



Economic and Social Council

Distr.: General
23 January 2017

Original: English

Economic Commission for Europe

UNECE Executive Committee

Centre for Trade Facilitation and Electronic Business

Twenty-third session

Geneva, 3-4 April 2017

Item 7(a) of the provisional agenda

Recommendation and standards

Recommendations for approval

Recommendation N°36: Single Window Interoperability

Submitted by the UN/CEFACT Bureau

Summary

Following the conclusion of the World Trade Organization's (WTO) Trade Facilitation Agreement (TFA) in 2013, many governments, supported by their business community, are increasingly demanding interoperability between National Single Windows, whether bilaterally or at the regional level. The aim of interoperability should be to exchange accurate, complete data speedily, seamlessly and securely, and to the greatest benefit for operators and users.

The purpose of this Recommendation is to highlight the issues and offer options for the establishment of Single Window interoperability, whether the national facility is operated by the public or the private sector, and to give examples of best practice. It is based on the provisions of Recommendations n°33 on Single Window implementation, n°34 on data simplification and standardization, and n°35 on the enabling legal environment for Single Window implementation, and makes reference to relevant international tools and standards, including UN/CEFACT standards.

The target audience is predominately government, but the individual recommendations, the guidelines and the identification of good practice are equally valid within the business community.

Document ECE/TRADE/C/CEFACT/2017/6 is submitted and was mandated in document ECE/CTCS/2015/7 (Chapter II, Sub-Chapter A, paragraph d),ii) b) to the twenty-third session of the UN/CEFACT Plenary for approval.

GE.17-00996(E)



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I. Part One

Recommendation n°36 on Single Window Interoperability

A. Introduction

1. Single Windows implementers, operators and end users have realized that enabling a single point of data submission at the national level only partially meets the requirements of an international supply and value chain. Despite the successful implementation of paperless (or significantly less paper) trading based upon a Single Window at the national level, many physical documents, both for Governments and the Trade, continue to be generated in order to fulfil the requirements of trading partners, counterparts and authorities across international borders.

2. To maximize the benefits from a National Single Window, coverage should be extended to include the cross-border electronic data exchange all information. Following the World Trade Organization's (WTO) Trade Facilitation Agreement (TFA) in 2013, increasingly many governments, supported by their business community, are demanding interoperability between National Single Windows, whether bilaterally or at the regional level. At the beginning of any interoperability initiative, the greatest emphasis is usually placed on the technical requirements needed to transmit the data in a timely, accurate and, perhaps most importantly, secure manner. However, international interoperability, in particular, is a considerably more multifaceted process.

3. Government, the trading community and other interested parties need a process (operating) model in order to ensure coordination among the different authorities and agencies within their respective cultures, objectives and agendas. Equally, the system must acknowledge the views and opinions of all stakeholders in order to ensure that it meets their business needs. This final point is important for software developers and vendors that may need to produce the interface applications for interoperability.

B. Scope

4. The scope of this Recommendation covers the interoperability between two or more electronic Single Windows in different countries or economies. It addresses the fundamentals needed for the exchange of information beyond the domain of a National Single Window.

5. Consistent with the definition provided in Recommendation n°33, the Single Windows discussed in this Recommendation are those that facilitate import, export and transit-related regulatory functions. The term "interoperability" in the context of this Recommendation is defined as: the ability of two or more systems or components to exchange and use information across borders without additional effort on the part of the user.¹

6. Although the majority of National Single Window facilities are related in some way to international trade, there is a distinction between the information and documents used

¹ Adapted from the definition of "interoperability" provided by the Institute of Electrical and Electronics Engineers (IEEE) Standards Glossary, available at <http://www.ieee.org> (accessed 16 December 2016).

within a country, and data exchanged between trading-partner countries or economies. This Recommendation concentrates on the information flows exchanged across the border, including the interoperability with another Single Window and the ability of the receiving Single Window to use the data exchanged.

C. Objectives of this Recommendation

7. The purpose of this Recommendation is to provide details on the preparations needed, including the models for information sharing that need to be developed, before implementing bilateral and regional Single Windows, and to give examples of best practice. It presumes that Recommendations n°33 on Single Window implementation, n°34 on data simplification and standardization, and n°35 on the enabling legal environment for Single Window implementation have already been followed.

8. The objective of the present Recommendation is to highlight the issues, and offer options for the establishment of Single Window interoperability, regardless of whether the national facility is operated by the public or private sector. The aim of interoperability should be to exchange accurate, complete data (datasets) speedily, seamlessly and securely and to the greatest benefit for operators and users. The exchange of information could be bilateral, multilateral (sub-regional, regional) or international.

9. This Recommendation does not aim to define the technical specifications or standards for Single Window interoperability, it rather highlights key issues to be considered before the implementation of Single Window. Further, the guidelines for this Recommendation provide models and example approaches, including available tools and standards for reference purposes. At the same time, designers and implementers should build an interoperability model best suited to identified government requirements as well as the commercial and trading needs of the concerned business communities.

10. The target audience for this Recommendation is predominately government, but the individual recommendations, the guidelines and the identification of good practice are equally valid within the business community.

D. Use of International standards and guidance

11. In order to ensure Single Window interoperability, the creation and development of National Single Windows should be based on international recommendations and standards, including those recommended by UN/CEFACT.

12. It is important to recognize globalization and the convergence of trade facilitation initiatives. This is perhaps most clearly illustrated in the World Trade Organization's (WTO) Trade Facilitation Agreement (TFA).² This Agreement identified Single Window and [Cross] Border Agency Cooperation as important tools for international trade facilitation (Articles 10.4 and 8.2 respectively). The TFA also contains several provisions for the governance of trade facilitation initiatives through the establishment of National

² At time of writing, while the TFA had failed to gain the formal approvals required to come into force, most of the countries party to the agreement in December 2013 continue to pursue their commitments under it (indeed, some 48 WTO Members have already made Category A commitments).

Trade Facilitation Committees (Article 23).³ The national trade facilitation bodies may be considered as a viable governance model for interoperable Single Windows.

E. Recommendation

13. In the light of the above, the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) recommends that governments and the business community should:

- a) Identify and analyse the primary drivers and needs for Single Window Interoperability (SWI), either currently or in the future, including perspectives from public and private sector stakeholders in trade in order to determine the type of Single Window interoperability that will be necessary;
- b) Research and examine the type of business processes and information to be exchanged between Single Windows, the existing semantic frameworks available for this exchange, and possible areas for improvement—notably through the harmonization and standardization of processes;
- c) Consider the most appropriate model(s) of governance for the proposed interoperability, at the various stages of planning, implementation and ongoing operations and in a way that is both financially and administratively sustainable; and
- d) Research all relevant multinational and bilateral trading agreements and arrangements to ensure that specific protocols or legally binding obligations are considered when developing a National Single Window and interoperability with other National Single Windows. If these agreements do not cover the identified business needs to ensure Single Window interoperability, stakeholders are encouraged to promote arrangements that ensure the organizational, legal, technical and semantic issues are addressed (as detailed in the guidance for this recommendation).

II. Part Two

Guidelines for Single Window Interoperability (SWI) Across Borders

A. The Business Needs of Single Window Interoperability

14. The primary driver of Single Window Interoperability (SWI) is to facilitate traders conducting foreign trade while assisting government agencies to take care of their own tasks. Trade-related information exchange can be utilized by governments and agencies in different countries and economies for the needs and requirements of the countries of export and import, and possibly, also, the countries of transit. Working towards effective Single Window interoperability (including regional Single Window implementation) for cross-border information exchange relies on traders and authorities having the trust, readiness and willingness to share relevant trade-related information with authorized parties.

15. Like business, government agencies also aim to fulfil their responsibilities in the most effective and efficient ways, while meeting their legal and operational requirements.

³ See also UNECE Recommendation n°4 National Trade Facilitation Bodies, available at http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec04/ECE_TRADE_425_CFRRec4.pdf (accessed 17 January 2017).

In addition, they should accomplish their tasks with a minimum cost of compliance for traders, and with maximum transparency and predictability of official procedures.

1. Scope

16. Single Window Interoperability within this document refers to the exchange of specified foreign trade-related information in a structured format between two or more Single Window systems in different economies. This information is exchanged for the purposes of international trade-related and administrative services and regulatory requirements in order to support re-use and processing with minimum effort and modification. The Single Windows in question are regulatory in nature, and the interoperability is cross-border.

2. Why Interoperability?

17. There can be multiple specific needs for interoperability based on the agreements between the economies that are exchanging foreign trade-related information. These should clearly be outlined in agreements or protocols in order to ensure clarity on the intended usage of the information. Some of the reasons countries may have for implementing interoperability are outlined below.

- **Regional integration:** Single Windows can be seen in a broader context as tools not only to improve national competitiveness but also to promote regional economic growth⁴
 - Within the framework of its Union Customs Code (UCC), the European Union is planning looking at possible centralized clearance which would allow traders in one member state to make declarations in multiple member states through the Single Window platform of their own country. The member states then exchange the required data for the full import declaration (or the requested economic procedure such as transit, inward processing or warehousing).
- **Trade facilitation:** Supporting traders with their declaration obligations in countries where their goods are transiting or at their final destination would allow economic operators, and especially small and medium sized companies, to comply with these countries' obligations and to compete better in the international market. Such obligations could include licences, permits, certificates, etc. The transfer of master

⁴ The Association for Southeast Asian Nations (ASEAN) offers a strong case study on the impact of a Regional Economic Community (REC) on the formation of a Regional Single Window system. Through such a case study we may see how the governance structures of the larger REC may impact the governance of a Regional Single Window. Similarly, a case study could be the Eurasian Economic Commission, a permanent supranational regulatory body of the Eurasian Economic Union (EAEU), which is coordinating Member State action in support of the development of Single Window mechanism in the EAEU. This role is enshrined in the document approved by Supreme authority of the Eurasian Economic Union (Supreme Eurasian Economic Council). Reflections may also be drawn in the light of highly integrated environments such as the European Union (EU) as well as deep bilateral relationships such as between the United States and Canada. The highly integrated systems for the exchange of information between countries in these latter examples attest to the potential usefulness of looking at them.

files⁵ between the authorities could avoid repeating constant basic (header) information such as party identifications and addresses. Finally, one trade facilitation concept is that of a ‘data pipeline’⁶ where information travels from the origin of the goods to their destination and, as the goods travel, could be accessed by appropriately authorized parties to the specific trade transaction.

- **Risk analysis:** Receiving information from the export declaration of merchandise which is arriving would allow government agencies in the importing country to assess, in advance, any security, safety, fiscal or other risks. This aspect is outlined within the WCO “SAFE Framework of Standards”⁷ in the third pillar on Government-to-Government (G2G) communication. It is also further developed in the WCO project on “Globally Networked Customs”⁸ in which the importing country will receive the export declaration-related information from the exporting country in order to perform a comparative risk analysis.
- **Advanced security declarations:** Building on this principle of risk analysis, many countries have put in place an advance arrival security declaration system. This again is outlined in the WCO “SAFE Framework of Standards”⁹ in the first pillar. Now that these systems have been functioning for a few years, one of the major concerns is with the data quality: the information received is often not reliable enough to perform a proper risk analysis. Obtaining this information at the source, from the exporting country, would improve the data quality. However, it would be difficult to oblige a foreign exporter to directly file information into the importing country’s computer system. Single Window interoperability could assist with this through bilateral agreements between countries where the exporting country’s platform would capture all of the necessary data elements; then the exporters would request that these data elements be sent to the importing country; then the exporting country’s Single Window platform would transfer the information to the importing country’s Single Window on behalf of the exporting country.
- **Infrastructure-use planning:** At a minimum, exchanging information about the volume of goods which are departing one country and which will arrive in another country on an approximate date would allow the importing country to try to adapt accordingly its infrastructure-use planning in order to accommodate the expected trade volumes.
- **Combatting illicit activity:** When identifying illicit merchandise or suspected illicit activity at export, the exporting country could forewarn the importing country in order to ensure that the merchandise is properly inspected upon arrival. This could

⁵ Master files are defined according to the Oxford dictionary as “A version of a data file that is kept for reference and regularly updated, and from which copies are refreshed”. Available at <http://www.oxforddictionaries.com/> (accessed 15 December 2016).

⁶ ‘Data Pipelines’ have been developed in the framework of two subsequent EU projects: Cassandra and Core. See “Seamless integrated data pipelines” by David Hesketh, HMRC, 24 August 2015. Available at <http://www.coreproject.eu/newsletters/core-2nd-newsletter-august-2015/seamless-integrated-data-pipelines-by-david-hesketh-hmrc.aspx> (accessed 15 December 2016).

⁷ World Customs Organization “SAFE Framework of Standards to secure and facilitate global trade” June 2015, available at http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/~/_media/2B9F7D493314432BA42BC8498D3B73CB.ashx (accessed 15 December 2016).

⁸ World Customs Organization “Globally Networked Customs Concept Strategic Value” 2012, and World Customs Organization “Globally Networked Customs Concept Frequently Asked Questions”, 2012. Both available at: <http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/gnc.aspx> (accessed 15 December 2016).

⁹ Ibid.

also be extended to suspicions of fiscal evasion through trading transactions, and to allow countries to plan the proper inspection relative to such transactions.

3. The benefits of Single Window Interoperability

18. Government and business should not allow improvements generated by a Single Window to cease at the national border. Benefits realized nationally and outlined in Recommendation n°33, its Guidelines and its Repository, could be extended to the international movement of goods. Countries currently operating a National Single Window and those planning the introduction of a similar facility should actively and positively consider the development of interoperability as an integral part of a Single Window facility. The obvious advantage would be the ability to communicate trade-related information easily and quickly, and more cost effectively for both government and the trading community.

B. Technical and semantic aspects of Single Window Interoperability

1. Possible levels of interoperability

19. Interoperability implies the use of recognized international standards. The WTO Trade Facilitation Agreement (Article 10.3) underscores that the use of international standards for import, transit, and export formalities is not only an important trade facilitation tool but also central to the function of interoperability. Recommendation n°34 Data Simplification and Standardization for International Trade underscores the importance of creating a national dataset which will harmonize and standardize the data used to meet the needs of multiple agencies within a single economy. It further establishes that these national datasets should be aligned to recognized international standards; having followed this guidance, Single Windows stand a greater chance of being interoperable across borders.

20. Interoperability is achieved at different layers: the methodology for dataset creation, datasets, business processes and messaging.

1.1. Methodology for dataset creation

21. A dataset is a sort of library or dictionary with all of the information requirements for a particular application/system/purpose. As stressed in Recommendation n°34, one of the key purposes of such a dictionary is to eliminate all repetition and redundancy. Creating any kind of dataset implies establishing rules on how that dataset should be expressed. For example, are all words spelled out completely or are some words abbreviated such as “declaration” which might be reduced to “dec”. The dataset also defines how to conglomerate multiple words such as “RequestDeliveryDate” or “requested-delivery-date” or “DelivDateReq” and also identifies or provides code lists when these are used. Computer systems can only read data if they can understand the dictionary entry names and the logic behind these entry names.

22. To support harmonized dataset creation, UN/CEFACT has developed the Core Component Technical Specification (CCTS) 2.01 – a methodology for developing a common set of semantic building blocks that represent the general types of business data in use today and for the creation of new business vocabularies and the restructuring of existing business vocabularies.

1.2. Dataset level

23. In the context of Single Window Interoperability, data-level interoperability may cover all the data exchanged in import, export and transit procedures between the participating countries, or it may only address a mutually agreed subset of these procedures. It could, alternatively, be enlarged to include other information and/or procedures.

24. The processes for dataset harmonization between multiple countries are the same as those established in Recommendation n°34. Presumably, if a Single Window exists in all countries concerned, then, at a national level, they have implemented the four steps of capture, define, analyse and reconciliation. To establish the cross-border interoperability of information, the implementers will need to apply these four steps again to the data covered by the scope of the desired interoperability. If, at a national level, recognized international standards have been used, then this alignment will be facilitated.

25. The alignment of two or more standardized datasets has important consequences in terms of supporting safe supply chains and trade facilitation for enterprises. At the same time, it does not necessarily mean that business processes and their corresponding electronic exchange of information are identical and, while it is an important prerequisite, such alignment does not necessarily lead to cross-border exchanges of information.

26. Building on several decades of collaboration between countries and between the private and public sectors, UN/CEFACT has developed, in cooperation with key stakeholders and organizations, the Core Component Library (CCL) and a range of data models based on the CCL.¹⁰ Many other standards organizations claim conformance to the CCL, such as the World Customs Organization Data Model, the International Air Transport Association's CargoIMP and CargoXML standards, among others.

1.3. Business process level

27. Each data element is understood within the context of its own business process. A business process will establish which actors in the supply chain are involved, what information each actor must supply within the process and when each individual data element should be provided. These are, in some sense, the grammatical rules. For example, a transit procedure might identify the border agent, the sender of the goods, the receiver of the goods and the transporter of the goods as the actors, and go on to explain all of the information which must be exchanged and in what sequence.

28. Single Window interoperability might go beyond aligning datasets. In order to further integration between economies, the business processes, themselves, might also be aligned. Aligning these processes would further ensure the reliability of the information which is exchanged since not only the definition would be the same, but the actual use of the information would be aligned as well. In addition, supply chain actors would perform their regulatory operations in the same way within each of these economies.

29. Several tools can be used to define business processes. UN/CEFACT has established a modelling methodology based on the Unified Modelling Language (UML)¹¹ which is called the UN/CEFACT Modelling Methodology (UMM).¹² UN/CEFACT has developed a number of specifications around specific business process such as quotation, invoice, remittance advice, scheduling, etc. These specifications, which document user data

¹⁰ See http://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html (link as of December 15, 2016). The CCL is updated twice a year. Each CCL is backwards compatible and builds on the previous version; all versions since 2006 are available on this website.

¹¹ See <http://www.uml.org/> (accessed 15 December 2016).

¹² See http://www.unece.org/cefact/umm/umm_index.html (accessed 15 December 2016).

requirements and data exchanges within selected processes are available as UN/CEFACT Business Requirement Specifications (BRSs).¹³

1.4. Message level (syntax)

30. Business processes are executed through the exchange of messages. Messages can be sent using a number of different electronic syntaxes (formats). Thinking of the datasets above as the dictionary of information and of the business processes as the grammatical rules of who, what and when, then the message syntax is the actual language which will be used to communicate. In order for it to be understandable, both the sender and the receiver must be speaking the same language. In all cases, this message syntax will need to be agreed upon in order to establish any kind of meaningful exchange.

31. Syntax can be considered on multiple levels: naming rules, technical standards of data models, class diagrams, class level, attribute level, etc. As with the other levels of interoperability, it is possible to directly use a recognized international standard which can contribute to future collaborations (instead of making multiple bilateral agreements on message syntax in order to perform different exchanges).

32. UN/CEFACT has developed the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) over twenty years ago. It is widely used and despite the presence of other syntaxes, its use is actually growing each year. Although some UN/EDIFACT messages are developed within other standards organizations, all UN/EDIFACT messages are maintained by UN/CEFACT and the UNECE Secretariat.¹⁴

33. UN/CEFACT also has an XML schema library with each publication of its Core Component Library. These are developed with the UN/CEFACT XML Naming and Design Rules (NDR)¹⁵ and the UN/CEFACT Core Component Technical Specification (CCTS).¹⁶

34. Another prominent syntax for Single Window development is the World Customs Organization's Data Model which provides both a dataset and a methodology for XML syntax creation based on the UN/CEFACT NDR (Naming and Design Rules) and CCTS or alternatively a UN/EDIFACT syntax solution which is directly aligned with UN/EDIFACT.¹⁷

2. Issues and challenges in technical interoperability

2.1. Achieving interoperability on a global level

35. One of the main challenges today is a lack of interest in interoperability outside of limited domain uses. There are, nonetheless, a number of international organizations which are developing standards which contribute to interoperability on a global level. Four international standards organizations have concluded an agreement which aims to coordinate their members' efforts on standardization and to avoid duplication of work; this is the Memorandum of Understanding on electronic business (ebMoU) between

¹³ List of currently available UN/CEFACT BRS available at http://www.unece.org/cefact/brs/brs_index.html (accessed 15 December 2016).

¹⁴ For more information and all the UN/EDIFACT directories, please consult <http://www.unece.org/cefact/edifact/welcome.html> (accessed 15 December 2016).

¹⁵ See http://www.unece.org/cefact/xml/xml_index.html (accessed 15 December 2016).

¹⁶ See http://www.unece.org/cefact/codesfortrade/ccts_index.html (accessed 15 December 2016).

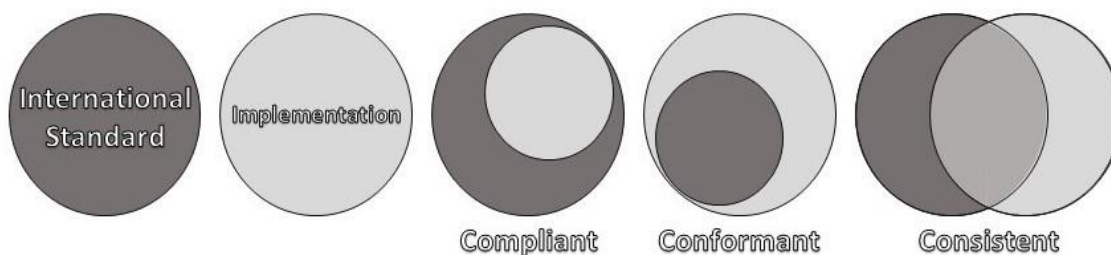
¹⁷ For more information, see http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/pf_tools_datamodel.aspx (accessed 15 December 2016).

International Organizations for Standards (ISO), International Electrotechnical Commission (IEC), International Telecommunication Union (ITU) and the United Nations Economic Commission for Europe (UNECE). The latter is the parent organization to UN/CEFACT where most of this work is developed.

2.2. Conformant versus compliant versus consistent with international standards

36. When the implementation of a given solution is defined solely with the terms and within the scope of a given standard, then it can be considered *compliant*. When the implementation of a given solution uses **all** of a given standard and then builds upon that with extensions, it can be considered *conformant*. However, the extensions which were added may not be interoperable with other solutions since they are not included within the referenced standard.

37. When the implementation of a given solution **uses only parts** of a given standard and builds extensions upon that, it can be considered *consistent*. Again, the extensions which were added may not be interoperable with other solutions since they are not included within the referenced standard. What is more, as only part of a referenced standard is used, there is a chance that another party which uses the same standard might not be able to align with this solution since parts of the standard will be missing from the “consistent” solution.



2.3. Different levels of experience

38. Single Window implementers may have varying levels of experience making the negotiations of interoperability a challenge. Some long-standing implementers may have a very mature system (that they may be reluctant to modify) and a rich set of experiences, which a country that has just begun its implementation will not have. Such an imbalance may make alignment a challenge as lesser experienced implementers may have requests which are based more on preconceptions rather than on actual experience and application of the principles set out in UNECE Recommendations n°33, n°34 and n°35 while experienced implementers may be reluctant to change in order to align with others.

2.4. Actors needing to comply with multiple technical specifications

39. In an international supply chain, it is possible that a single actor will need to comply with multiple technical specifications in order to satisfy all of the regulatory procedures applicable to their goods. This may be obvious for actors with operations in multiple countries, either where each country has its own national Single Window or where a Single Window may not yet exist. Likewise, in a national environment, in the absence of a National Single Window, multiple agencies may have established separate portals, each with its own technical specifications and each handling regulatory procedures. At the same time, the more different technical specifications that an actor needs to comply with, the higher the costs and the less competitive they are.

C. Legal aspects of Single Window Interoperability

40. Recommendation n°35 addresses the issues around establishing a legal framework for an international trade Single Window; the basic principles of this Recommendation should also be considered when establishing interoperability of systems in different economies. Here we discuss only the aspects which are specific to cross-border regulatory interoperability of Single Windows.

41. One of the biggest challenges will be the legal environment in each of the economies participating in the interoperability, or more precisely, the differences in each of their legal environments. Indeed, the interpretations of privacy, of ownership of data, intellectual property rights, archiving, authentication, etc. are all issues which might have different interpretations in each economy. Furthermore, issues such as authorization from the original submitter of the data that a government reuses need to be addressed. Annex 2 establishes a checklist for each of these issues which should be considered prior to the negotiation phase of interoperability.

1. Legal issues involved in cross-border Single Window Interoperability

1.1. The main principles of Single Window Interoperability

42. International law on cooperation between states in the field of electronic exchange of regulatory data is not very developed. Few treaties exist and these may be sectorial or territorial only. We may, therefore, look for principles that could be crystallized into customary international law or, possibly later on, into treaty provisions of a more general application.

43. For example, in the Eurasian Economic Union (EAEU),¹⁸ there are a number of key principles applicable to information exchanges between Single Window systems and these set an example of issues that should be addressed and defined in any agreement between two or more National Single Window operations participating in such exchanges. The electronic exchange of information and data messages, and the further use of this information in each participating state, should be based on, at least, the following principles:

- **Mutual interest and benefit of the parties (participating in the exchange of information):** This principle means that the parties agree on the provision of information on a parity basis. The scope and conditions of the information provided should meet the interests of the parties. Information exchange should enhance the development of cooperation between the parties.
- **Accessibility and availability of data:** The requests for information should be processed and replies sent to the requesting party to the extent specified in the agreement between the states' parties.
- **Accuracy and completeness of information:** Information provided to the requesting party must be accurate and contain a complete list of information as defined in their agreement.
- **Timely submission of required information:** Parties should adhere to deadlines for providing the information fixed in an agreement. Delays in reporting should be avoided.

¹⁸ <http://www.eaeunion.org>.

- **The information exchanged should be used only for limited specified purposes:** taking into account the needs of confidentiality and without prejudice to the state that has provided such information.
 - Harmonization is needed regarding the limitations of shared information between government agencies of different states (which may have different laws on data sharing). Data sharing should be only in the interests of the data provider, normally a legal person submitting data in a Business-to-Government (B2G) relationship. The use of the information is allowed only for the purposes for which it was sent by the data provider. The receiving Single Window would ordinarily not be permitted to share this information, without the express permission of the party submitting it, with third parties except, of course, with other government agencies that are participating in the Single Window and are involved in a decision-making process related to the transaction (e.g. issuing permits, clearance of goods, etc.)
 - In some countries, the exchange of trade and/or customs information with another Single Window may require the permission of the trader submitting such information. In this situation, it may be important to incorporate provisions to permit this in an End-User Agreement for traders who submit trade data to the Single Window. In the absence of permission, the transfer would normally not be possible. Only a compelling reason of public interest could make an exception, e.g. if the transfer is necessary to save life or property values.
- **Exchange of information is based on international standards and recommendations:** For the purposes of information exchange and interoperability of information systems, the parties should use existing international standards and recommendations as incorporated into their agreement(s) for the exchange of data.
- **Exchange of information is conducted on a non-profit basis:** The information exchange should ideally be organized to take place on a free of fees or charges basis, especially in the G2G context. Where fees are charged, they should be cost-based and non-profit. However, this should not prevent the parties from deciding, in an agreement to exchange trade data, to adopt a fee schedule. This is also without prejudice to the financing model of the Single Window and the public services in general.

D. Governance issues

44. Governance as a concept or policy is multifaceted. According to the OECD, “good governance is characterised by participation, transparency, accountability, rule of law, effectiveness, equity, etc.” In addition, “good governance refers to the management of government in a manner that is essentially free of abuse and corruption, and with due regard for the rule of law”. To ensure acceptance of good governance principles the implementers must demonstrate a strong determination, often referred to as ‘political will’ to ensure success.

45. Most often, the commitment to good governance comes from government in response to a demand from the populace, such as the eradication of corruption or other maleficent behaviour, the more effective administration of particular sectors of society, improvement in the performance of public or private entities, or the removal of obstacles to economic growth and the creation of wealth and employment. Consequently, governance is usually targeted at specific areas within society with the objective of enhancing the security

and quality of life for citizens and to encourage the development of entrepreneurial activities.

46. Ensuring the efficient and effective operation of a good governance regime requires certain prerequisites. For example, good governance should include:

- Transparency, including transparent processes and institutions based on clear rules and regulations and an appeal process for those affected by decisions;
- Accountability to those affected by decisions made and actions taken, as well as for delivering specific results;
- A clear definition of the governance regime;
- An understanding of the way the good governance regime will operate and the scope of the persons, parties, and other legal entities subject to it;
- A minimum of allowable exceptions;
- An unambiguous set of sanctions and legal penalties imposed in the event of contravention or non-compliance;
- Acceptance by the majority that the regime will be both beneficial and enforceable;
- An awareness programme informing the parties subject to the regime of its scope and implementation; and
- An open and transparent consultation process to seek views and opinions from all stakeholders subject to the regime.

47. An important, indeed essential, step in adopting recommendations and standards is to identify whether formal governance will be required in the implementation. Here it is crucial to make the distinction between governance (as described above) and good practice in project management by following proven organizational and operational methodologies. Where a feasibility study or project plan identifies the need for governance, appropriate provisions should be made to ensure it is effectively and efficiently incorporated in the implementation process. The requirements could include, but are not limited to, the formation of a specialist team within the project to examine governance issues, the allocation of suitable financial resources, the involvement of government officials from authorities and agencies impacted, consultation with business and third sector representatives and perhaps most importantly engagement with society and its citizens.

48. Annex III of this Recommendation develops governance options in Single Window Interoperability.

49. Governance issues may be generally conceived as domestic (for a National Single Window) and international (Single Window Interoperability). Governments wishing to make an economical use of existing resources within their international trade budget may wish to consider reinforcing their commitment to a National Committee on Trade Facilitation, along with the establishment of an international Trade Facilitation body under the WTO TFA as referenced in Part One of this Recommendation. The governance models contained in the TFA provide viable models for both the domestic and international aspects of SWI.

Annex I: General Business, Sustainable Analysis

1. The business needs and sustainability analysis is important to understand the real needs of the business community and government in the implementation of SWI. It is necessary to identify gaps, and the development activities required to reach the sustainable SWI activity as well as to identify the expected impact / benefits of the implementation.
2. The task for business needs and sustainability analysis is to find out:
 - the need for facilitation within the SWI context (goal for SWI activity);
 - what is already done (present/as-is situation);
 - where to facilitate (identify the process gaps);
 - how to facilitate (identify the procedures and best practices); and
 - when to facilitate (what should be done first).
3. Sustainability analysis has three aspects:
 - Economic sustainability is a necessary, self-evident requirement for all business activities, and is easiest to measure. The participating authorities should conduct cost-benefit analysis and evaluation to assess the feasibility and benefits of SWI implementation for the long term. The participating authorities should also consider appropriate operational and business models for the implementation of SWI. The SWI operational and business models will be discussed in detail in the Governance Annex.
 - Environmental sustainability has become an increasingly important part of business operations, including the efficient usage of energy and other resources and minimized impact on the physical environment. It is expected that SWI will have environmental effects similar to most electronic business developments. At least, the use of paper and energy for producing and transporting the documents will be reduced. Methods of analysis that could be implemented here are, for example, Supply Chain Environmental Sustainability Scorecard, and Environmental Footprint analysis.
 - Social sustainability aims for good business relations and mutual benefit for all stakeholders. It is crucial to analyse the roles and benefits of each party involved in the SWI implementation. The scope and objective of the SWI project could be defined by analysing the existing trade relationship and capacity between the participating countries and their readiness/preparedness for SWI.
4. Below are the steps in carrying out the analysis:
 - **Identify key stakeholders:** Identify parties who will be affected by the SWI implementation.
 - **Capture stakeholders' interests and requirements:** Conduct a study of each identified stakeholder's business needs and requirements for SWI. This information could be gathered through workshops and/or working groups.
 - **Categorize business needs and requirements:** The business needs and requirements could be categorized into the following groups:
 - Strategic;
 - Business;

- Operational;
- Technical.
- **Finalize the business needs and requirements for the SWI project:** Once the business needs and requirements are gathered and categorized, determine which are achievable and how they can be implemented by:
 - prioritizing the needs/requirements;
 - analysing the impact;
 - resolving conflicting issues;
 - analysing feasibility.
- **Sign off:** The stakeholders or their representatives must sign off the Business Needs Analysis report/agreement to ensure that the SWI meets their business needs and that they are therefore committed to support the implementation of SWI project.

A. Review of stakeholder's need

5. Review studies and interviews, and analyse business stakeholder and other possible needs for SWI. The reviewed areas could be, but are not limited to, the following:
 - Stakeholder analysis and evaluation of business needs;
 - Mutual user recognition mechanism - Trader identification – Trusted-trader schema (Mutual recognition is needed for SWI, and SWs are encouraged to create a mechanism for that);
 - A mechanism for trade transaction identification to track and trace trade documents and connect the documentation to the goods (items);
 - Use of appropriate classification system for product identification; and
 - HS codes or another agreed product identification scheme.
6. The Business Needs and Sustainability analysis should not cease when the implementation of SWI is completed, but should continue with user and stakeholder feedback to evaluate experiences when the operation is up and running.
7. More stakeholder analysis is described in the section below.

B. Internal review of national readiness for SWI

8. Interviews with business and stakeholders should be conducted along with studies to review the **readiness** for SWI activity. It is especially important this is conducted among NSW operational staff.
9. Motivation of stakeholders and NSW operational staff:
 - Business processes and legal base;
 - ICT readiness – software, hardware and data communication;
 - Scheduling.

C. Tools for needs analysis

10. In conducting the needs analysis the following tools may be helpful:

1. Trade volume between economies involved

Trade (customs and transport) import and export statistics are used as the traditional tool to analyse foreign trade volumes at the country and trade sector level. Trade statistics can be used for analyses of general trade volumes between countries, sectoral division of traded goods and modes of transport utilized in export and import by product category. Trade statistics, however, do not provide direct information on the frequency and number of individual trade transactions and, hence, provide no specific information for the sustainability of Single Window Interoperability. Trade statistics might be available in different combinations and data sets in different countries. The UN Statistics Division is standardizing the collection and publication of trade statistics. International trade statistics are compiled in The United Nations Commodity Trade Statistics Database (UN Comtrade).

Prognoses and surveys on trade and economic situations and developments can be used for evaluating future trade volumes in general as well as between specific countries and trade sectors. Combined with the study of trade statistics, these tools can provide reasonably good estimates of trade volumes, current trends and foreseeable developments to support the decision making and planning of SWI activities.

Free Trade Agreements (FTA) and other preferential arrangements normally boost trade between economies. In addition to the main benefits of FTA, their influence on business activity might be one of the triggers for arranging SWI implementation. A Free Trade Agreement combined with SWI may create a powerful tool for predictable, stable and harmonized trade procedures between participating economies. Research is needed on all regional and bilateral trading agreements and arrangements to ensure specific protocols or legally binding obligations are considered when developing a National Single Window. Such research may reveal examples where a trading agreement may need amendment or revision.

2. Cross-border and transit trade information

11. We suggest the collection of cross-border and transit trade-related information requirements that should be considered in the design of any interoperability module for a National Single Window.

3. Strength of political will

12. Often, political will can be reached through examining the needs of the business community along with examples of successful implementations and business cases. It is important that all relevant stakeholders be interviewed and briefed about the benefits and possibilities of SWI. However, other challenges should also be brought, in an objective manner, to the decision maker's awareness, so as not to construct a vision of simple plug-in interoperability, especially in multilateral interoperability cases.

13. The awareness level on SWI benefits among political decision makers and leading authorities is of major importance when establishing SWI between two or more National Single Windows. Awareness can be raised with tools such as seminars and questionnaires. The level of commitment to the SWI development and operation can be ascertained through

interviews and discussions with appropriate political decision makers and lead authorities like customs and trade ministry officials, among others.

4. Level of “local” interoperability (national agencies to the NSW)

14. Business process analysis and modelling should be implemented among organizations related to a National Single Window (NSW) and its international interoperability in order to discover possible bottlenecks and areas requiring development. These include:

- Analysis and modelling (or reviewing) of AS-IS situations of business processes and data flows between Business and the NSW, and between the NSW and government agencies and administration; and
- Analysis of SWI requirements and needs for processes and information flows.

D. Additional stakeholder needs and interests

15. Below is an outline the of business needs of each stakeholder in relation to the cross-border trade facilitation business processes:

1. Governments (top/deciding level):

16. Governments play a key role in establishing Single Window Interoperability. Government decisions pave the way for trade agreements and conventions resulting in increased trade volumes. Government decision or acceptance is required when starting to establish and implement information exchange between National Single Window systems between two countries or economies. Governments can also create a feasible environment for implementation of trade facilitation measures, allowing benefits like Single Window Interoperability to be utilized.

2. Lead agency (implementation level)

17. A Single Window lead agency takes the responsibility of coordinating and implementing the SWI activity. The lead agency will also take the action to negotiate on harmonization of practices and interfaces as well as necessary information, such as datasets (documents), codes, etc. The lead agency may take care of the implementation action itself or nominate a **Single Window Service Provider** to take care (at least) of the technical implementation of Single Window interoperability.

3. Other interested parties involved in the business process:

- **Participating government agencies** could be involved in Business-to-Government (B2G), Government-to-Government (G2G) relations. B2G is an interaction between a trader and administration. Different possibilities to enter the information exist: direct trader interface, Electronic Data Interchange (EDI) web forms, etc. G2G relationships can have two facets: The ‘external’ case of G2G is when there is an interaction between two international administrations. The ‘internal’ case of G2G is when there occurs data exchange internally (in a country) between its local agency and related national governmental agencies.

- **Chambers and other associations** are interested in developing information and communications technology (ICT) infrastructure for facilitating global trade. Chambers of commerce deliver international certificates; for example, certificates of origin may be needed to comply with Letters of Credit, foreign customs requirements or a buyer's request. Electronic signatures are needed for SWI.
- **IT Service Providers** can facilitate the process of SWI. They can offer IT services and participate in developing, implementing or updating digital infrastructure or services for private traders or administration. Interoperability will permit optimizing the supply chain management (tracking goods, knowledge in real time, anticipating events, etc.) If generalized at an international level, this market can obtain economies of scale and lower software prices. This can foster innovation.
- **Financial institutions** facilitate the flow of money between a supplier and a buyer. There are different types of payment to secure international sales transactions such as Letter of Credit or documentary collection. Even if banks use SWIFT messages for issuing international trade payments, many documents (such as packing lists, insurance certificates, certificates of origin, commercial invoices, transport documents, etc.) are still sent in paper form between the import and export banks. Single Window Interoperability could be an opportunity to dematerialize the payment process in parallel to the SWIFT platform.
- **Port Operators** are obliged to report formalities concerning ships arriving in and departing from their countries. Two kinds of information systems are concerned for maritime transport: shipping and goods.
 - *Shipping*: Vessel information can be linked with a port community system which manages information at the port of call, e.g. dangerous goods information, etc. Standardized forms for regulatory reporting are defined by the International Maritime Organization (IMO) Convention on Facilitation of International Maritime Traffic (FAL). The different FAL paper forms are currently: IMO General Declaration; Cargo Declaration; Ship's Stores Declaration; Crew's Effects Declaration; Crew List; Passenger List; Dangerous Goods. In Europe, the Directive 2010/65/UE¹⁹ aims at simplifying and harmonizing the administrative procedures applied to maritime transport by establishing a standard for electronic transmission of information and by rationalizing the reporting formalities.
 - *Goods*: Freight data can be integrated in a cargo community system which supports, in particular, e-customs processes.
- **Ship operators** are interested in submitting the information only once in National Single Windows (for example, some information of the FAL (shipping) is similar to goods clearance). This interface requires port operators to agree on data formats. For example, customs goods classification is HS Code whereas dangerous goods are classified with United Nations systems. Furthermore, statistics for the maritime transportation of goods are organized differently in different countries. Simplifying, rationalizing, standardizing different nomenclatures, and agreeing on standards are key issues to prepare for SWI. Ship operators require similar port Single Window systems at an international level. It means developing similar IT languages, standards and procedures.

¹⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0065&from=FR> (accessed 16 December 2016).

- **Air cargo communities** are composed of different stakeholders: airlines, airport authorities, ground handling agents, and freight forwarders that currently exchange air cargo information via existing air cargo community systems. Government agencies and logistics actors would benefit from data exchange between the existing air cargo network/system and SWI systems. This would maximize the data reusability and accuracy readily available in the existing systems.

E. Conclusion

18. It is crucial to perform the Business Needs analysis prior to development of Regional or National Single Window Interoperability projects as it will help the parties involved to understand the business goals and what is in place to support the implementation of SWI.

Annex II: Checklist of legal issues to consider in Single Window Interoperability

1. UNECE issued Recommendation n°35 Establishing a Legal Framework for International Trade Single Window²⁰ to provide general guidance on the legal framework issues related to developing, implementing and operating Single Window facilities. Recommendation n°35 suggests the importance of considering international trade transaction legal issues. Its Annex II provides criteria to consider and these criteria should be observed whenever establishing a Single Window system. This Recommendation on Single Window Interoperability builds on the foundation provided in Recommendation n°35 and adds to its provisions only where necessary. Reference may be made to other legal instruments relevant to the setting up and running Single Window facilities. Recommendation n°35 also notes the importance of adopting international standards when establishing the legal environment for a Single Window.²¹

2. The following list of issues and principles are largely based on Recommendation n°35. They are intended primarily to highlight those questions that may arise in a cross-border interoperability context. Recommendation n°35 should be referenced when reviewing the following material. It should be noted that due to the extremely robust range of legal issues that might need to be addressed in varying Single Window circumstances and different legal regimes, the list is not exhaustive.

3. Single Window Interoperability for regulatory purposes means that the authorities of different countries cooperate by [electronically] exchanging data to meet regulatory aims. The data may have a different structure, content and legal status in different countries. Even regulatory data based on the same legal source, such as an international convention or EU directive, may end up being different when implemented. Only full harmonization of law could eradicate such problems.

Issue	Guidelines
Legal basis for establishing cross-border interoperability	<p>This matter is most closely connected with and based on public international law. Countries A and B may become legally obliged to create interoperability. Treaties and conventions impose legal obligations on states. At the same time, and as noted in Recommendation n°35, the national law that enables a country's Single Window should authorize the cross-border exchange of trade data and information.</p> <p>In the absence of a binding treaty or convention, states may nevertheless undertake to cooperate with other states by assent on the basis of reciprocity and mutual recognition. This may include mutual recognition of Single Window systems. This may require considerable effort unless the administrative and technical systems are already quite similar. However, it is likely that some type of bilateral or multilateral agreement may be needed between the two or more states involved in establishing cross-border interoperability.</p> <p>Legal obligations are most effectively created to cut administrative red tape and</p>

²⁰ UNECE Recommendation n°35 Establishing a legal framework for international trade Single Window, available at <http://tfig.unece.org/contents/recommendation-35.htm> (accessed 16 December 2016)

²¹ See, UNECE Recommendation n°35 Establishing a legal framework for international trade Single Window, Annex III – Toolkit (listing a variety of international organizations providing guidance on legal and other issues relevant to Single Window development), Ibid.

Issue	Guidelines
	to harmonize administrative requirements such as the number and nature of administrative documents needed to fulfil the regulatory procedures conducted through the Single Windows. It is also possible to create technical interoperability requirements through legislation, but it is usually preferable to maintain technological neutrality in national legislation. It is suggested that technical (in the pure sense of the word) interoperability be established and maintained through negotiations.
Organizational structure for interoperability	Establishing the organizational structure for the National Single Window (i.e., its legal structure and governance) is normally a matter of domestic law. National law determines to what extent contractual approaches are possible and whether self-assessment by end users of their obligations (<i>vis-à-vis</i> the authorities and the Single Window systems) is possible. Provided that the cross-border exchange of data is authorized in national law, the organizational issue should not affect Single Window Interoperability.
Identification, Authentication and Authorization Procedure	<p>The legal issues emanating from the identification, authentication and authorization procedures are critical and complex in the context of SWI and consistent application of these procedures is vital. In any state across the world, the authorities involved (and other potential users of a Single Window) should take into consideration the Recommendation n°14 Authentication of Trade Documents in assessing the needs and levels of authentication.</p> <p>Recommendation n°14 states that, as far as possible, the requirement of a signature (manuscript or its electronic functional equivalent) should be eliminated unless it is essential in the context of the transaction.²² Depending on the scope and objectives of the SWI, consideration should eventually be given to the authentication methods, which are ‘as reliable as appropriate’ for a particular transaction within a country.</p> <p>For example, if the aim of SWI is solely to share and disseminate information about the trader or the trade transaction volume to formulate border management strategy, a low-level of authentication may be adequate. Similarly, if a trader or its agent is an Authorized Economic Operator (AEO) or has signed a separate contract with the Customs Agency (or the Single Window) [by putting in place necessary financial guarantees], then only a low-level authentication may be needed for filing individual customs declarations.</p> <p>However, states that participate in the exchange of information between their Single Window systems need to undertake a risk assessment to determine if the selected authentication method in each state is reliable enough to ensure safe and secure information exchange between the trader and the local Single Window (B2G). Thus, there can be an understanding that the information being conveyed to another National SW will take into account the nature of the information and the risks involved. Should the assessment lead to a positive result, the cooperating states should mutually recognize each other’s authentication methods for exchanges of data emanating from the trader in the trader’s country of origin.</p> <p>A similar assessment may be required to ascertain whether the authentication methods used by the government authorities are robust enough to ensure safe and secure information transmission between the Single Windows of cooperating states (G2G). While forming a cross-border authentication policy</p>

²² UNECE Recommendation n°14: Authentication of Trade Documents, available at http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec14/ECE_TRADE_C_CEFACT_2014_6E_Rec14.pdf (accessed 16 December 2016).

Issue	Guidelines
	<p>for SWI, the cooperating states should either agree on a common authentication standard in information exchanges between them or mutually recognize the standards of other cooperating states.</p> <p>The creation of a legal framework that provides equal legal status and acceptability to modern authentication methods is crucial for SWI. Cooperating states should, where appropriate, take into account and adopt international legal standards/instruments and guidelines which serve as a benchmark when creating a legal framework to ensure its compatibility with the global legal infrastructure for the seamless exchange of electronic information.²³ The series of legal texts developed by the United Nations Commission on International Trade Law (UNCITRAL) provide tools for reaching a uniform legal framework and also for the legal recognition of authentication methods.²⁴ Cooperating states should also take into consideration the emerging best practices such as the legal architecture of the Association of Southeast Asian Nations (ASEAN) and recent work at the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) to make a Single Window legally interoperable.²⁵</p>
Ownership of data	<p>Many legal systems cannot classify the issue of ownership of data as a legal right comparable with ownership of physical or tangible property, or intangible property such as intellectual property rights, business methodology, goodwill and brands. Yet, many contractual approaches to the submission of data to Single Window systems recognize that the end user may, to a certain extent, decide upon the use of data that they submit to the system. Such a provision would affect the rights of Single Window systems to exchange information with each other.</p> <p>Reference may be made to the principle that “information exchanged should be used only for limited specified purposes” as spelled out in item 3.1.1.e, <i>supra</i>. The application of the principle would lead to the limited use of the data</p>

²³ Hemali Shah and Ashish Srivastava, 'Authentication and Recognition Issues in Cross-Border Single Window' (2013) 47:6 *Journal of World Trade*, 1252. Available at <http://www.kluwerlawonline.com/abstract.php?area=Journals&id=TRAD2013041> (accessed 16 December 2016).

²⁴ These include UNCITRAL Model Law on Electronic Commerce 1996, UNCITRAL Model Law on Electronic Signature 2001 and the UN Convention on the Use of Electronic Communication in International Contracts 2005. Available at http://www.uncitral.org/uncitral/uncitral_texts/electronic_commerce.html (accessed 15 December 2016). See also, the UNCITRAL Guidance document, Promoting Confidence in Electronic Commerce: Legal Issues on International Use of Electronic Authentication and Signature Methods (2007). Available at http://www.uncitral.org/pdf/english/texts/electcom/08-55698_Ebook.pdf (accessed 15 December 2016).

²⁵ It should be noted that the ASEAN Member States have completed drafting a *Protocol on the Legal Framework to Implement the ASEAN Single Window* to ensure that “...their local laws are synchronized for both Single Window at the national level and ASEAN Single Window”. This draft Protocol is expected to be signed in 2015. Consideration may also be given by the cooperating states to the Framework Arrangement/Agreement on Facilitation of Cross-border Paperless Trade for the Asia Pacific Region of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Available at <http://www.unescap.org/events/ad-hoc-intergovernmental-meeting-regional-arrangement-facilitation-cross-border-paperless> (accessed 15 December 2016). Work on this international text is continuing through an Interim Intergovernmental Steering Group approved by the Commission at its Plenary Session in August 2014. See also, UNESCAP, *Electronic Single Window Legal Issues: A Capacity Building Guide*, pp. 20-32 (2012), available at http://www.unescap.org/sites/default/files/0%20-%20Full%20Report_4.pdf (accessed 15 December 2016).

Issue	Guidelines
	<p>submitted even without a contractual provision. The application of the principle would make contractual clauses less necessary and would apply in situations, in which the submission of information by the end user to the Single Window is not regulated contractually.</p> <p>The need to regulate the use of information in the exchange of data between the authorities of different states is especially motivated by the fact that states may exercise jurisdiction in situations with an international dimension differently, sometimes resorting to extraterritorial jurisdiction.</p>
Right to obtain data from the Single Window	<p>This may constitute a legal issue affecting Single Window systems, and the cross-border dimension may add complexity to it. States have very different policies as to the access to public documents and transparency. Customs information, however, is generally treated with confidentiality but other types of information is necessarily not. The different treatment of information could cause problems in the transfer of information. These are often constitutional issues and are seldom subject to legal harmonization. Constitutional rights are normally enjoyed by the citizens, or local residents only, and not by foreigners.</p>
Privacy and protection of commercial information	<p>Data protection and privacy laws are generally national although some international regimes such as those adopted under the auspices of the Council of Europe exist. There exist methods to transmit personal data to other countries with sufficient level of legal protection. If such legislation does not exist, a contractual solution to the same effect may be used. In the customs arena, too, most customs laws include confidentiality provisions to protect information submitted for trade transactions and some include criminal penalties for unlawful release of such data.</p> <p>For example, the European Commission has produced model contracts to transfer data to countries which do not have legislation with protection equivalent with the EU.²⁶ If the EU recognizes the standards of the country where the data is to be transferred, such as the United States, no contract is needed.</p> <p>Most states have legislation on the protection of commercial secrets generally, and additionally to meet treaty requirements under the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Protection of commercial secrets, trade data, etc. are often the subject of legislative and regulatory measures in many countries.</p>
Accuracy and integrity of data	<p>The accuracy and completeness of data is an issue that relates mainly to the competence and integrity of the party submitting information. If the information is submitted by a public authority, there exists (at least) a presumption of its accuracy. For public bodies issuing documents, the Single Window providing the information may be presumed to have provided accurate and complete information, unless fraud or falsification is demonstrated or obvious. For individuals, the administrative and criminal laws of the receiving country's Single Window (whose regulatory procedures are seized) may prevail. This may lead to questions of personal jurisdiction that may be complicated for national laws and constitutional protections for citizens. At least for non-criminal issues, such issues may be addressed in agreements related to SWI.</p> <p>The technical integrity of data may also be subject to information security solutions that may be applied in the SWI environment. Usually, a party administering an information system has legal obligations to maintain</p>

²⁶ See the model clauses at http://ec.europa.eu/justice/data-protection/international-transfers/transfer/index_en.htm (accessed 15 December 2016).

Issue	Guidelines
	<p>information security. Information security standards should be addressed in the SWI agreements between the parties. Data hosting may be an issue addressed in this context. Some states regulate the hosting of their administrative data when outsourced.</p>
Liability Issues	<p>In the context of this SWI Recommendation, liability usually refers to civil liability as distinct from criminal liability. The party incurring liability may be held liable for his or her acts or omissions in the context of operation or use of the SW. The liability may be based on a statutory requirement, on a provision in a contract such as a User Agreement or may be tortious. Liability may be strict so that it does not presuppose negligence, or it may be based on negligence. A general requirement is causality between an act and the harmful consequence. Governments entering SWI agreements will need to address these issues, particularly since they may have implications for the contractual relationships between private sector trading partners utilizing the Single Windows in each country.</p> <p>Liability is one of the complicated issues in a cross-border context since, in order to determine liability of any party, one needs to take into account in which jurisdiction the liability is to be determined, i.e. jurisdiction issues. Moreover, a court (or an arbitral tribunal where arbitration is possible) needs to determine what substantive rules will be applied to determine who may be held liable and in what situations liability arises.</p> <p>Ordinarily, the SW operator will not be liable for the data content submitted by the private sector user of the Single Window. Where private sector operators of Single Windows (usually under contract with a government) are involved, there is a tendency of SW operators to include exculpatory clauses in End-User Agreements <i>vis-à-vis</i> the parties. SW operators could also agree on liability issues on a transnational basis, e.g. by exculpating themselves from errors contained in the data submitted by the end user which they transmit to another Single Window, or by agreeing on liability standards to be applied in the B2B cooperation.</p> <p>(See also Jurisdiction and Dispute Settlement below.)</p>
Jurisdiction	<p>Jurisdiction may be divided for the purposes of operating Single Window systems into 1) administrative, 2) civil and 3) criminal jurisdiction. The territorial scope of jurisdiction is a relevant issue also in this context since each state or a supranational organization such as the EU may define its own jurisdiction. Sometimes, jurisdiction may be extended to situations where there are only limited connecting factors to the country or organization exercising jurisdiction. In the extreme, states may exercise extraterritorial jurisdiction. States usually regard the right to have administrative and criminal jurisdiction relating to compliance with their administrative procedures indispensable. As both the administrative and criminal law and jurisdiction are national, states exercise jurisdiction in the presence of the company or person in the jurisdiction. This is a requirement for the establishment of jurisdiction and also makes enforcement possible. Often, therefore, states prescribe the need to appoint a local agent (such as a tax agent) to connect with the Single Window or the authorities of the country otherwise. This way there is a party within its jurisdiction to bear the liability. The financial obligations may be enhanced by requirements of putting up a security.</p> <p>The exercise of jurisdiction in civil matters may be based on conventions and treaties but each country defines in its domestic law how the jurisdiction of the state courts is established. Civil jurisdiction is relevant especially when the relationship between the Single Window systems (or between an end user and</p>

Issue	Guidelines
	<p>the Single Window) is based on contract, or when non-contractual (tort) liability is involved. Extraterritoriality may be particularly relevant when coupled with particularly excessive civil liability regimes.</p> <p>While this Recommendation does not explore the detailed implications of criminal law issues, governments should consider these issues in establishing SWI. For example, if company X from country B were to violate the criminal laws of country A by submitting false information or forged records or data to the authorities of country A, how will this be addressed? The breach of regulatory provisions (e.g. by submitting false information) may lead to criminal actions which in turn require jurisdiction. Therefore, states normally refuse to deal with parties they do not recognize and which do not have presence in their jurisdiction.</p> <p>In criminal law, the application of domestic law is always connected with jurisdiction. In fact, the international aspects of criminal laws are presented as jurisdictional issues. If country A exercises criminal jurisdiction on individual Y, a national and resident of country B, this usually presupposes the presence of Y within the jurisdiction of A either by being caught there or after having been extradited to country A by country B.</p> <p>In dealing with the possible criminal liability of corporate entities, additional problems may arise. Further, difficulties in this area may arise, for example, if the cooperating SWI countries A and B have very different approaches to the application of criminal laws in cross-border situations on dispute resolution. See Dispute resolution below.</p>
Data Retention, Archiving, and Audit Trails	<p>Each state, in developing the national law (often through operating regulations) for its Single Window, will define data retention, archiving, and audit trail requirements. The use of archived information may be needed to fulfil a transaction between two Single Window systems. Different approaches to transparency and access to information, in different countries, may pose problems in respect of archived data. Thus, countries should carefully examine these requirements domestically—and those of countries with which it may enter SWI agreements. Those SWI agreements may address the requirements expected for each participating country's SW in these areas.</p>
Intellectual property and database ownership	<p>It is submitted that these issues are merely organizational and should not have cross-border dimensions. International conventions on intellectual property create much harmony, due to which fewer problems should arise. The WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement includes provisions on the protection of business secrets as well as enforcement of intellectual property rights under Part III.</p>
Competition law	<p>Competition law issues are mainly national law issues, or are applied in uniform markets such as the EU. Competition law nevertheless has a grip on some harmonization measures between companies. It is submitted that competition laws would not pose any obstacle to Single Window Interoperability, unless the structure of the system is used to restrict competition. In any event, governments should carefully review their obligations under the WTO agreements applicable to competition issues.</p>
Dispute resolution	<p>As has been noted in item Jurisdiction above, there are basically three types of disputes that could arise in the context of Single Window Interoperability: 1) administrative, 2) civil, and 3) criminal.</p> <p>Since Single Windows are a trade facilitation tool for governments, the substantive issues at stake are, it is submitted, predominantly administrative. Single Windows are mainly seen as a channel of information, and administrative procedures and litigations are not affected by the means of</p>

Issue	Guidelines
	<p>communication. However, there may be instances where disputes between National Single Windows arise, for example, where one Single Window does not meet performance criteria (such as timeliness) and damages results for traders.</p> <p>Given the costs of litigation, as well as other factors, it may be beneficial to include express dispute resolution mechanisms such as arbitration clauses in the SWI agreement.</p>

Annex III: Single Window Interoperability Governance Models

1. The guidance to date with respect to governance models for National Single Window implementation is fairly broad-based with little specific and direct relation to Single Window interoperability (SWI). In order to develop the guidance, it is necessary to revert to the original questions of governance, namely: (a) what processes are used for making decisions? (b) what actions are necessary? (c) to whom are powers granted and how? and (d) how is performance verified or measured?

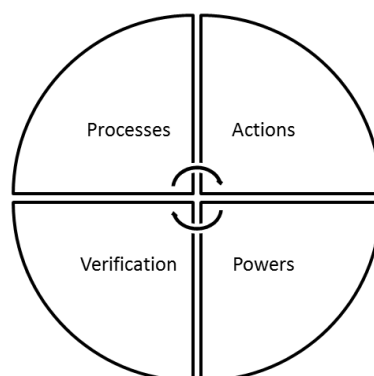


Figure 1: Four questions of governance

2. In order to apply these governance questions more usefully to SWI, it is helpful to look at SWI in three distinct phases of design, development and operation as each may require different forms of governance. Each of these is developed in Annex III. The overall global context in which SWI is taking place will have an effect on forms of governance that may be required.

A. Interoperability in practice

3. Interoperability can be implemented either between two countries or on a regional or international basis. There are a variety of different models for interoperability that may be considered, such as:

- **Centralized Model:** For example, states A, B and C all adhere to a Single Window ABC, the service for which is located in country A. Each country participates in service maintenance and costs. Most importantly, Single Window ABC will recognize and process electronic records received through the joint Single Window. Data exchanges in this arrangement could include B2G and G2G transactions.
- **Gateway or Distributed Model:** Another type of regional or international Single Window is one where the central server manages a communications hub for each of the participating countries. The central server does not retain or archive any trade or

regulatory data. Only the transmitting and receiving National Single Windows retain such data.²⁷

- **Mixed or Hybrid Model:** a combination of the above.

B. Centralized versus Network Governance Models

4. The existing cross-border governance structures and legal environment may differ, but in order for SWI to take shape, a set of analogous characteristics are required for a lead organization to take forward in any Single Window development. These are: vision, authority, political will, financial and human resources, and access to key stakeholders.²⁸ This may be achieved through a strong centralized model where an authority with supranational powers exists, but (given global experience in a cross-border context) it is more likely that a decentralized, network governance model would be more applicable. A network governance model would be more likely to have the ability to reach a wider number and more diverse set of actors across increasingly complex international supply chains.

5. Characteristics of a network governance model:

- Involves a large number of interdependent actors who interact in order to produce common purpose.
- Based on negotiation
- Compliance is ensured through trust and political obligation which, over time, becomes sustained by self-constituted rules and norms.²⁹

6. Benefits of network governance:

- Greater access to stakeholders (a network of networks).
- Improvements based on knowledge sharing
- More effective, collective problem-solving.

7. Looking beyond the state level, a governance model for SWI could be developed from a network of customs agencies (e.g. the WCO's Globally Networked Customs), or perhaps in future, a network of National Trade Facilitation Bodies (see UNECE Recommendation n°4 National Trade Facilitation Bodies³⁰).

8. These are just a few examples. There may be other design models more suited to the environment, which can be shaped by their geographic and sector coverage.

²⁷ See, e.g., Association of South East Asian Nations (ASEAN) Single Window, available at <http://asw.asean.org/about-asw> (accessed 15 December 2016).

²⁸ It is possible that National Trade Facilitation Bodies would be a natural place to start. See UNECE Recommendation n°4 National Trade Facilitation Bodies, available at http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec04/ECE_TRADE_425_CFR4.pdf (accessed 15 December 15).

²⁹ Nielsen, K. & Pedersen, O. K. 1988. 'The Negotiated Economy: Ideal and History', *Scandinavian Political Studies*, 11(2): 79–101.

³⁰ UNECE Recommendation n°4 National Trade Facilitation Bodies, available at http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec04/ECE_TRADE_425_CFR4.pdf (accessed 15 December 15).

C. Governance models for the initial design stage of SWI

9. During the early stages of Single Window design, it is most likely that existing governance structures will be utilized to initiate the SWI activities. In particular, the processes for decision making and power structures already in place may be utilized to govern commencing activities and functions gearing towards SWI.

10. In a cross-border setting, these existing governance structures will be in the form of bilateral or multilateral agreements and will be closely linked with the level of [regional] integration between the parties as set by these agreements. These may be deeply evolved state-level treaties defining detailed decision-making processes and conferring powers at a supranational level (such as those governed by the European Parliament and related legal institutions). They may be detailed inter-governmental agreements such as between the US and Canada, more general cross-border agreements such as the Greater Mekong Subregion Cross-Border Transport Facilitation Agreement (CBTFA) or institutional-level Memoranda of Understanding (MoU) such as those that might be agreed upon by customs authorities across a border. Each level of agreement will come with different legal implications for SWI (to be considered in the Annex on legal issues).

11. Regardless of whether or not it takes on a centralized or decentralized shape, the starting point for any governance model is identification of a common need. For the initial stages of SWI design, any governance structure will be focused on the following activities to articulate the common need or “vision” [in accordance with international best practice]:

- Defining technical structures (see technical Annex in these Guidelines);
- Defining legal framework (see legal discussion Annex in these Guidelines);
- Identifying operational requirements (see business needs paper in this series);
- Cost-benefit analysis of all of the above.

12. In tandem with this, the governance model at the initial design stage will also be focused on:

- assigning powers and accountability (that relate to the decision-making process needed to achieve the above actions);
- setting benchmarks (linked to the above);
- refining decision-making processes for interoperable Single Windows.

13. These powers may be assigned to groups (e.g. technical working groups) either inside or outside the organization or network through contracts or other legal mechanisms to be discussed separately. At this stage, the focus would be on identifying and assigning powers, processes and means of verification as actions. The specific powers and decision-making processes needed to do this would be derived from the existing governance structures.

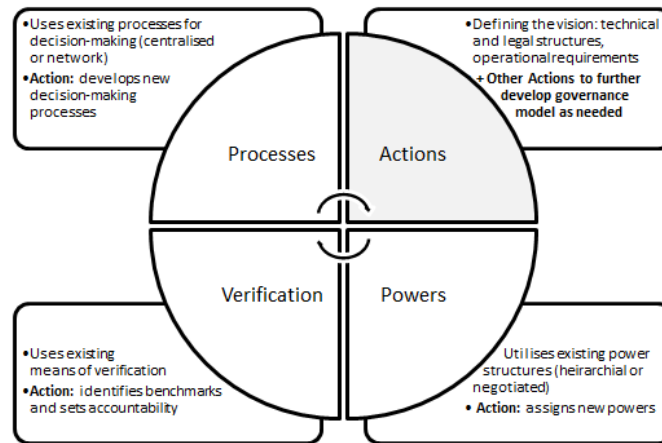


Figure 2: Focus of governance during the initial stages of designing SWI

D. Governance models for the development of SWI

14. Once the technical shape, legal frameworks, and operational requirements have been defined during the design stage, the governance structure will need to be adjusted in order to take on more specific actions or functions related to the development of interoperable Single Windows. These actions may include, but are not limited to:

- Procurement of resources (financial and human, internal and external);
- Development of software;
- Installation of infrastructure;
- Business process re-engineering and pilot testing.

15. These activities form part of any Single Window development, regardless of whether or not they are going to interoperate across borders. They may therefore be governed by national (or organizational) structures.

16. There are several activities that may be needed specifically for the development of interoperable Single Windows that will require cross-border governance, namely:

- Cross-border process harmonization / alignment;
- Development of new standards to be used within the Single Window system (as needed, if International standards do not apply or need adapting, e.g. common tariff nomenclature, trader identification, etc.);
- Pooled human and financial resources for the development of core services and common utilities (software or infrastructure e.g. centralized software / gateways / information management, etc.); and
- Public-private consultations, including help to prioritize data to be exchanged between multiple countries/Single Windows.

17. The existing governance systems in place for the design phase may not be sufficient (in terms of power or decision making process) therefore, adjustments to governance structure may be implemented (in accordance with the original designs / visions), as needed, and/or new governance institutions may need to be created.

Project governance models to manage development

An important point to note is that the development stage of SWI has a defined end, that is: when the Single Windows are interoperable in line with the agreed common vision. Therefore, it may be helpful for the development phase of SWI to be considered as a “project”.³¹ Project governance models are always temporary and offer a very specific advantage in situations where existing organizational structures are not sufficient to manage the activities required to achieve the project’s outcome.

Best practice in Project Management envisages a hierarchical structure to manage the execution of the project tasks under the control of a Project Director and/or Manager, but the governance structure above that is more inclusive in the form of a Project Board (or Steering Committee). The wider network governance structure outlined as a possibility in the initial design of SWI may be suitably transitioned into the Project Steering Committee or Board.

One of the challenges posed by installing a project governance structure for the development of SWI is the fact that it requires temporary and specific resource allocation. This challenge is often overcome by outsourcing as is seen in most cases where the development of Single Windows is outsourced to private sector entities.

18. Whether or not project governance or other models of governance are used during the development of interoperable Single Windows, it is clear that the demands on governance functions are more significant and more specific during the development phase than in the design phase. With proper awareness of this fact, appropriate plans are made during the design phase to make the necessary adjustments to the governance framework.

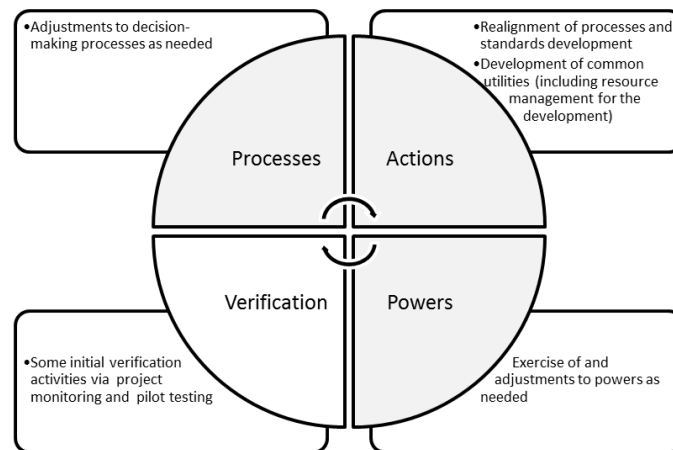


Figure 3: Focus of governance during the development of SWI

E. Governance models for operation of interoperable SW

19. Once two or more Single Windows are interoperable with each other, the focus of the form of governance should shift to sustainability. If a project governance structure or something temporary was put into place during the development, then it should be replaced or evolved into something that will last indefinitely. Key functions will include:

- Sustainability;

³¹ The Project Management Institute defines a Project as “A temporary endeavour undertaken to create a unique product, service, or result.” *A Guide to the Project Management Body of Knowledge*, Fourth Ed. (Glossary).

- Continued access to resources;
- Core services management.

20. The options for ongoing operational management of the interoperable Single Windows will depend, once again, on the existing level of cross-border integration as either a centralized or networked governance model could be applied in the ongoing operation of interoperable Single Windows. In addition to the consideration of the cross-border governance context, the form of governance that was used during the development stage may also be considered as a factor in determining the final model of governance chosen for SWI.

21. If, during the development phase, (a) a strong centralized governance structure was created, either temporarily as part of a project governance approach, or otherwise; and (b) this structure was found to be self-sustaining either by design or adaptation, then it would be possible for a networked governance approach to be used during the design phase and a centralized governance form employed during the operational stage.

22. Public-private-partnerships³² are models that are frequently employed between public and private sectors to engage a strong project management approach in the development of a system and sustain it through to SWI operation; however, these come with a number of challenges and considerations for all parties involved. Even if strong central control provides for good immediate access to resources and core services management, this may be hindered in the long run due to the fact that multiple stakeholders need to continue to be involved in order to ensure key data is kept up-to-date and overall sustainability is achieved. A hybrid network governance approach may be necessary.³³

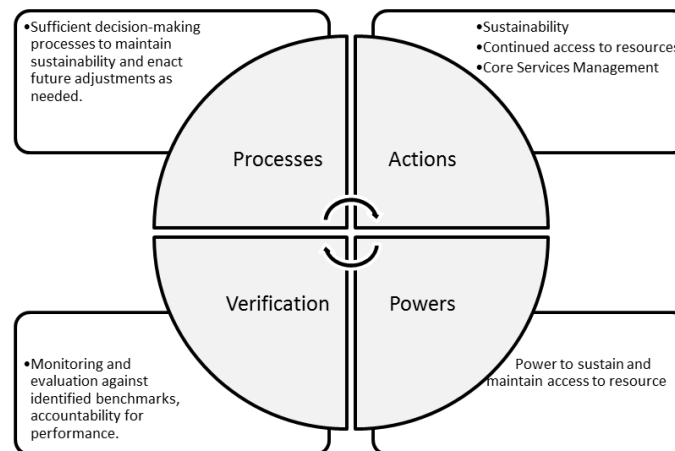


Figure 4: Focus of governance during SWI operation

³² See UNECE Recommendation n°41: Public-Private Partnerships in Trade Facilitation, available at http://www.unece.org/cefact/recommendations/rec_index.html (accessed 17 January 2017).

³³ More information on best practices in the use of Public-Private Partnerships in Trade Facilitation can be found in UNECE Recommendation n°41: Public-Private Partnerships in Trade Facilitation, Ibid.

F. Conclusion

23. The governance framework for SWI is complex, driven by a wider context involving globalization of trade, internationalization of standards, and regional integration. Each governance approach to SWI will need to be adapted to suit the specific environment in which the parties will operate cross-border. That being said, there is merit in exploring the idea that certain forms of governance may be more useful at some stages over others. For instance, network governance models may be particularly applicable during the design of SWI, whereas project governance models might be more appropriate for the development. Further case studies may help shed light on these aspects.
