursued paths towards international standards in this area, most notably the APEC Cross-Border Data Privacy ‘Pathfinder’ programme. Be that as it may, the Single Window operator must meet national legislation on privacy, and commercial confidentiality must be observed.

There is a concern regarding the ability of identity management systems to enable digitally available personal data in disparate systems to be linked up, and to observe the actions of individuals, as well as a concern that individuals do not have the ability revoke their identity. Data protection authorities therefore lay stress on the *unlinkability* of the information contained in identity management
systems, the *unobservability* of actions, and the *revocability* of identity as legal principles that should govern identity management systems and federated identities.

These concerns need to be reconciled with the broader purposes of using identity management systems in a Single Window environment: automated systems operated by authorities will in some applications legitimately seek to link up information about economic operators for risk profiling purposes, and therefore deliberately seek linkability. Further, they like to maintain observability and auditability of actions by individuals: the latter are not at liberty to revoke their engagement with the identity management systems operated on the Single Window and, in any case, should not be able to repudiate their actions.

The contracts that bring users on board a Single Window system need to reconcile these opposing concerns of individual privacy and legitimate business interest. Having ‘accepted’ the terms of participation in a Single Window environment, economic operators waive their rights to privacy and commercial confidentiality to the extent that the information is for the legitimate use of CBRAs.

Identifiers issued to the individual user should be somehow linked to his/her *civil identity* that is duly issued by the State. This is analogous to economic operators being identified based on their legally assigned identifiers (e.g. their business registration number or EORI number). CBRAs need to identify regulated entities in the event of having to proceed against them to enforce cross-border trade regulations. Furthermore, it is a legal person that needs to be held to account for his/her observed actions in the automated systems.

 Authentication and authorization are mechanisms performed by the automated system. The former is the mechanism under which the system is securely able to identify the user and to ascertain whether the user is the person he or she is claiming to be. The latter is about the level of access of a user, and whether the user is allowed to perform a particular operation (e.g. a database update operation).
Consistent application of identification, authentication and authorization procedures is vital for ensuring that the information system is secure and is delivering a consistent, auditable service. Single Window services grow with the trust of their users over years of reliable operation. The legal validity of actions performed by users will be challenged in the absence of a legally sound mechanism of identification, authentication and authorization.

The conditions under which electronic records, electronic documents and contracts will have probative value are determined according to national legislation. Determinations about digital evidence will be made in courts, where experts will have to assist judges in deciding on the evidentiary value of access logs (for instance, whether such records were authentic, reliable and intact). In the case of electronic records or documents, valid digital signatures will have high evidentiary value.

Digital evidence is an important legal issue. In some countries, digital signatures may not be given more probative value than other types of electronic signature. Further, there are costs and reliability issues associated with digital signatures that come into play in many national environments. Thus, whilst digital signatures are technologically sound and feature in the WCO SAFE Framework of Standards as a means for securing data, there are other ways of acquiring data, and the measures taken to protect it must be commensurate with the risks associated with its breach.

3. The Single Window – a Life-cycle Perspective

From a legal point of view, the main phases are:

(i) Exploration phase: In this phase, the purposes and motivations are explored. At this time, authorities identify candidate services that will be covered by the Single Window and will coincide with the strategic planning, policy modelling and preparation of the strategic business case.

(ii) Formation phase: This phase begins with the approval of the strategic business case and the delivery of the political mandate. A law or decree establishing the Single Window initiative could be pronounced. Alternatively, a master agreement between the participants of the Single Window environment is entered into. Whichever way a Single Window initiative formally comes into being, the entity becomes a legal person which can begin to assume legally ordained internal and external responsibilities.

(iii) Regulation phase: The Single Window operator or orchestrator formally establishes its body corporate, and its legally appointed executive officers enter into agreements on its behalf. The legal basis for establishing the Single Window operator/orchestrator and the collection of arrangements (primarily, interchange agreements) with internal and external stakeholders constitutes the regulatory framework of the Single Window environment. (This is separate from the substantive laws governing the cross-border movement of goods or other movements.)

(iv) Operation phase: In this phase, the legal arrangements that were firmed up in the formation and regulation phases become operational and are therefore put to the test. If it is found necessary, these legal provisions are modified from time to time. In a changing environment, however, it is important to provide predictability and ex-ante certainty to traders.
(v) **Evolution phase**: The agreement will show parties how to disengage from the Single Window, and the anticipated steps for doing so.

![Life-cycle view of Legal issues](image)

**Figure 2: Legal issues – a life-cycle view.**

### 3.1 Responsibilities of the Single Window Operator

The distinction between the internal (authority-facing) and external (trade-facing) legal relationship in a Single Window environment is useful in classifying the legal issues. Internal agreements are those that are entered into between CBRAs, and between Single Window operators and CBRAs, and would typically include interchange agreements, service level agreements, intellectual property rights, representations and warranties, identity management, liability and insurance, legitimate use of data, data protection, and data life-cycle arrangements.

Between government departments, MoUs are preferred over legal agreements, as explained previously. On the other hand, in the legal arrangements with external users of the Single Window, a similar set of issues will dominate. These are privacy issues, data protection, service levels, identity management, liability and insurance.

### 3.2 Establishing the Single Window Operator

The organizational structure for the establishment and operation of a Single Window facility will address the need for the Single Window operator/orchestrator to come into existence as a legal entity. Each country has to decide on the character of this legal entity. It could be a private or a public sector organization incorporated under national legislation as a joint stock company, a
registered society, a not-for-profit organization, a trust or a partnership. It could even be a body that is independently established by law. This has implications for Single Window operations.

4. Legal Issues Grouped by Business Processes

In the previous Section, legal matters were examined in terms of the life-cycle of the Single Window operation. In this Section, legal issues are considered from a business process perspective. The business processes in a Single Window are described below, along with the corresponding legal issues.

4.1 Registration/Regulatory Authorization

The typical ‘Customs Act’ begins with a section on definitions for the entities that will have legal obligations in international trade, including where, how and by whom goods should be entered for import, export and transit. The same is true in the legislation for partner CBRAs, which defines the entities that have obligations regarding, for example, traded goods. These laws and regulations also cover means of transport and crew.

Registration/regulatory authorization processes are at the core of the Single Window. 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 in which the respective regulatory authorities have the opportunity to verify 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 regulatory requirements of the Single Window operator need to be fulfilled. These conditions are part of the registration processes in which the Single Window operator establishes a legal relationship with the various actors that use the Single Window services. Typically, these would be the legal agreements to be entered into between the responsible official from the Single Window operator and the relevant official acting on behalf of the registering entity. There could also be multiparty agreements, for instance, between the trade/transport actor (subscribing party), Customs/the partner CBRA with authority to issue regulatory approvals (‘relying’ party), and the National Single Window operator (service provider). The parties with whom Customs interacts are called actors, and are divided into the following broad groups:

National Single Window operator: It is assumed that a ‘Single Window operator’ will be established as a legally enabled 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 in the country of origin (NSW at departure), in the transit country (NSW at transit) and the destination country (NSW at destination). The interaction between national Single Window operators provides the G2G dimension in a Single Window.

Economic operators: Economic operators are parties from trade and transport that play a role in a Single Window environment. They often use intermediaries called agents, who play certain roles on
their behalf. These roles are defined under cross-border legislation. Any compliance-related activity that is supposed to be performed by an economic operator can also be carried out by its agent.

The business processes and legal issues involved are listed in the table below:

Table 1: Registration/Regulatory Authorization.

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<th>REF</th>
<th>Business Process</th>
<th>Brief Description</th>
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| R1  | Bringing a new cross-border regulatory agency (CBRA) into the Single Window environment | 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 installation is a legally valid means to fulfil regulatory obligations.  
   → Regulation establishing the right of the operator to host Single Window services, and the operator’s corresponding roles and responsibilities. |
| R2  | Adding a new service to the Single Window | The Single Window operator makes arrangements to provide a service on behalf of a CBRA. Legal Issues:  
   → Obligations of the Single Window operator and the CBRA in relation to the hosted services.  
   → Legal agreement between the CBRA and the Single Window operator on security, privacy, data management life-cycle, standards of service, etc. |
| R3  | Registering authorized Single Window users | The Single Window operator makes arrangements to provide the Single Window information system to users belonging to a CBRA or to an economic operator that is the recipient of a service defined in R2. The 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. Legal Issues:  
   → Regulation covering onboarding procedures.  
   → Granting rights to the users (individuals from trade and CBRAs) for accessing the information resources (e.g. web/EDI applications) offered by the Single Window operator.  
   → Regulatory definition of what constitutes user identification and authentication, use of digital signatures, etc.  
   → User’s conditions of participation regarding each of the services. |
| R4  | Registering an economic operator in the Single Window | The Single Window operator in relation to cross-border regulation captures all relevant particulars of an economic operator and registers the economic operator for the requested services. Registration leads to the creation of a ‘trader account’ which needs to be managed by the Single Window for the lifetime of its existence. Legal Issues:  
   → Harmonizing legal definitions for business entities that deal with CBRAs.  
   → Regulatory verifications concerning economic operators, identity |
| R5 | Bringing a new authorized IT system into the Single Window environment | The Single Window operator makes the necessary arrangements to register the IT systems linked with the operation of Single window services.  
Legal Issues:  
→ Regulation granting rights to the IT applications and IT devices (belonging to economic operators and CBRAs) 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. |
|---|---|---|
| R6 | Adding a new regulatory location | The Single Window operator in relation to cross-border regulation captures all relevant particulars of a regulatory location.  
Legal Issues:  
→ Legally defined locations where goods (and transport means) are approved for crossing the border, for storage, warehousing, examination and testing, or are otherwise dealt with in the course of international trade. Different CBRAs define these locations differently in their respective legislations. |
| R7 | Adding a new regulatory facility | The Single Window operator in relation to cross-border regulation captures all relevant particulars of a regulatory service.  
Legal Issues:  
As for R6. |
| R8 | Registering a regulatory product | The Single Window operator in relation to cross-border regulation captures all relevant particulars of a regulatory product.  
Legal Issues:  
→ 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. |
| R9 | Registering a regulatory transport means | The Single Window operator in relation to cross-border regulation captures all relevant particulars of a regulatory transport means.  
Legal Issues:  
→ 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. |

### 4.2 Application for Licences, Certificates, Permits/Other

All movements of goods and means of transport across the 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 are still a variety of non-tariff restrictions imposed by
national laws and international conventions. These restrictions impose conditions that must be met before regulatory authorities allow imports, exports and transit. The conditions are often documented and expressed in licences, permits, certificates and other documents stating that they have been met in the context of transactions. In spite of the variety of goods that are subject to such restrictions, use cases are very similar. The process includes: (i) application for licences/permits/certificates/other; (ii) pre-issuance verifications; (iii) transactional compliance checks at import or export; and (iv) post-transactional compliance/analysis.

The broad process of application and issuance of licences, permits or certificates remains the same, despite differences in regulations. These procedures vary for different commodities but have the same underlying patterns. The table below describes the business process.

Table 2: LPCO business processes.

<table>
<thead>
<tr>
<th>L1</th>
<th>Application for licence, permit, certificate/other</th>
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<td></td>
<td>The economic operator applies to a cross-border regulatory agency for a licence, permit or a certificate and receives a response. There are pre-issue, post-issue and transactional verification processes during which LPCO validity, applicability, quantities, amounts, etc. are verified.</td>
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Legal Issues:
- Recognition of certificates and licences issued in another country.
- Delegation of authority for regulatory verification (where such delegation is envisaged).

4.3 Advance Information

The SAFE Framework of Standards requires the collection of information on international supply chains to be provided to Customs in advance of the transaction. Such information must be provided to regulatory agencies at export and import in the form of pre-departure and pre-arrival goods and cargo declarations. Information may also have to be provided on the containers loaded on board the vessel, in the form of a vessel stow plan (VSP) and container status (CS) messages. The table below provides details of the processes for advance information.

Legal Issues: Common to all processes in advance information
- Enabling legislation for advance reporting.
- Where legislation authorizes 3rd parties to submit this information on behalf of the carrier, the liability of such a 3rd party needs to be legally defined.
- What is the legal arrangement whereby advance information that is submitted to the NSW at departure is transmitted for onward use by the NSWs at transit and destination? (In the interests of feasibility and desirability, such transmissions would be addressed separately.)

4.4 Goods Declaration/Cargo Report/Conveyance Report

The processes of goods declaration, cargo reporting, and Conveyance reporting are described in the revised Kyoto Convention(rKC) and its Guidelines. The rKC guidelines do include scenarios in which businesses submit declarations and supporting documents electronically at one place as in a Single Window type of interaction. In addition to the models for submitting a declaration, 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 a Single Window environment, regulatory data for submission to government will be harmonised and that the data exchange points between the economic operator and Customs will coincide with the relevant exchanges with a partner CBRA. Thus the regulatory reporting events for Customs may also be used simultaneously as events to notify the partner CBRAAs. This signifies the principle that one-time submission requires harmonized data and documentation.

**Legal Issues: Common to all processes in the goods declaration/cargo report and conveyance report**

- Enabling legislation governing these declarations – not just for Customs, but also for partner CBRAAs (legislation covering the obligation to declare – definition of the taxable events, liability to duties, taxes and fees, the manner in which the various levies are imposed and their amounts, etc.).
- CBRA-specific legislation that enables the receipt of this data digitally, including logical and security controls specifically defined in the law/regulation. The mandate of comprehensive e-governance legislation to move to digital or paperless processes.
- Regulatory procedures defining the place and timing of declarations to be harmonized between Customs and partner CBRAAs.
- Authority to access data, use data and process data received as part of the processes covered by CBRA-specific legislation. CBRA authority to view and make determinations based on information collected in the ‘pool’ formed in the Single Window environment needs to be addressed correctly.
- 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 under legislation dealing with the rival concerns of data privacy and information transparency.
- The action of checking the declaration, confirmation of verification and legally valid notification of administrative determinations arrived at by authority.
- Legislation often authorizes a 3rd party to submit this information on behalf of the carrier or importer. The 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 multiparty agreement between the parties concerned to enable filing of declarations through or by a 3rd party is a pertinent legal issue.
- What is the legal arrangement whereby declaration/report data submitted to the NSW at departure is transmitted for onward use by the NSWs at transit and destination? (In the interests of feasibility and desirability, such transmissions would be addressed separately.)

### 5. Conclusion

This Part discusses the legal aspects in a Single Window environment, first by examining five main legal issues, then by considering these issues from a ‘life-cycle’ perspective in a Single Window environment. Lastly, it outlines the changes needed to legal regimes from a business process perspective.

Four distinct legal characteristics of a Single Window solution are discussed. For a Single Window to exist, it has to have a defined and explicit legal authority, which is expressed through legislation. Then, it has to become a distinct legal entity that must have the capacity to assume liability and powers to conclude contracts, chief among which will be interchange agreements. These
Interchange agreements will legally define and govern the acts of information exchange. Interchange agreements may contain data and messaging standards and service ontology, which may have to be harmonized across multiple agencies. Such an exercise involves going back to the original legislation of the participating CBRAs. Additionally, these agreements will have the relevant normative interface specifications.

As it handles data from traders, the Single Window should have the legal authority to collect, possess, process and share the data for legitimate purposes. The privacy of the information will have to be safeguarded, and sharing should be prohibited except as expressly permitted or provided for in the statute.

In order for transactions in the Single Window to have the same legal validity as manual transactions, the principles of identification, authentication and authorization need to be adopted. Supporting legislation on digital documents, electronic signatures and electronic contracts based on model codes from UNCITRAL are helpful. Identity management systems form the foundation of all other Single Window services and depend upon identification and authentication. This Part discusses the common legal challenges faced in employing identity management systems, which can be overcome either through enabling legislation or through agreed terms and conditions that provide the necessary waiver from certain obligations. Multiparty interchange agreements should incorporate appropriate enabling provisions so that identity management systems operate harmoniously with the restrictions imposed by privacy legislation.

The Part examines legal issues from a life-cycle perspective and from the point of view of business processes in a Single Window environment. Executive management should identify and appoint qualified legal experts to help establish the enabling legal framework for the Single Window environment.
DATA: ENSURING QUALITY, SECURITY & PRIVACY

PART VIII
VOL 1
Data: Ensuring Quality, Security & Privacy

This Part provides an executive overview of data sources, interchange of data, data quality, issues of privacy and commercial secrecy, and data protection in a Single Window environment.
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1. Introduction

Data is the lifeblood of the international supply chain. The flow of trade and transport data occurs alongside the physical flow of goods and means of transport. Information is exchanged between the participants in the supply chain – namely, traders, transporters, intermediaries and regulatory agencies. In a digital and connected world, the data flow consists of information exchanged between the supply chain participants in the form of documents, fragments (or components) of documents, and real-time data streams.

Stakeholders in the supply chain seek to provide and receive the necessary information with a view to minimizing risk and uncertainty to the free flow of goods, thereby preserving value represented by those goods. This is accomplished by carrying out risk assessments as early as possible in the global supply chain, preferably at the time of the origination of the consignment. All of this is premised on the capability of the supply chain participants to: (i) trust the source of data; (ii) be assured of the quality of data provided and received; and (iii) have confidence that the data that is exchanged will be handled safely and protected from unauthorized access.

Entities participating in the Single Window environment share data extensively with each other. The manner in which data is handled is a critical aspect of the design and functioning of a Single Window environment.

1.1 About Part VIII

This Part of the Compendium describes the various aspects of data handling in a Single Window environment. We look at the nature of laws and regulations governing the submission of harmonized data, and the legal and policy challenges in receiving, using, sharing, retaining and archiving of the data. The responsibilities and obligations on all participating entities in a Single Window environment in regard to security of data, as well as issues of privacy and data protection, are also explored in detail.

In an electronic environment, it is vital to ascertain who is sending data to whom. The Single Window operates on a foundation of certainty regarding the identity of the individuals and legal entities that governments and businesses can trust. This Part describes appropriate ‘Know Your Customer’ policies which are supported by technology-aided methods.

The Single Window operates against a backdrop of trust, whereby regulatory and commercial decisions are made based on electronic data lodged by businesses. The observance by all parties of data quality, including controls applied to improve data quality, is also covered. This Part deals with measures to achieve sustained improvements in data quality in a Single Window environment.

1.2 Related Topics

Part VII of Volume I of this Compendium, ‘Dealing with Legal Issues’, describes the various challenges faced by governments in establishing the entity that will operate the Single Window facilities. It also outlines the business processes which will be covered by the Single Window, and highlights the need for the relevant laws and regulations to be suitably adjusted to account for the shift that is brought about when a Single Window is implemented.
2. Trusting the Source of Data

Participants in the international supply chain share data with one another and with regulatory agencies. The integrity of the entire supply chain in relation to buy-sell processes, the chain of custody of goods, and the flow of information from one node to the next is based on a ‘positive identification’ of the node participant. A break in the positive identification of these entities introduces vulnerabilities into the security and integrity of the supply chain.

Data lodged by a supply chain participant whose identity remains uncertain could compromise all actions taken on the basis of that data. To prevent such an eventuality, regulatory agencies and businesses generally impose an obligation to ‘Know Your Customer’ (KYC) on the supply chain participants. KYC measures help prevent smuggling, impersonation (abuse of others’ identity), commercial fraud, trade-based money laundering, terrorist financing, terrorism, and above all, help link the supply chain data to its source.

Intermediaries and logistics providers (e.g. third parties and technology platforms) play a very important role in managing participants’ identity, as they are well placed to carry out the first level of scrutiny by following ‘KYC’ norms, before entities join the supply chain or join regulatory platforms such as the Single Window.

In a Single Window environment, some Customs administrations (especially those with national identification numbers for all citizens/residents and a well-developed address infrastructure) implement identity management of individuals: the individual’s details are validated by using national identification number and address databases, in close co-operation with the relevant government agencies/bodies. This has been found very useful in the risk management of low-value e-commerce shipments sold/bought by individuals.

A model for carrying out identity verification post-clearance exists in order to support a range of objectives. These include combating the use of express delivery and postal modes to trade in contraband or transfer valuable goods. By concealing their real identity, criminals can dispose of illegal imports or exports. Even those importers who do not wish to hide their identities can simply

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**WCO SAFE Framework of Standards:** This requires economic operators to verify upstream and downstream business partners by way of written processes and contractual agreements, among other methods. In an IT environment, it advocates for ‘rule-based’ access, which requires prior simplified registration and verification.

**Regulated Agent/Known Shipper (RA/KC):** In the air cargo environment, identification of every stakeholder and their credentials is key to aviation security regimes. Any cargo coming from a non-RA/KC has to be 100% screened before being loaded onto the aircraft.

**Supply Chain Finance:** Banks dealing with supply chain finance require KYC processes during the on-boarding of clients and beneficiaries, with subsequent checks to be undertaken periodically.

**Postal Supply Chain:** In 2012, the UPU launched the .post domain, with the primary goal of providing a secure and trusted space for postal services, especially for e-commerce purposes. Additionally, some postal operators are urged to come up with their trusted and ‘verified customer’ schemes. An example is the Australian postal service’s ‘MyPost’ loyalty programme, where customers can sign up with minimum information to enjoy benefits in terms of convenient delivery options and rebates.

**Express Industry:** As in the case of some postal services, express service providers insist that every customer coming to drop a parcel should provide his/her identification details. This is now a regulatory mandate in most jurisdictions.
misuse the ‘de minimis’ facility, splitting consignments in terms of value and re-assembling the components into goods of larger value. Confirmation of the trader’s identity can have a deterrent effect on misuse of the supply chain by fictitious entities or individuals who might be tempted to take advantage of the tax exemption system or simplified procedures for low-value goods.

A critical aspect of modern paperless processing systems is the ability to identify and trace back to a physical person. The same principle applies to businesses in a Single Window system, which will be accessed by individuals acting on their own behalf or as authorized representatives of businesses. Businesses will be registered as legal entities. When an online Single Window system is launched, individuals will access it on behalf of business entities. Like all online systems, Single Window systems should also take steps to guard against impersonation, as well as against fictitious individuals and business entities. Considerable progress has been made in the e-commerce and banking sphere in dealing with the risk posed by such entities. We can therefore work on the assumption that a modern e-Single Window system should be linked to a good KYC ecosystem.

**Australia: Evidence of Identity (EOI)**

“Importers are required to undergo an EOI check every time they undertake documentary transactions at a Department of Immigration and Border Protection Client Services counter. EOI is a verification process that individuals and businesses are required to undertake to prove who they are.”

Source: Australian Customs & Border Protection Service (ACBPS)

**Republic of Korea – Address Feedback**

In 2014, Korea Customs implemented a measure that obliges delivery service providers to report to Customs the actual destination of express cargo once delivery is complete. This has a deterrent effect on those intending to misuse the rapid clearance facilities and the ‘de minimis’ benefits for low-value goods delivered by express cargo service providers.

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**Figure 1:** Example of Know Your Customer business processes used by financial and other institutions.
KYC processes are closely linked to entity identification, identity verification, identity management, authentication, authorization and customer support. While almost every logistics service provider in the supply chain has KYC obligations, no single organization should be forced to bear the entire burden of KYC. If the KYC responsibility lies with just one entity or system, it might become the weakest link. On the other hand, parallel KYC actions and KYC processes, which are partly technology-driven and partly involve human verification, can build up a healthy and sustainable KYC ecosystem. There are technology tools that automate and support some of the KYC tasks.

The Address Verification System (AVS) is a technology-enabled tool used by credit card companies to verify the address of a person claiming to own a credit card, by comparing the address with the registered address of the card holder in the company’s database.

Other technology tools are available to detect incomplete or fictitious addresses. Structured addresses containing names, streets, cities, country sub-divisions, country codes and post codes are superior to unstructured text-based addresses.

E-commerce companies use sophisticated address verification services and systems as they seek to avoid delivering ‘cash on delivery’ packages to fictitious addresses. These tools rely on checking the addresses provided against post codes and geo-codes, and help companies improve their screening of fraud-prone transactions.
3. Ensuring Data Quality

Many Customs administrations have introduced automated systems to support cross-border procedures. Traders enter relevant information into these systems for further processing by Customs. The data submitted is used further downstream for many functions, such as computation of Customs duties and other revenue collection, risk analysis, forecasting of trends, collation of statistics, analysis, compliance and enforcement checks, consignment targeting, and other regulatory controls. Ensuring the accuracy, integrity and/or completeness of this data is vital, as this expedites processing and clearance of legitimately traded goods. Data accuracy is a component of data quality and refers to the factual accuracy or correctness of data. To be correct/accurate, data values must be consistent and unambiguous. Data integrity refers to the continued reliability and consistency of data over the entire life-cycle, including generation, transmission and storage. Data integrity is lost due to its potentially unauthorized alteration.

If the data submitted is not true and accurate, its reuse can have damaging consequences – the revenue computed and collected will be incorrect, potentially high-risk consignments will not be flagged, and trade statistics will not be accurate. Errant traders can abuse the system to circumvent regulatory controls and evade taxes. The damaging effects are exponential when inaccurate data is reused internally or by other government agencies. This further erodes the integrity of the system, and reduces confidence in the system among its users.

Therefore, it is important when setting up a Single Window system to pay specific attention to ensuring data quality\(^2\). This can be achieved by introducing system (i.e. technical) measures, as well as non-system measures. Technical measures and mechanisms will ensure correctness and compliance with the format of the data field. Non-system measures help to achieve integrity and accuracy of the data submitted. Below are several suggestions on implementing technical measures to ensure data quality in automated Customs systems.

3.1 Use of International Standard Codes

There are many international standard codes published and maintained by international bodies, such as the UN, ISO, WTO and WCO. The WCO Data Model, in particular, provides the semantic and content reference to international code lists, so that users can benefit from greater levels of uniformity and consistency in the exchange of trade information between trading partners. International code lists ensure that standardized values can be used to refer to specified things, such as place names, products, entity types and transaction types. Validation can be applied to ensure that the values entered conform to the format defined, thereby providing an additional level of assurance to mitigate incorrect data entry.

\(^1\)This Section was prepared using the paper submitted by Mr. Desmond Chia of Singapore Customs, and Document PC0386.
\(^2\) The ISO 8000 series is the most widely used framework for dealing with data quality and master data management. More information can be found at https://en.wikipedia.org/wiki/ISO_8000.
### Use of Standard Code to Promote Data Accuracy:

Global data standards help maintain the consistency and accuracy of data. The World Customs Organization, through its WCO Data Model, has adopted a number of data standards. Examples of such standard codes are WCO Harmonized System Codes (HS Codes), ISO 3166 Country Codes, ISO 4217 Currency Codes and UN/LOCODE for locations such as ports and airports. The use of these standard codes in the design of the Single Window system ensures that the information submitted conforms to the format set out in these codes. Importers importing the same product will use the same HS code, thereby giving consistency to import declarations. The HS code also gives certainty to traders, as they are able to know the classification of their goods and the corresponding duties and taxes. Traders can also declare correctly the origin of the goods by selecting the correct two-character Country Code from ISO 3166, hence eliminating potential data entry errors when provided with a free-text field to enter the country name.

### 3.2 Acceptable and Unacceptable Terms

Code lists and identifiers will not eliminate all data quality problems, though they are one of the most obvious measures to reduce errors. Code lists offer greater assurance than purely free-text fields. At the same time, efforts must be devoted to improving free-text data elements, which are prone to data entry errors or deliberate falsification. Some of the most important data fields are ‘General Description of Cargo’ (in cargo reports) and ‘Description of Goods’ (in goods declarations). Here, the declarant is free to enter the text within the space provided. These data fields are meant to be ‘human-readable’, and could include important information that may affect a Customs officer’s decision or assessment.

The crux of the matter here is user education. Administrations must be prepared to provide instruction manuals and guidelines that state clearly what is expected of private sector users when using the system. Administrations may even consider conducting training classes to ensure that private sector users understand how to use the system, and fill in forms properly.

Awareness raising and procedural governance can also be enhanced through transparent communication of what Customs considers to be ‘acceptable’ or ‘unacceptable’ text entries, including those used in the descriptions of goods. The WCO has created a list of descriptions provided in pre-arrival and pre-departure declarations. It is aimed at providing examples of unacceptable and acceptable wording for the description field. The list is not exhaustive but could be used as a guide which helps Customs communicate its requirements to members of the public who need to submit information to Customs.
3.3 Registration and Authentication of Users

All automated system users need to pre-register with the system owner, and each user should be authenticated when they are submitting information through the automated system. The registration process should require an applicant to submit his personal details, working details and contact information.

The applicant must be made aware of, and agree to, the terms and conditions for using the automated system, and accept that all information submitted by him must be true and accurate. The consequences and penalties for false or incorrect submission, or any other breach of regulatory requirements and conditions, must also be transparently laid out. Upon verification of the registration information, the applicant is given a user ID and password to access the system. Standard IT security procedures in line with industry standards and practices should be applied concerning the safeguarding of registration information, user ID and passwords. Sharing of login credentials, use of weak passwords and other unsafe practices must be prevented.

To further improve security, the system owner may consider having a secondary authentication process, or two-factor authentication. Common methods already deployed in government and e-banking systems include the issuance of security tokens that generate a one-time PIN (OTP), or the sending of an OTP to a registered mobile phone number via the short message service (SMS).

The registration and authentication process ensures that authorized users are the ones submitting the data through the automated system. This prevents unauthorized users from using stolen user IDs or passwords, or from trying to submit falsified or inaccurate information. In this way, the integrity of the system and the accuracy of the data are enhanced.

The effectiveness and performance of an automated system depend upon the data declared by users of the system. Though technical measures may be put in place to ensure data accuracy and correctness, they will not prevent fraudulent declarations by users, or compromised data quality through human error. Hence, in addition to technical measures, there should be a governance and
compliance framework to ensure the competency and professionalism of users in submitting quality data.

### 3.4 Setting up a Declarant Governance Framework

One of the main users of a Single Window system is the declarant or Customs broker (the ‘declarant’ hereinafter). The declarant is the entity that acts as the intermediary between the Customs authority, other government authorities and the trading community to facilitate the submission of trade declarations. It plays an important role in ensuring accuracy and completeness of the trade data submitted through the automated system. The governance framework seeks to raise the level of the declarant’s proficiency and professionalism by incentivizing agents with good internal control procedures and compliance records. The declarant is encouraged to improve internal work processes and maintain good Customs compliance in order to enjoy lower security requirements and shorter renewal processes. One example of an improved work process would be to screen customers or potential customers in order to ensure that they are not ‘shell’ companies looking to exploit the regulatory system.

### 3.5 Training and Compliance Improvement

The compliance level of declarants must also be monitored. Compliant declarants can be identified for greater levels of facilitation through specific schemes so that they benefit from reduced checks or simplified procedures; higher-risk declarants should be scrutinized and engaged until they improve. Penalties alone may not provide the necessary motivation to help companies to improve. Hence, engagement and partnership with the private sector should always be considered in tandem with penalties and other disincentives to shape the correct behaviours.

Declarants can be assessed for their overall compliance level and reliability based on a set of criteria, the results of which are used to place them into different categories or bandings. The lower bands will enjoy a lower degree of facilitation than the higher bands. For instance, companies in the lower band could be subject to annual assessment and renewal of their licences, while companies in higher bands could benefit from automatic renewal or longer validity periods. Other incentives that could be used to shape positive behaviours include the lodgment of security. Lower-band, less compliant declarants naturally pose a greater revenue risk and would be required to provide a higher level of security, such as a larger amount for a banker’s guarantee. Higher-band, more compliant declarants may not pose the same risks and the guarantee amount could be adjusted accordingly, to shape the necessary behaviours. In this way, declarants in the lower band could be encouraged to continue to improve and be promoted to the higher band to enjoy greater facilitation.
Training must also be provided on a periodic basis, including when there are new regulatory requirements or new system features, so that declarants can stay up to speed and perform their tasks in a compliant and risk-mitigated way.

### WCO RECOMMENDATION ON THE GUIDING PRINCIPLES FOR DATA QUALITY

The WCO recommends the following principles to enhance data quality:

1. **Principle I** – Partnership between Customs administrations and trade is critical to establish understanding of each other’s data quality requirements, to identify new processes, and to improve existing processes and procedures for providing that data. Co-operation between these two parties in a constructive environment can ensure that the right data of the right quality is delivered at the right time.

2. **Principle II** – Analysis of data, systems and procedures should occur on a regular basis to identify any areas of concern related to data and its quality. Data quality is also dependent on systems being properly configured to obtain data in the most efficient way from the persons holding the data in the normal course of their business, whilst fully respecting applicable data privacy and data confidentiality laws and regulations, as well as an appreciation of the roles and functioning of different supply chain parties who provide that data.

3. **Principle III** – Co-ordination within the global Customs community through the WCO to: implement and maintain systems that recognize and apply global messaging standards; reduce manual processes and procedures and promote electronic messaging; encourage implementation and updating of a non-exhaustive list of acceptable and unacceptable goods descriptions for pre-departure and pre-arrival declarations; identify originators of data in the global supply chain and facilitate their ability to provide data directly to Customs administrations; and encourage the use of coded information based on international standards, including the tools and instruments of the WCO, whenever possible.

4. **Principle IV** – Education of all relevant stakeholders in the international trade supply chain on data quality principles and improvements based on identified weaknesses in a systematic manner. Such education and awareness should not only take into account national and international Customs concerns, but should give due consideration to those raised by trade.

**RECOMMENDATION OF THE CUSTOMS CO-OPERATION COUNCIL ON THE GUIDING PRINCIPLES FOR DATA QUALITY (June 2015)**
Part V of Volume 2 deals extensively with the question of data harmonization. A harmonized data set contributes to implementation of a Single Window as it helps a trader lodge one set of harmonized data at a single entry point, and this will be shared by the different participating government agencies. This leads to time and cost savings for the traders since the same information need not be submitted again.

This Part highlights the issues/challenges associated with receiving data that is not harmonized. Each participating agency has its own data validation rules, which also need to be harmonized. For example, plant quarantine legislation requires the authorized officers to issue permits in a particular unit quantity code. While Customs also needs the same information for its purposes, e.g. quantity of goods imported under a consignment, the unit quantity code may be different. This forces the importer to supply two separate pieces of information, defeating the purpose of harmonization. Therefore, harmonization should also consider questions of data validation and data quality.

EXAMPLES OF HARMONIZED DATA IMPLEMENTATION

Example 1: Canada Customs
The new Integrated Import Declaration (IID) release service option further expands the ability for importers/brokers to submit and obtain electronic release for goods regulated by Participating Government Departments and Agencies (PGAs) […].
Source: Customs Notice 15-014

Example 2: Indian Customs
Indian Customs has developed the ‘Integrated Declaration’, as part of which all information required for import clearance by the government agencies concerned has been incorporated into the electronic format of the Bill of Entry. The Customs Broker or Importer shall submit the ‘Integrated Declaration’ electronically to a single entry point, i.e. the Customs Gateway (ICEGATE). Separate application forms required by different PGAs like Drug Controller, AQCS, WCCB, PQIS and FSSAI would be dispensed with.
Source: Indian Customs, Circular No. 10/2016-Customs

Example 3: New Zealand Customs
The new electronic craft and cargo reporting and clearance messages in the New Zealand Trade Single Window are based on Version 3.2 of the WCO Data Model (WDM3), enabling information requirements to be harmonized across the border agencies as much as possible. For example, the new WDM3-based Import Declaration combines the Customs, biosecurity and prescribed food information required for clearance, in one message.

Source: WCO news No. 72, October 2013
4. Accepting the Lodged Data

4.1 Data Lodged by Businesses

The handling of data in a Single Window environment is always governed by a set of rules. These rules may be defined in primary legislation, or in secondary legislation and regulations. These provisions should cover the entire data life-cycle. Customs law in most countries covers the process of lodging declarations. The Australian Customs Act of 1901, described on this page, provides an example of lodgment provisions.

The manner in which a trader lodges data with each of the participating agencies is normally defined in the respective legislation or regulations. If these provide for data generally to be received by electronic means, there will be little need for change. Each participating agency in the Single Window will also have to align its rules in relation to the data it needs to collect in order to perform its respective regulatory functions.

![Australian Customs Act 1901](image)

<table>
<thead>
<tr>
<th>Provisions regarding lodgment of entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 68 requires all imported goods to be entered for home consumption or warehousing and lists the goods not subject to this requirement (including those that do not meet the entry threshold value).</td>
</tr>
<tr>
<td>Section 71A sets out the requirements for making an import declaration either by document or electronically and any conditions relating to obtaining permissions under other Commonwealth laws.</td>
</tr>
<tr>
<td>Section 71F specifies that, if a person changes any information on a declaration at any time after that declaration has been communicated to the Department, and before the goods are dealt with in accordance with the declaration, the person is taken to have withdrawn the declaration as it previously stood and any authority to deal with the goods is revoked.</td>
</tr>
<tr>
<td>Section 71L specifies the manner and effect of communicating electronically with Customs.</td>
</tr>
<tr>
<td>Section 181 specifies that only the owner of the goods, an employee of the owner, or an authorized licensed Customs broker acting on the owner’s behalf can lodge import declarations.</td>
</tr>
</tbody>
</table>

Source: Australian Department of Immigration and Border Protection

4.2 Data Shared Between Government Agencies

When data is shared between participating agencies, a set of rules that describe the responsibilities and obligations between the agencies is required. These relationships can be defined through inter-agency Memoranda of Understanding (MoUs), or shared work manuals and operating procedures. There are legal issues involved in negotiating interchange agreements between the participating agencies. The respective laws of the government agency’s administration might prohibit the sharing or transmission of information collected as part of the agency’s work to register entities or issue authorizations. In the first instance, the legal impediments to sharing will have to be understood and addressed, so that the Single Window environment can make full use of system functions to collect, safeguard and redistribute information, and take into consideration the specific agency or agencies which are authorized to do so. Should the submitter’s permission be required for specific types of sharing, electronic authorization via a ‘click-wrap’ agreement is also appropriate, provided the
appropriate legal mandate has been sought to implement it. Domestic laws usually provide the primary legal basis for governing relations between agencies, while agreements, Memoranda of Understanding and Service Level Agreements (SLAs) define the levels of operational performance. In addition, Interconnect Security Agreements (ISAs) serve to define the kind of security measures that would be needed to enable secure data exchange.

If interchange is envisaged with entities abroad, then it could also involve international agreements with treaty force, including bilateral agreements, or separate protocols for amendment to existing Customs Mutual Assistance Agreements. Technical annexes and other working level documents could also provide details on data and messaging standards, service ontology and metadata registries.

The layers of the Globally Networked Customs (GNC) Utility Block template provide a basic checklist for countries attempting to establish interconnected systems with one another. Globally Networked Customs is addressed in more detail in Section 4.4.

<table>
<thead>
<tr>
<th>Name of the Block</th>
<th>AEO/Commercial Fraud/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>What the block is supposed to do</td>
</tr>
<tr>
<td>Legal Framework</td>
<td>The law, including the instrument providing the legal gateway</td>
</tr>
<tr>
<td>Entities</td>
<td>Those who can send/receive information, and the methods of identifying them</td>
</tr>
<tr>
<td>Business Rules</td>
<td>The specific rules for the UB. If not described elsewhere, include relevant protocols, standards and guidelines</td>
</tr>
<tr>
<td>Data Cluster</td>
<td>The list of data elements for the UB</td>
</tr>
<tr>
<td>Triggers</td>
<td>Events that either start the data flow, or respond to data receipt</td>
</tr>
<tr>
<td>Interface</td>
<td>How the parties in a GNC relationship are connected</td>
</tr>
<tr>
<td>Integration</td>
<td>How a GNC partner connects to its own systems</td>
</tr>
<tr>
<td>Communication</td>
<td>The electronic means of exchanging information</td>
</tr>
<tr>
<td>Advantages</td>
<td>Benefits delivered to: Customs, business and other agencies</td>
</tr>
</tbody>
</table>

Table 1: Template of a Utility Block (UB) from the WCO handbook for Globally Networked Customs.

### 4.3 Identification, Authentication and Authorization

The services accessible to users on the web portal or software client of a Single Window environment are only the proverbial tip of the iceberg. In addition, the Single Window must adopt a secure and legally sound solution in order to provide access to disparate applications and business processes of participating CBRAs, and to give Single Window users a sense of seamless access.
UN/CEFACT Recommendation No. 35 suggests the adoption of an ‘identity management’ solution. The Single Window solution needs to provide ‘rule-based and role-based’ access to heterogeneous systems. Identity management solutions that are based on open standards can promote interoperability by federating and managing identities of users across different organizations. It is also necessary to isolate and decouple the access control mechanisms from the underlying application and database resources which may be hosted on disparate platforms.

There is hardly any legislation which explicitly addresses identity management systems (European Commission (TURBINE Project) 2009). However, privacy and data protection legislation squarely applies to data held in identity management systems. A number of other regions have also pursued paths towards international standards in this area, most notably the APEC Cross-Border Data Privacy ‘Pathfinder’ programme. Be that as it may, the Single Window operator will have to meet national legislation on privacy, and commercial confidentiality must be observed.

Transactions could be compartmentalized for privacy purposes, or due to a lack of integration between different service providers. A Single Window environment, on the other hand, legitimately seeks to link up information about economic operators for risk profiling purposes and therefore, by design, seeks the convergence of services and workflows. Furthermore, it also seeks to maintain observability and auditability of actions by individuals: the latter are not at liberty to revoke their engagement with the identity management systems operated in the Single Window and, in any case, should not be able to repudiate their actions.

The contracts that bring users on board a Single Window system need to reconcile these opposing concerns of individual privacy and legitimate business interest. Having ‘accepted’ the terms of participation in a Single Window environment, economic operators waive their rights to privacy and commercial confidentiality to the extent that the information is for the legitimate use of CBRA. The system operator will therefore have to ensure system security and guard against unauthorized access or use.
In view of this, and in order to ensure admissibility of Single Window submissions for legal purposes, the identifiers issued to the individual user should be linked to his or her civil identity (for individuals), or to their corporate identity (for businesses), duly issued by the State. This is analogous to economic operators being identified based on their legally assigned identifiers. In the European Union context, the ‘EORI’ number performs such a function. In Singapore, the Unique Entity Number (UEN) identifies businesses and other registered organizations and entities. CBRAs need to properly identify regulated entities in the event of having to proceed against them to enforce cross-border trade regulations. Furthermore, it is a legal person that needs to be held to account for his/her observed actions in the automated systems. Authentication and authorization are mechanisms performed by the automated system. The former is the mechanism under which the system is securely able to identify the user and to ascertain whether the user is the person he or she is claiming to be. The latter grants the level of access to the user and looks at whether the user is allowed to perform a particular operation (e.g. a submission, update, amendment or cancellation). Consistent application of identification, authentication and authorization procedures is vital for ensuring that the information system is secure and is delivering a consistent, auditable service. Single Window services grow with the trust of their users over years of secure operation. The legal validity of actions performed by users will be challenged in the absence of a legally sound mechanism of identification, authentication and authorization.

**INTERCHANGE AGREEMENTS**

Interchange agreements imply sharing of data and the eventual disclosure of private, confidential and protected information. The main points are covered in the list below.

**Identification of databases:** Through a name and a title of the database in a way that clearly defines its boundaries.

**Ownership of databases:** All interacting databases in a Single Window environment must have names, titles and ownership. This includes the specific databases of the Single Window operator.

**Creation of databases:** The legal basis for establishment of the databases - from where does the administrator draw authority to establish and maintain the database?

**Classification of information:**
- *Classification by confidentiality:* Confidential, restricted, unclassified, unrestricted, based on government information classification scheme.
- *Classification by privacy category:* Nominal and non-nominal data.

**Authorization and access controls:** Purpose of collection, processing and usage of data and legal basis therefor. Long-term usage, especially of nominal data.

**Manner of collection of data and legal basis therefor – interface specifications:**
Data management life-cycle policy, period of preservation; restrictions, if any, on transnational movement of data.

**Liability:** Limitations and liability coverage against exposure.

Entity Number (UEN) identifies businesses and other registered organizations and entities. CBRAs need to properly identify regulated entities in the event of having to proceed against them to enforce cross-border trade regulations. Furthermore, it is a legal person that needs to be held to account for his/her observed actions in the automated systems. Authentication and authorization are mechanisms performed by the automated system. The former is the mechanism under which the system is securely able to identify the user and to ascertain whether the user is the person he or she is claiming to be. The latter grants the level of access to the user and looks at whether the user is allowed to perform a particular operation (e.g. a submission, update, amendment or cancellation). Consistent application of identification, authentication and authorization procedures is vital for ensuring that the information system is secure and is delivering a consistent, auditable service. Single Window services grow with the trust of their users over years of secure operation. The legal validity of actions performed by users will be challenged in the absence of a legally sound mechanism of identification, authentication and authorization.
The conditions under which electronic records, electronic documents and contracts will have probative value are determined according to national legislation. Determinations in relation to digital evidence will be made in courts, where experts will have to assist judges in deciding on the evidentiary value of access logs (for instance, whether such logs were authentic, reliable and intact). In the case of electronic records or documents, valid digital signatures will have high evidentiary value.

Digital evidence is an important legal issue. Where a Single Window environment is concerned, it is necessary for the country to determine what is permissible under the existing legal framework, and to propose amendments to the legislation where appropriate. An electronic submission cannot be treated as a less binding or less accurate form of submission, merely because of its modality. At the very least, data submitted in the Single Window environment should be treated as being no different to the same information submitted in a manual procedure, such as a paper-based declaration. This empowers governments to move beyond paper-type procedures to electronic or dematerialized procedures. It is also essential in conveying to users that an electronic submission must be taken seriously, and the same due diligence applied, otherwise penalties relating to incorrect or false submission of information would similarly apply.

**4.4 Globally Networked Customs**

The WCO has developed Globally Networked Customs (GNC) as an approach for Customs authorities to exchange information in a standardized way. GNC covers the sharing of Customs-to-Customs (C2C) information, logistics, risk assessment and commercial information. Although developed as an instrument for exchange of information between Customs administrations, it can also be used in the context of a Single Window as a mechanism for governments to exchange information with other governments.

Data sharing between Customs administrations must strictly abide by the rule of law, and the arrangements have to be either bilateral or multilateral. Most C2C data exchange scenarios are bilateral, except where Customs unions are involved. Information exchange under GNC works on the basis of protocols, standards and guidelines. For the standard scenarios of information exchange, the collection of documentation on protocols, standards and guidelines is called a Utility Block. The existence of fully developed Utility Blocks speeds up the framing of international agreements on exchange of information, and also facilitates the actual implementation of international data exchange. GNC is meant to ‘industrialize’ the setting up of exchange of information agreements, reducing the cost of their replication.

GNC is a voluntary arrangement. Members have to come together to negotiate areas of information exchange. For GNC to happen, countries must have enabling laws and administrative arrangements which allow them to exchange information, and must further afford adequate levels of protection to shared information. Electronic information should be shared in accordance with agreed technical and security protocols.

In the GNC framework, there are several scenarios of routine information exchange between governments. For example, documentation required in a Single Window, such as sanitary/phytosanitary certificates, test certificates, or certificates of origin, which originate in the country of export, can be shared with border regulatory authorities in the countries of import. This
means that the issuing authorities can send the documentation directly to the authorities of the importing countries. If the documentation is already available in the Single Window, this will save considerable time and effort.

### 4.5 Data Exchange – Push vs Pull

The way in which data is delivered between two agencies is an important consideration: whether the data needs to be fetched, or whether it is ‘dropped’ into the system, makes a difference, both technically and from a legal perspective.

Technically speaking, ‘push’ technologies involve data being sent via a message bus, through a web service, or by exposing an application programming interface (API). ‘Pull’ technologies involve connecting to the source system and pulling out the required data. The choice between ‘push’ or ‘pull’ is typically a matter of requirements and design – both provide equally valid methods for government agencies to receive, consume, and process the data and information needed to fulfil their regulatory processes. ‘Push’-type delivery is suitable for processes that are well defined and have clear parameters (for example, regulatory processes performed through HS codes, or transactions that meet other clear pre-set criteria). The ‘push’ concept is used when the need to share the information is determined by the source system; on the other hand, the ‘pull’ concept is used when the need for the information is determined by the receiving system. The two modes are not mutually exclusive – processing workflows are typically facilitated through ‘push’ modes, while reporting processes use ‘pull’ modes. In this way, agencies scrutinize applications on a real-time basis, based on pre-set ‘push’ criteria, while receiving reports based on specified operational needs.

### 5. The Legitimate Use and Sharing of Data

#### 5.1 Record-keeping Obligation

In a Single Window environment, almost all information will be digital. Thus, all evidence will be electronic. Single Window administrators will be governed by rules on data protection and the manner in which digital evidence is handled in their jurisdiction of operations. For them and their lawyers, there are important implications relating to digitally held information. ‘Personal data’ or ‘nominal data’ is a special class of data that is subject to special rules.

If the procedures for safe handling of data are compromised, or the Single Window administrators handle data in a non-compliant way, the government or other trade entities will not be able to

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**Requirements for keeping United States Customs & Border Protection records and entry documents on file**

Individuals, such as importers, some exporters, carriers and brokers, are required to keep their U.S. Customs and Border Protection (CBP) records, including entry documents, for five years from date of entry, or five years from the date of the activity that required the maintenance of the records.

**Source:** US CBP
receive appropriate legal remedy. This is because potential violators will be able to question the validity of stored digital records and escape conviction. Justice will not be served.

In Single Window implementation, data and documents are not just held by participating government authorities, but also by private sector entities and their service providers. The policies, rules and regulations in relation to privacy, data protection and data retention will apply equally to entities in the private sector. Record-keeping requirements may have their origins in multiple pieces of legislation. For example, in some jurisdictions, Customs law may require records to be stored for a period of five years. Other laws, such as tax laws, may require an additional period of storage. If the records are kept in electronic format, then additional requirements may be prescribed.

### 5.2 Technological Challenges: Cloud Computing

Rapid technological changes have transformed the way in which data is accessed and used. In the manual era, data was in manual files held locally in each office. With the fast-paced development of computing and communications, data can be processed through filtered searches and transferred effortlessly over the internet. More and more nominal data is held in a distributed fashion and is exposed to unauthorized access.

Cloud computing systems involve virtualization of computing resources. The key aspects – data communication, data processing and data storage – are virtualized, such that the organizations using the cloud are unaware of the specific resources being used by their software applications, or of where the data is held physically at any given point. The core benefit of cloud is that it allows system resources to scale up quickly to process huge volumes of data, without being constrained by physical system upgrades. As a result, no one can pinpoint exactly where the data is stored or on which server. However, one can define the cloud so that it is ‘localized’ within a specific country (i.e. restrict storage of the data to being within the country).

With cloud services, users are able to pay only for what is used, or to subscribe to a certain bandwidth or storage, upgrading when they need more. This provides flexibility.

With the advent of cloud computing, there is potentially a dynamic allocation of computing resources distributed across jurisdictions, raising legitimate questions about how digital evidence will be brought to bear in legal proceedings. In cloud computing, digital data processing is
highly distributed. In such a situation, locating, extracting and analysing digital evidence is extremely complex. Forensic investigations involving cloud computing are difficult and time-consuming.

Traders using a Single Window are subject to data requirements relating to record-keeping. Laws requiring record-keeping of past data sometimes also provide for the manner of its retention from the point of view of accessibility and legibility, or specify that it should be capable of being processed for post-clearance compliance verification. If records are kept in a cloud computing environment, then – as with any technology or platform – the fundamental principle of ensuring due care in protecting the confidentiality, integrity and availability of data applies.

Challenges in a Single Window environment grow significantly because the obligations or policies in terms of data retention, open publication, or protection against personally identifiable information (PII), etc. will be different for each agency.

As a trade facilitation measure, it is suggested that record-keeping obligations of Customs and all other participating agencies be made uniform, so that businesses are not burdened with a variety of policies and mandates.

5.3 Data Back-up, Data Archiving and Data Retention

Data archiving involves ‘putting away’ data that is no longer in active, day-to-day use, but must still be retained. Data back-ups are carried out daily, and the back-up media regularly verified to ensure that data can be recovered when needed. Data back-up is a form of ‘insurance’ against accidental loss. Back-up systems are designed so that restoration is rapid, complete and efficient. Data back-ups are linked to disaster recovery and measures to ensure business continuity. Therefore, data is backed up in very specific formats so that it is easily and instantly read into applications, and is available for use within the applications.

Data archiving is meant to handle only a valid search for data. Archived data serves as a repository of data that may be stored for a long period of time. While it is not critical to be able to restore archived data to be read or used in the software application that produced it, it is vital to be able to search as part of a formal process and to produce results that can be presented as evidence in a court of law. The key to archiving is that archived data cannot be altered.

The process of archiving, and the technology used, are equally vital. Technically, an archive is understood to be unalterable storage. Data storage drives that are termed ‘write once, read many times’ (WORM) are often used for archiving.

Data retention refers to the availability and persistence of data in the hands of the authority that asked for it. Data

<table>
<thead>
<tr>
<th>European Union: Privacy and data protection as a basic right of citizens</th>
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<tbody>
<tr>
<td>The right of protection in respect of one’s personal data is mentioned in Article 8 of the EU Charter. All EU Regulations must comply with these laws:</td>
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<tr>
<td>✓ Right to the protection of personal data</td>
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<tr>
<td>✓ Right that such data be:</td>
</tr>
<tr>
<td>• Processed fairly for specified purposes</td>
</tr>
<tr>
<td>• Processed based on consent of the person</td>
</tr>
<tr>
<td>• Processed as laid down by law</td>
</tr>
<tr>
<td>✓ Right of access to personal data</td>
</tr>
<tr>
<td>✓ Right to have it rectified</td>
</tr>
<tr>
<td>Compliance is subject to control by an independent authority.</td>
</tr>
<tr>
<td>Source: EU legislation</td>
</tr>
</tbody>
</table>
retention applies to both live and archived data. It is easier to understand compliance requirements in relation to data archiving and data retention if electronic data is treated in exactly the same manner as manual information.

Legal issues surrounding data retention pertain to personally identifiable information, which is afforded a degree of protection. Protection of personal data implies that authorities receive personal data lawfully; that the data requested is only as much as is required to fulfil legal obligations; and that data is not processed in a manner incompatible with the purpose for which it was required. It should be accurate and kept up-to-date. Technical and operational measures should be in place to prevent unauthorized access. Retention of data increases the risk of unauthorized disclosure.

5.4 Destruction of Data

Data that need not be retained should be destroyed. There should be appropriate security policies and procedures in place to ensure that electronic records are not tampered with. These are briefly discussed in Section 6 below. Data should be stored in back-up facilities at secure locations that are entirely removed from the main processing centres, in order to protect against the dangers of simultaneous loss through disaster. The owners of data assets should have an obligation for data custodians to periodically review the data and information in their custody to ensure that it is actually destroyed when the data retention period has expired.

Due to the fact that there are technical means to retrieve data from electronic storage devices, even after it has been deleted, professionals should be engaged to destroy data in a certifiable way.

SINGLE WINDOW: RESPONSIBILITY OF USERS & PARTICIPATING ENTITIES

All users and participating entities of the Single Window have an obligation to protect personal privacy, commercial secrecy and security of data. The traders, transporters, warehouse operators, logistics service providers and intermediaries and regulatory agencies expect that the data provided to a Single Window will be protected and handled appropriately.

How can users and participating entities protect data?

✓ By knowing how the Single Window classifies data according to privacy and confidentiality.
✓ By understanding the types of data handled by them in their day-to-day business.
✓ By appreciating privacy and commercial secrecy concerns of all data they come in contact with.
✓ By applying data access and data sharing policies and principles.
✓ By understanding legal obligations and adhering to accepted privacy laws and principles.
✓ By taking responsibility for their actions and omissions.
6. Data Security and Preservation

The Single Window relies on the bedrock of secure and protected information systems. Single Window systems can be at great risk without appropriate data security policies, security-related roles and responsibilities, a risk management approach, a security audit framework, and a proper data archiving and retention policy.

6.1 Documented Security Policy

To ensure a reliable data security framework, it is necessary to adopt appropriate technical standards, such as ISO/IEC 27001 on information security management. This family of standards will help a Single Window operator manage the security of all its information assets. The implementation of a security framework should be reviewed through audit, active monitoring, and security scanning, carried out by an independent specialized organization. The professional information systems auditors rely on use comprehensive checklists and proven methodologies to carry out security audits.

6.2 Classifying Data Assets

In auditing the security of Single Window systems, an exhaustive list is prepared of all data assets in databases, records contained in the electronic messages received by/sent to the systems, and other computer files stored in the systems. Information contained in these assets is classified and given a security rating. The classification and rating will determine the kind of protection afforded to the information. This will help in assessing data implementing access authorization profiles.

6.3 Following a Risk Management Approach

Experts have advocated a risk management approach to managing data security risks. Risk assessment involves the identification of threats to data assets, or the latter’s vulnerabilities, by estimating the likelihood and impact of a security breach. Risks can occur to data assets through fire, flood, loss of access, cyber attacks, breach of access, data loss, etc. A risk management approach helps identify these risks, and to prepare the department to mitigate them and respond appropriately. The ISO 27001 standard specifies that risk assessment be carried out before any controls are selected and implemented. Every control must be justified by a risk assessment. The risk assessment, when carried out for each IT asset within scope, enables budgeted counter-measures that are commensurate with the loss or harm that is likely to result from a breach of security of the asset.

6.4 Data Security Assurance Process

The data security assurance process is designed to answer the following questions:

- Who in the Single Window organization provides assurance that the data assets of all classes covered by the Single Window have been afforded adequate levels of security?

- What enables him/her to declare/certify all systems are (and remain) secure, and all data assets are intact?
These are important questions for senior management to address when putting a Single Window system in place.

6.5 Informed User Base

Single Window functionaries (CBRA officials, ‘privileged’ users and users from external trade) should be given written instructions in relation to data security and privacy. Other end-users of the system should also be provided with security instructions. In addition, Single Window administrators should periodically publish security bulletins. A written, comprehensive security policy should be complemented by regularly trained and well informed users.

6.6 Ensuring Business Continuity

A business continuity plan should be developed and tested in order to tackle the consequences of failure, whether arising from a security lapse or other source. When systems become unavailable and manual clearance is resorted to, this causes not just a disruption in services, but could also pose a risk in terms of weakening targeting, screening, profiling and communication facilities.

6.7 Preventing Cyber Attack

In this hyper-connected world, cyber security is of great concern to governments and businesses alike. Bad elements are constantly engaged in attacking cyber assets all over the world. In particular, major government and private sector systems are vulnerable because of the potential for great damage and loss. Protection of the cyberspace implies the protection of critical national infrastructure, which is the priority for any government. Many governments in the advanced economies have created capabilities for defence against cyber attacks. These capabilities include constant monitoring of trends in cyber attacks and deployment of counter-measures. ‘Cyber attack prevention and response centres’ have been established to this end. These centres work closely with government and private ICT infrastructure providers so as to bolster their cyber security preparedness. Cyber security is driven by risk assessment and by mitigation of known threats. An effective response to a cyber security incident is critical, as timely and appropriate action will help to contain the damage, recover the system and regain public confidence. Single Window systems are definitely vulnerable and should not work in isolation when it comes to dealing with cyber attacks. As part of their security policy, they should also participate in national programmes and processes that help prevent and protect attacks on their ICT assets.

6.8 Using Digital Assets in Formal Legal Proceedings

Availability and use of audit logs is an important consideration in data security. The audit logs maintained in a Single Window system will ultimately help deal with legal, quasi-judicial and formal internal proceedings. The extent to which the activities to access data can be logged, and whether such activity and access logging is kept active, are important questions. The data on audit logs should be protected for any future use in investigations or in formal proceedings.

Audit trails (or activity logs) and data validation should be built into the Single Window as a design feature. These are generally based on business requirements and may relate to the need to identify
whether a piece of information has been changed or corrupted, or to the quality and admissibility of electronic evidence in a court of law.

When designing the system for the lodgment of declarations, care should be taken to establish the process to achieve non-repudiation of source. Audit logs are typically preserved for communication and electronic files of lodged declarations, along with log records of receipt of signed and verified files (where digital signatures are applied to electronic declarations). Hence, it is important to ensure that audit logs are not tampered with.

Periodic audit is carried out to ensure that protection, archiving, retrieval and presentation processes are intact. Test checks have to be performed to verify that the electronic records can be used as evidence in formal and legal proceedings.

### 6.9 Common Vulnerabilities

Increasingly, employees access the internet using low-cost solutions, e.g. office modems, mobile internet, wifi or bluetooth. Single Window systems become vulnerable when they are opened up to communication technologies which are available to almost everyone. The security risks posed by such access to communication networks, systems and data assets, and the potential for compromise of the network due to such technologies, are real and should be addressed through appropriate mitigation strategies.

Incidents of data theft and computer fraud are increasing, especially through the use of portable media, pen drives and other devices. The impact of data theft on Single Window data and operations should also be assessed. There is a risk from access of portable media (USB drive) onto CBRA premises, with the potential for such devices to cause data theft and to introduce malicious software into the Single Window system.
MANAGING TRANSITION TO A SINGLE WINDOW

PART IX
VOL 1
This part focuses on people issues inherent to the implementation of the Single Window. There will be human resource and change management implications for all participating organizations, but particularly for the lead agencies. Implementation processes may differ, but the challenges are mostly similar. The major ones are changes to organizational structure and reorientation of human resource competencies.
1. Introduction

Due to the strategic role of Customs, the development of a Single Window environment may lead to changes in the organizational structure of the participating cross-border regulatory agencies (CBRAs). The design of new services and the development of new types of interface between trade and regulatory authorities also have implications for organizational design, which needs to be pursued methodically. The establishment of the lead agency and the project organization for Single Window development is a strategic issue, with implications for organizational roles and structure. Changes to the organizational structure will result in the creation of new roles and the modification of existing ones. These are issues on which Customs is required to take a long-term view and create a roadmap.

Part II of Volume 1 illustrates the cross-cutting responsibilities of all border agencies, with particular focus on Customs, and underlines the implications for the organizational structure. From both policy and operational perspectives, this poses challenges to a traditional civil service, organized into specialized verticals, and to the hierarchy-bound government set-up. For the Single Window to be efficient, enhanced co-ordination and integration between CBRAs are necessary, and the actions of the participating CBRAs cannot be permitted to become disjointed. The solution lies in the strategic management process, which enables the alignment of goals, processes, and organizational culture. It helps ensure that all critical activities are appropriately located within and across organizational boundaries.

This Part considers human resource and change management issues, beginning with a systematic examination of strategic choices facing border agencies, including Customs. Each border agency must review its respective role in the context of a Single Window. The unique and core competencies that Customs and other border agency personnel possess will ensure that they continue to remain valuable in any reconfiguration of the workspace under a Single Window. The Part concludes with guidance on the change management process.

2. The Strategic Role of Customs

In discussing the strategic role of Customs, several questions need to be answered:

✔ What does it mean to be the ‘lead agency’ in a Single Window Environment?

✔ What are the human resource implications of being the lead agency?

✔ In what ways, could the Single Window environment impact the organizational structure of a CBRA?

✔ What human resource challenges does a Single Window present and what are the key aspects of meeting these difficulties?

✔ How does the executive management handle transition and change that emerge from implementation of the Single Window?
Part VI of Volume 1 explains the process of designing Single Window services. While the question of the establishment of lead agency is a political process, it is also a strategic issue, which needs to be examined very early on as part of the Single Window initiative.

2.1 Lead Agency Role

The term ‘lead agency’ signifies a leadership role involving the performance of strategic functions regarding the Single Window environment. All participating agencies need to analyse and decide as to their precise role in the future arrangement. The template provided below facilitates this analysis. It is evident from the WCO 2011 and 2016 Surveys on Single Windows that most business processes covered by a Single Window relate to cargo clearance procedures involving Customs. In any case, Customs will be heavily involved as a user and stakeholder in any Single Window initiative. Each of the interested agencies must determine their respective position in the ‘RACIN’ matrix (Responsibility, Accountability, Consultation, Information Not concerned/Not involved).
<table>
<thead>
<tr>
<th>Leadership Area</th>
<th>Function</th>
<th>Strategic Role (Example)</th>
<th>Change from Current Role (Customs)</th>
<th>Competency Profile and Impact on HR (Customs)</th>
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<td>Customs</td>
<td>Trade Ministry</td>
<td>Transport Ministry</td>
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<td></td>
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<td>Informed</td>
<td>Accountable</td>
<td>Responsible</td>
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<td>Policy</td>
<td>Support policy oversight on Single Window</td>
<td>Responsible</td>
<td>Accountable</td>
<td>Consulted</td>
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<td></td>
<td>Establish the strategic business case</td>
<td>Responsible</td>
<td>Accountable</td>
<td>Responsible</td>
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<td></td>
<td>Maintain policy momentum and ongoing support</td>
<td>Responsible</td>
<td>Accountable</td>
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<td>Programme Management</td>
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<td>Business case for the preferred project</td>
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<td>Project procurement and implementation</td>
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<td>Project monitoring, evaluation, review and sustainability</td>
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<td>Technical</td>
<td>Harmonization of laws and procedures, including development of new legislation and regulations to support exchange of information</td>
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<td>Data harmonization and business process alignment</td>
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<td>Development of functional and normative structures of data interchange</td>
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<td>Operational – Business</td>
<td>Trader account management</td>
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<td>Managing licences, permits</td>
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<td>Management of business operations - release decisions</td>
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<td>Post-release accounting/post-release enforcement</td>
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<td>Risk management in the integrated environment</td>
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<td>Business intelligence</td>
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<td>Operational – IT</td>
<td>Ownership of IT assets: data centre, hardware, software and data networks</td>
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<td>Ownership of information assets: data management and data life-cycle policies</td>
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<td></td>
<td>Management of IT-enabled operations – operations management, change management, configuration management, etc.</td>
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</table>

Table 1: Example of applied RACI matrix.
A competency-based approach is the cornerstone on which each new role will be defined. Policy and technical areas require particular knowledge-oriented competencies, whereas project management and operations need more process-oriented competencies.

### 2.2 Strategic Positioning

There are several aspects to being a ‘lead agency’. Some functions, such as responsibility for project procurement, or control of IT resources, are often misunderstood as the primary roles of any relevance or substance. As important as these tasks are, they are also very demanding in terms of human resources and managerial attention. Each participating agency needs to assess its strategic role in the process of development of the Single Window environment. Each organization has to perform a ‘SWOT’ analysis based on its current internal strengths and weaknesses, and on external opportunities and threats. The opportunities presented by the Single Window initiative must be weighed against possible losses.

Historically, in many countries, Customs has delivered data and procedural simplification in international trade. Its track record of delivering projects is well appreciated. These projects also have substantial ICT components. Additionally, Customs initiatives on promoting and managing trade facilitation make it a favourite for the ‘lead agency’ role. In countries where Customs has established a reputation for technical and managerial excellence, it can expect to be given responsibility for project management, business and IT operations, and co-ordination of technical and legal aspects. On the other hand, if Customs is not seen in some countries as an efficient deliverer of technology, it might lose its claim to the lead agency role.

In all these considerations, the track record of Customs and other participating CBRAs will be a major factor in determining who plays the role of lead agency.

### 2.3 Impact of Project Structure

Innovation is possible in designing the project. A public-private partnership will require different governance structures from those where projects are entirely handled by the government. Establishment of cross-departmental, empowered structures for executive decision-making will add another aspect to governance. Likewise, the creation of independent units for contract management, project administration and programme evaluation will impact the human resource configurations for Customs.

Regardless of government’s decision on the lead agency, Customs cannot shy away from key responsibilities in any Single Window initiatives. Its traditional role as the indispensable agency at the border will be a dominant factor. Its strategic positioning, as defined in its mission, vision and strategic goals, will determine the limits of its engagement. Its current performance on critical government programmes concerning external trade and border management will help establish the case for its chosen role.
3. Implications for Organizational Structure

A question that is often discussed in the course of the development of Single Window projects is that of the emerging organizational structure. Experts (namely, Chandler) have defined organizational structure as the outcome of the process whereby organizational strategy is administered. When there is a change in organizational strategy, it will lead to administrative problems which need to be tackled by making appropriate changes in the organization.

**VUCE – Peru**

Single Window for Foreign Trade (VUCE) in Peru was established as a result of an important political process that implied extensive consultations between the different agencies, government departments and ministries.

In the beginning, Customs took the initiative for developing the interconnection between the Customs and other agencies of the foreign customs community. At the same time in 2005, the Ministry of Foreign Trade and Tourism conducted a study to determine VUCE’s implementation and, later on, in June 2006 VUCE was created as a joint initiative between Customs and the Ministry of Foreign Trade and Tourism, which gradually involved other agencies. The Ministry of Foreign Trade and Tourism leads the initiative and has the responsibility for the overall policy. Additionally, Customs has the role of Technical Coordinator in the Restricted Goods Component of VUCE.

Likewise, to provide a formal structure for VUCE’s implementation, it was necessary to establish a Special Commission responsible for all policy and operational matters. This Commission was created in accordance to the "Law of Foreign Trade Facilitation" published on February 2007.

In this context, VUCE was launched for its operation in 2010. It began with the Restricted Goods Component, which allows the issuance of permits, certificates, and licenses of 15 Other Governmental Agencies (OGA) by electronic means to exporters and importers. Additionally, in 2013 was launched the Origin Component and Port Component. The Origin Component of VUCE allows users to simplify administrative procedures related to eligibility and issuance of certificates of origin; the Port Component of VUCE includes all the formalities required for the arrival, stay and clearance of ships.

Another important fact to mention is the implementation of the interoperability at national level between VUCE and the Peruvian Customs Clearance System, which began in 2015 and started its operations in December 2016. This interoperability allows data validation related to import declarations. Also, at international level, within the framework of the Pacific Alliance Agreement, Colombia, Chile, Mexico and Peru started a project in 2015 to interoperate electronic documents through VUCE of each member countries. Therefore, VUCE’s International Interoperability has started in 2016 with the Phytosanitary Certificate, and in the near future it will be interchanged the Certificate of Origin and Customs Declaration.

Update provided by Customs Administration of Peru

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**Figure 1: Functional requirements and policy priorities should determine organizational structure.**

Source: WCO Capacity Building Compendium, 2010
The design of the organization for running the Single Window is an important responsibility of executive management, which needs to remain alert to the administrative difficulties that strategic changes may cause. These changes invariably lead to new organizational roles and put pressure on different parts of the functional portfolios. For example, implementation of cargo clearance based on risk management requires the creation of new positions at all levels of the organization. The centralized structures that determine risk rules, and the system-driven approach to risk determination, will take over from personalized, distributed and transactional models, causing power shifts within the organization. This clearly calls for organizational changes.

Emphasis on post-clearance audit and AEO programmes will not only require new competencies, but create several new organizational roles. Typically, Customs organizations will have to move away from, or drastically limit, detailed documentary examination in real-time to the post-clearance phase.

Likewise, new structures will be necessitated through having to co-ordinate the examination and release process at the border. The presence of numerous agencies at physical borders gives rise to enormous co-ordination problems, leading to administrative difficulties, disunity of command and finger-pointing. Different countries have developed different strategies to deal with the question of reorganization.

### Reorganization – the formation of US Customs & Border Protection

There are several mission-critical roles that employees play within CBP. Many of these roles have cross-cutting responsibilities of agriculture, health, maritime security, aviation security, immigration, border policing and traditional Customs functions. All these diverse border-related functions have been brought under one agency in order to achieve improved co-ordination and effectiveness.

Over 20,000 Border Patrol Agents protect 1,900 miles of the US border with Mexico and 5,000 miles of US border with Canada.

More than 20,000 CBP Officers ensure the nation’s safety by screening passengers and cargo at over 300 ports of entry. Nearly 1,000 Air and Marine Interdiction Agents use their specialized training and high-tech equipment to prevent people, weapons, narcotics and conveyances from illegal entry by air and water. Over 2,200 CBP Agriculture Specialists work to curtail the spread of harmful pests and plant and animal diseases that may harm America’s farms and food supply, and to avert bio- and agro-terrorism. Nearly 2,500 employees in CBP revenue positions collect over $30 billion annually in entry duties and taxes through the enforcement of trade and tariff laws. These collections provide the second largest revenue for the U.S. Government. In addition, they fulfil the agency’s trade mission by appraising and classifying imported merchandise. These employees serve in positions such as import specialist, auditor, international trade specialist, and textile analyst.

**Source:** United States Customs & Border Protection website

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### Single Window: Azerbaijan

Upon the implementation of a Single Window environment, Azerbaijan Customs adopted changes to its organizational structure. It recruited a team of qualified specialists in agriculture and veterinary sciences. In addition, functions of Ministry of Health, Transportation, Agriculture and Veterinary Services related to border controls were transferred the State Customs Committee as a leading agency for single window implementation.

Customs on its own was able to provide all services at the border. This change was carried out in accordance with the appropriate executive authority and in consultation with the relevant ministries and departments.

[An update to be provided by Azerbaijan Customs]
3.1 Drivers for Reorganization

Part VI dealt with the problems of service design. These issues concern trade’s access to Single Window services, the interaction between business and CBRA frontline staff, and the complementary role played by electronic access channels, such as web portals and voice-based service desks.

Changes to workflow arising from operational co-ordination between CBRAs in front and back-offices were also discussed. Essentially, implementation of a Single Window will lead to variations in the constitution of work packages and the way in which work is completed, as outlined below:

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

Because of these changes, accountabilities for service delivery will be redefined, and reporting relationships will be redrawn.

3.2 Restructuring: Powerful Tool, Rare Opportunity

Reorganization is a corollary to the redesign of services. It is a powerful instrument in the hands of executive management, but also a unique opportunity, which must be used with care. The announcement of impending organizational restructuring should be used carefully and after preparing fully. On the one hand, it helps executive management to take concrete steps to gather resources and to launch internal and external communication. On the other, however, staff get the sense change is in the air, and trade and other key stakeholders also get the message that significant changes are under way.
There is always the expectation that IT-driven efficiency will free up human resources, and produce better results through improved co-ordination between units. This, however, is not necessarily the case and should be verified, especially with respect to the actual configuration of work performed by staff. The reorganized structure should match closely the needs, priorities and expectations of the target organizational structure. The job description for each post needs to be reviewed in the Single Window environment.

4. Human Resources

4.1 Competency Assessment – Prerequisites

People are the key enablers of any organization. It is therefore essential that Customs administrations and their stakeholders invest in their people as a fundamental element of their organizational development and modernization agenda. This is particularly true when a country embarks on the establishment of a Single Window.

In order to effectively implement a Single Window and to institutionalize its use, it is critical to carry out a thorough competency assessment (or knowledge, skills and aptitude mapping) across all the stakeholders involved in the project, in order to ensure that they are adequately equipped to handle the tasks that come with establishment of such a new working environment.

A competency-based approach to human resource management (HRM) ensures that employees’ performance is aligned with the organization’s vision, mission, goals and values. A competency is the combination of knowledge and skills that individuals apply to perform the tasks they have been assigned. A competency can be defined, observed, measured and evaluated.
Competencies can be categorized into three main clusters:
- Managerial and behavioural competencies;
- Business-operational competencies;
- Support competencies.

The competency assessment exercise is particularly critical at the inception/planning stage of the Single Window project as it will inform key human resource management processes/activities during the life-time of the project for each party involved, including:
- Job creation (updates of job descriptions or actual creation of new jobs, depending on each agency’s set-up);
- Staff planning (including staff rotation);
- Competency development (training/staff development);
- Competency acquisition (recruitment);
- Competency retention.

In order to carry out a thorough competency assessment, it is important to first list all competencies needed to establish, operationalize and maintain a Single Window. The competency assessment should include mapping out the existing in-house competencies against the competencies needed to establish and maintain a Single Window. It is therefore imperative that all parties involved have a job catalogue, as well as a competency framework, which clearly define each competency and the different levels of proficiency associated with it.

### 4.2 Some Competencies Needed to Establish and Maintain a Single Window

The table below provides a non-exhaustive list of competencies needed to establish and maintain a Single Window.

Table 2: Competencies to manage a Single Window

<table>
<thead>
<tr>
<th>Managerial and behavioural competencies</th>
<th>Business-operational competencies</th>
<th>Support competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Strategic planning</td>
<td>- Customs declaration processing</td>
<td>- Communication management</td>
</tr>
<tr>
<td>- Project management</td>
<td>- Customs legislation and procedures</td>
<td>- Data analysis</td>
</tr>
<tr>
<td>- Change management</td>
<td>- Intelligence and data processing</td>
<td>- Data warehousing</td>
</tr>
<tr>
<td>- Conflict management</td>
<td>- Co-ordinated border management</td>
<td>- Human resource management</td>
</tr>
<tr>
<td></td>
<td>- Integrated risk management</td>
<td>- Information system security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Business process mapping</td>
</tr>
</tbody>
</table>
4.3 Interpreting the Results of the Competency Assessment and Taking Informed HR Decisions

The result of the competency assessment exercise will inform the orientation of HR processes to address the competency gaps identified within each agency/stakeholder.

The partners involved partners will have multiple options for addressing these gaps:

- **Rotate staff** to ensure that the most competent staff (in terms of the Single Window who are available in-house are allocated to the establishment/operationalization/maintenance of the Single Window.

- If there is a total absence of critical competencies, the agency/stakeholder may have to:
  - **Create jobs** that did not exist before;
  - **recruit new officers** on fixed or short-term contracts, depending on the need(s) to be addressed.

- As the number of managers and users of the Single Window will grow exponentially, the different partners will have to devise **competency development (training) strategies and plans** (see –Azerbaijan’s experience in Section 3) to ensure that each agency/partner, depending on its role, has a critical mass of staff at all times that can effectively manage and/or use the Single Window. For the end users of the system, such as Customs brokers/clearing agents, these training sessions will need to be provided regularly during the pilot phase and prior to the ‘go-live’ launch of the SW system. They may also need to be co-ordinated at the national level by their institutional partners (e.g. Customs, Chambers of Commerce) to ensure consistency of the training delivered and efficient use of resources. Training sessions may be carried out through e-learning.

- As the global trading environment is becoming more digitalized, some key competencies, such as information system security, will be in high demand. This will require partners to devise adapted **competency retention strategies** for key competencies.

- Furthermore, the responsibility of government agencies to be equal opportunity employers notwithstanding, staff asked to use the SW will need to have a certain proficiency in information technology. As a result, these agencies may have to either **transition some employees** out of tasks related to the handling of declarations of goods, or ensure that these employees’ competencies in the field of IT are **upgraded**. In any case, for the recruitment of new staff, basic IT fundamentals will need to become a requirement.
5. Change Management

5.1 What is Change Management and Why is it Important in the Context of Single Window Implementation?

Like many reform and modernization initiatives, the establishment of a Single Window will lead to a new business/operational environment for both cross-border regulatory agencies and end users in the private sector. As a result, it will be important to define and implement an effective change management plan that will facilitate the transition from one working environment to another.

Before embarking on the venture of establishing a Single Window, all relevant stakeholders must answer some fundamental questions concerning the value proposition of a Single Window:

- What new value is the Single Window bringing to the clients/end users of the system (importers/exporters/carriers/brokers) and how will/can this new value be measured?
- How will the establishment of a Single Window benefit public administrations and how will/can the benefits be realized and measured?
- What kind of change must be brought about to achieve this new value?

The foregoing questions emphasize that change management is critical in securing the buy-in of the stakeholders, the adoption of the new working/business environment and the use of new tools/processes/technologies so that the initiative can deliver good results and outcomes. It is important to move from an ‘activity-output’ mindset to an ‘outcome and benefits realization’ approach. Having a robust change management strategy is also a buffer against resistance to change; it ensures that the results/products/solution provided meet the expectations of all stakeholders, and that the benefits of the change are enjoyed by all stakeholders. Therefore, investing in change management activities from the start of the initiative will not only facilitate its implementation but also limit the risks of failure and of increasing implementation costs.

5.2 Change Management Approaches

There are several well-documented and recognized change management approaches, including the three-step Lewin model (Unfreeze-Change-Refreeze); the eight-step Kotter change model (see Section 5.2.1 below); the five-step ADKAR model (see Section 5.2.2 below) and the 10-step approach, described in Section 5.3 and taken from the June 2017 edition of the WCO Capacity Building Compendium. The approach is specifically adapted to the initiative to establish a Single Window.
5.2.1  – Kotter Change Model: Eight Steps

Figure 2: The Kotter Change Model, involving eight steps.

5.2.2 – ADKAR Change Model: Five Steps

Figure 3: The ADKAR Change Model, involving five steps
5.3 The 10step Change Management Approach to Establishing a Single Window

The 10 steps in this Section follow the change management approach described in the June 2017 edition of the WCO Capacity Building Compendium.

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

**Step Two:** *Development of a process profile* – Most processes within CBRAs may not be documented before the implementation of a Single Window. Only documented procedures 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, 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 duplication of 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 constantly be on the path towards improvement with day-to-day challenges and opportunities. (See Survey feedback and total quality management frameworks for continuous improvement.)
5.4 Stakeholder Engagement

Effective stakeholder engagement is part of project and change management activities and helps:
- Ensure stakeholder buy-in and support (political support);
- Ensure mutual understanding and minimize confusion;
- Ensure that needs of stakeholders are incorporated and their fears assuaged;
- Ensure ownership of the new processes, products and solutions delivered by the initiative;
- Minimize time spent on crisis management and conflict resolution.

When embarking on a Single Window, one of the first tasks will be to identify all the stakeholders that can impact or be impacted by the initiative. Once this is done, it is advisable to create a comprehensive stakeholder register, and to cluster these stakeholders according to relevant criteria (e.g. public sector or private sector).

Depending on the interests and level of influence of each stakeholder, the most appropriate mode of engagement will need to be selected between:
- Informing (one way communication)
- Consulting
- Involving
- Collaborating
- Empowering

Once stakeholders are identified and mapped, and the mode of engagement selected, the project team will have to move on to the stage of developing targeted and tailored communication plans.

Below is an example of a stakeholder matrix for a Single Window project from the perspective of Customs administrations.
5.5 Communication: Lifeblood of Change

Managing the change resulting from Single Window implementation requires a formally developed communication plan that defines:

- the goals of the communication plan;
- target groups – communication will need to be tailored to the audience;
- key messages to be delivered to each target group;
- the best channel/methodology/tools to deliver key messages to each target group;
- the timetable of communication activities;
- resources (financial, human, technological) needed; and
- indicators to measure the impact and success of the communication plan.

Consideration of the best channel to use to reach target groups will need to take on board whether to use:

- Non-media communication: fairs, open door events, sensitization sessions…
- Media communication: social networks, television, brochures, newspapers...

It will also be useful to distinguish between communication aimed at an internal and at an external audience, as explained below.

5.5.1 Internal Communication

The dominance of informal communication channels and grapevines 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 agendas’ and rumours. Messages have to be regular and uniform, with a clear purpose and in keeping with their context. When formal opportunities are provided to employees and a free flow of information is permitted in formal settings, this promotes a consistent focus on problem areas.

5.5.2 External Communication

A formal approach to external communication involves creating stakeholder classes, describing the value proposition of the Single Window project for each class, and creating target groups for communication. Following stakeholder analysis, management attention should shift to brand-building. Building an image for the Single Window, and creating a 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 consistently ‘sell’ the project. Different types of communication material should be built for various classes of stakeholder. For instance, it may be useful to develop different flyers for the political executive, senior management, and trade. Short infomercials can also help promote the concept effectively. For example, Colombia promoted its Single Window with the theme ‘No more square windows and square faces’, which became an instant hit. The audiovisual material provided by Peru and the Republic of Korea are also examples to illustrate this point.

6. Conclusion

Customs administrations have a historical role at borders. As a border agency, Customs is indispensable. Its reputation for delivery will determine the kind of responsibilities assigned to it. The desire to take on a role must be matched with current business capabilities and the ability to put in place the required competencies.

This Part takes up the question of organizational restructuring to support the Single Window environment. Restructuring is shaped by the organization’s overall strategy. Inter-agency structures may be necessary to carry out co-ordinated actions with other agencies at the border. They provide the executive management with both challenges and opportunities. The chance to restructure is the most powerful one for the organization, and must be used carefully and systematically.

Human resources are the key to successful delivery in a Single Window environment. Frontline employees and management must be the change they wish the Single Window to represent. The competencies of frontline staff must meet the expectations of the designers who develop the service interactions for the Single Window solution.

Customs administrations cannot afford to follow a casual approach to change management. The WCO Capacity Building Compendium provides the ‘ten-step’ approach to change management. Communication is the primary task in managing change. Executive management is advised to adopt and implement a professionally produced communication plan.