TECHNICAL READINESS ASSESSMENT GUIDE

Cross-border paperless trade has great potential not only to grow trade competitiveness, but also to address new challenges associated with cross-border e-commerce and the rise of the digital economy. The Interim Intergovernmental Steering Group on Cross-border Paperless Trade Facilitation and its Legal and Technical Working Groups have developed Legal and Technical Readiness Checklists as part of their support for the implementation of the substantive provisions of the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific. This readiness assessment guide will facilitate self-assessments of legal and technical readiness FOR cross-border paperless trade. The guide contains explanatory notes, good practices, references and other relevant information to assist users to conduct self-assessment using the checklists.

The readiness assessment guide is available at: https://readiness.digitalizetrade.org/

Contents

Introduction to the checklist

1. The checklist will help users to assess the degree to which the technical environment of their country is ready to support cross-border paperless trade, identify existing technical gaps and design actions to improve the technical environment. The checklist will also help to raise the awareness of its users on technical issues in cross-border paperless trade. It should be noted that the checklist is not intended to assess the readiness of a country to join the Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific, which was adopted as a United Nations treaty in 2016. This treaty enables parties to gradually adapt their trade procedures and related systems for the purpose of cross-border trade without paper. It is not necessary to modernize procedures and systems before ratifying or acceding to the Agreement.[1] Paperless trade implementation is a work in progress, and the Framework Agreement is a tool meant to support such progress regardless of the level of readiness of a country.
2. The checklist is in the form of a questionnaire on technical issues and motivation factors in implementing paperless trade systems and cross-border data exchange. It is necessary to assess the status of paperless trade systems implementation at the national level before looking into readiness for cross-border data exchange. The checklist takes into consideration national issues such as the implementation of electronic and paperless transactions at the national level, and the importance of a single window for cross-border paperless trade data exchange. The questionnaire is structured into two sections: section A – paperless trade system at the national level and section B – national status towards cross-border data exchange.
3. Section A focuses on technical issues related to the implementation of an electronic trade systems and paperless environment at the national level. Technical issues are grouped into the following eight categories: (a) institutional and governance bodies for electronic data exchange in paperless environment; (b) level of automation; (c) information and communications technology (ICT) infrastructure (connectivity, sustainability and recovery); (d) security; (e) business process re-engineering; (f) data harmonization and standardization; (g) capacity-building; and (h) other matters.
4. Section B is aimed at assessing the ability of a country or an organization to embark on cross-border paperless trade data exchange. The questions are related to various issues and challenges in the implementation of paperless trade systems and cross-border data exchange. The answers to these questions will help to reveal the current status and assess the level of readiness to implement paperless trade systems and cross-border data exchange.
5. The questions in sections A and B may be answered by the relevant government personnel involved in trade facilitation and cross-border trade activities. It is recommended that all relevant government personnel engaged in elements of paperless trade and key private stakeholders collaborate in completing the checklist.

[1] Detailed information on the Framework Agreement, including an explanatory note of the text and answers to frequently asked questions, is available at www.unescap.org/resources/framework-agreement-facilitation-cross-border-paperless-trade-asia-and-pacific.

Section A: Paperless trade system at the national level

The technical readiness checklist Section A focuses on technical issues related to the implementation of electronic trade systems and paperless environment at the national level.

Section B: National Status towards Cross-Border Data Exchange

Section B is aimed at assessing the status of a country or an organization to embark on cross-border paperless trade data exchange.

Section A: Paperless trade system at the national level

A1 Governance bodies

One of the critical success factors for implementation of paperless trade systems is the strong commitment from the Head of Government. When top management is committed to spearhead a project, issues of financial support and other resources may be addressed more readily. Coordination among government agencies and between the government and the private sectors can be carried out more efficiently and effectively with the establishment of an institutional body equipped with a strong governance structure.

A1.1 [Governance structure] Is there a governance structure established for paperless trade e.g. national trade facilitation council?

Background

An inter-agency governance structure, normally called the national trade facilitation council/organization, is one of the critical success factors for implementing paperless trade systems within a country. This body should be led by top management of the country who has the authority to spearhead the interagency/interdepartmental project, and address issues about financial support, amendments to rules and regulations and other necessary resources.

The strong governance structure established for paperless trade is necessary to direct the project and coordinate among government agencies and between the government and the private sectors. This institutional body is the venue for relevant officials and representatives from key private sectors to come together to discuss on functionalities and other technical as well as legal matters. By assigning appropriate role and responsibilities for each group or unit within this structure including reporting mechanisms, the implementation of paperless trade systems can be expedited.

Expected Answers

- **Yes** - A governance structure for spearheading the implementation of paperless trade has been established.
- **No** - No inter-agency governance structure for paperless trade is established, or a governance body has been established but the level of leadership and management is not strong enough.

Good Practices

A national trade facilitation council or a similar inter-agency governance body by other names is normally established and institutionalized by laws in many countries. It is led by top management of the country to effectively steer and manage the implementation of paperless trade initiative. This governance body composes of authorities from relevant government agencies and key representatives of private sectors, covering all stakeholders, such that coordination among government agencies and between the government and the private sectors can be effectively established. This institutional body is normally supported by a designated government agency with close association to the Head of Government for strong coordination and leadership support.

References and Case Studies

- UNNExT Single Window Planning and Implementation Guide (page 23 - Stakeholder Collaborative Platform Establishment), https://www.unescap.org/sites/default/files/0%20-%20Full%20Report_5.pdf
- UN/CEFACT Recommendation No. 4: National Trade Facilitation Body, https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec04/ECE_TRADE_425_CFRec4.pdf
- UN/CEFACT Recommendation No. 40: Consultation Approaches, https://www.unece.org/fileadmin/DAM/cefact/cf_plenary/plenary15/ECE_TRADE_C_CEFACT_2015_9_Rev1E_Rec40_RevFinal.pdf
- Case studies related to inter-agency collaboration, http://tfig.unece.org/case-stories.html

A1.2 [Community partners] Does it include all the community partners /stakeholders (government and private sector)?

Background

The national trade facilitation council or a similar inter-agency governance structure as mentioned above should be established with the authority to spearhead the national-level paperless trade initiative. Because of the project of this magnitude and coordination of many stakeholders, this body should include all community partners/stakeholders from relevant government agencies and private sectors, including the customs authority, all import/export/transit-related permits/certificates-issuing agencies agencies, custodian of import and export, trader and industry associations, freight forwarders and customs brokers associations, and other relevant transport service providers.

Expected Answers

- **Yes** - A governance structure, e.g. national trade facilitation council, that has been established include all the community partners/stakeholders from government and private sector.
- **No** - A governance structure has been established but only few government agencies participate or it does not include all relevant government agencies. Not enough representatives from key private sector traders involve actively as members within this governance structure.

Good Practices

Trade facilitation and paperless trade requires interlinked roles of three main actors closely involved in the international trade sectors of the country where the inter-agency governance structure should be set up. These are the followings:

- Public sector (all relevant government trade-related agencies), in designing and implementing national laws and regulations regarding trade, legislation, technology, telecommunications in a coordinated way by working together and by streamlining import, export and transit procedures;
- Private sector traders i.e. importers and exporters, who can benefit from such solutions in their international trade transactions; and
- Private sector trade services providers e.g. carriers, freight forwarders, multimodal transport operators, carriers, banking institutions, insurance companies, software and service providers

etc., who can offer market-oriented trade and transport solutions within the framework of national and international trade and transport practices, obligations and laws.

- **References and Case Studies** UNNExT Single Window Planning and Implementation Guide (page 23 - Stakeholder Collaborative Platform Establishment), https://www.unescap.org/sites/default/files/0%20-%20Full%20Report_5.pdf
- National Trade Facilitation Committees: Establishing NTFC and WTO TFA requirements (slides), https://www.unescap.org/sites/default/files/01-Establishing%20NTFC%20%20and%20WTO%20TFA-Poul%20Hansen.pdf
- Border Agency Cooperation, http://tfig.itcilo.org/contents/border-agency-cooperation.htm
- UN/CEFACT Recommendation No. 4: National Trade Facilitation Bodies, https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec04/ECE_TRADE_425_CFRec4.pdf
- UN/CEFACT Recommendation No. 40: Consultation Approaches, https://www.unece.org/fileadmin/DAM/cefact/cf_plenary/plenary15/ECE_TRADE_C_CEFACT_2015_9_Rev1E_Rec40_RevFinal.pdf
- Case studies related to Inter-agency collaboration, http://tfig.unece.org/case-stories.html

A1.3 [Chair of governance structure] Who chairs this governance structure?

Background

The inter-agency government structure for spearheading the implementation of paperless trade initiative normally comprises of high-level policy makers from different authorities and key business stakeholders. The head of government, or at least a ministerial level official, if appointed as the chair of this inter-agency institutional body, would strategically lead the directions, and authoritatively coordinate the implementation among different government agencies and business stakeholders. He or she should have the authority to take inter departmental decisions in a coordinated manner.

Expected Answers

- Top management, or a ministerial level official
- Other lower ranking

Good Practices

In many countries, the head of government or a ministerial level official, e.g. deputy prime minister, vice president or a relevant minister, is appointed and acted as the chair person of the inter-agency governance body. With the strong and high-level leadership, the paperless trade initiative of the country can be effectively managed.
A government agency is normally designated to support the chair person, e.g. acted as a project management office, by managing and coordinating necessary activities among relevant agencies.

References and Case Studies

- Case studies related to Inter-agency collaboration, http://tfig.unece.org/case-stories.html

- UNNExT Single Window Planning and Implementation Guide (page 23 - Stakeholder Collaborative Platform Establishment), https://www.unescap.org/sites/default/files/0%20-%20Full%20Report_5.pdf
- UN/CEFACT Recommendation No. 40: Consultation Approaches, https://www.unece.org/fileadmin/DAM/cefact/cf_plenary/plenary15/ECE_TRADE_C_CEFACT_2015_9_Rev1E_Rec40_RevFinal.pdf

A2 Level of automation

It is not feasible for an organization or agency to consider implementing paperless trade systems without the ability to process electronic documents, information or data, let alone the subsequent cross-border data exchange.

A2.1 Electronic systems

A2.1.1 [Electronic Customs] Has your country implemented Electronic Customs (and other services that facilitate Customs declarations in an electronic format)?

A2.1.1.1 Does it have the ability to receive, process and issue documents electronically?

Background

Electronic Customs (e-Customs) is an automated Customs administration system with several electronic supporting functions to efficiently facilitate and effectively regulate Customs-related procedures. More specifically, key functions of the e-Customs system include: electronic and paperless lodgment of Customs declarations using online connections, the use of risk management software application to reduce Customs clearance times and less physical inspection of shipments, automated calculation and e-payment to facilitate collection of duties and taxes, and services to ensure the uniform application of laws and regulations.

e-Customs with the ability to receive, process and issue documents electronically and paperless related to Customs procedures is considered the first step towards the full implementation of broader paperless trade systems.

Expected Answers

- **Yes** - Electronic Customs has been implemented and used. The system has the capability to receive, process, and approve the customs declarations electronically in a paperless environment integrating full workflow automation in a secure manner and with electronic payments.

  The system is also equipped with risk management and electronic information processing to facilitate automatic and semi-automatic customs release and customs inspections of goods efficiently.
- **Partially Yes** - Electronic Customs system has been partially implemented and used i.e. some of the functions are electronically and/or manually processed.
  - The user may be able to submit customs declaration electronically but paper-based customs declaration must also be submitted, or

  - all or most of customs declarations are still processed manually, e.g. validated and approved on paper-based documents by customs officers, or
  - the approval status of the customs declarations is informed manually, or the user needs to receive them in paper-based formats, or
  - electronic risk management support system is not available for supporting the automatic release of goods, or for assisting customs inspections.
- **No** - There is no usage of or no electronic system with the capability to receive, process and approve customs-related documents electronically.

Good Practices

The Revised Kyoto Convention requires the use of information and communication technology (ICT) and electronic means for Customs operations. World Customs Organization (WCO) has provided the Kyoto Convention ICT Guidelines for implementing Customs automation including project and change management. These guidelines cover several application areas of ICT, e.g. customs declaration automation, e-payment, risk management, release, transit, trade statistics and enforcement; system development process, project and change management; IT security; and legal aspects. The WCO Data Model is recommended as the standard for data and electronic messages. The implementation of this initiative includes a redesigning of existing Customs procedures, as well as harmonization of the various data requirements into a single data set. The projects of this nature need strong political leadership to manage the changes. Integration under Single window environment is the requirement under these best practices.

References and Case Studies

- The Kyoto ICT Guidelines for implementation of Customs Automation by World Customs Organization (WCO), http://www.wcoomd.org/en/Topics/Facilitation/Instrument%20and%20Tools/Tools/ICT%20Guidelines
- A case study of Jordan's Customs Modernization, http://tfig.itcilo.org/cases/Jordan.pdf

A2.1.1.2 Is it integrated with an electronic payment system?

Background

The ability to conduct payments of duties or other related payments electronically can facilitate and speed up trade and Customs related transactions. e-Customs should be implemented in such a way that it is integrated with an electronic payment system of commercial banks, for example, with the interconnectivity via e-Banking services, or electronic funds transfer services. Traders should be able to conduct payment online without visiting any physical Customs offices or banks to complete each payment transaction.

Expected Answers

- **Yes** - Electronic Customs is integrated with an electronic payment system. Payments of Customs duties or related payments can be conducted electronically, e.g. via e-Banking, or electronic funds transfer, without visiting any physical Customs offices or banks to complete each payment

transaction. The payment from Customs to the users is also integrated using this e-Payment service.

- **Partially Yes** - Electronic Customs is partially integrated with an electronic payment system. The users still need to physically visit Customs offices to complete the payment transactions for duties, e.g. to swipe the credit cards, or to process payment-related transactions manually at Customs posts. In another scenario, a user may need to maintain a deposit account with Customs for electronic payment or payments facilitated through a single bank branch at a Customs location.
- **No** - There is no electronic payment service related to or integrated with the electronic customs system. Payment of payments of duties is not conducted electronically but it must be completed by cashes, cheques or credit cards.

Good Practices

Customs administrations should cooperate with commercial banks to develop online solutions for duty/tax payment purposes. It is essential to consider the business arrangement such that the payment charges are reasonable and do not present an unnecessary burden to the users. The interconnectivity of the electronic Customs and the online banking or payment system must be implemented to support such electronic payment transactions. It is expected that the facility of e-Payment is integrated with majority of the banks across the country who offer such services so that enough of competition and options are made available to trade and industry.

References and Case Studies

- Electronic payment of Customs duties and taxes, http://tfig.unece.org/contents/electronic-payment-customs-duties-and-taxes.htm
- Innovation in business processes & e-payments in Single Window, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/single-window/compendium/swcompendiumvol2partiv.pdf

A2.1.1.3 Does it have the capability to authenticate users electronically?

Background

Electronic Customs must have the capability to authenticate users electronically since it is necessary to establish confidence in user identities whenever the user interacts or transacts with e-Customs online.

Therefore, electronic Customs must have the capability of electronic authentication services. Digital authentication or electronic authentication works along with the authentication process to confirm or certify a person's identity and works. This digital authentication shall verify that a person is who he/she say he/she is when performing transactions online.

Expected Answers

- **Yes** - The system has the capability to authenticate users electronically.

  The digital authentication system and associated processes are established such that the user's identity and work can be confirmed or certified. The system is used in conjunction with

electronic signature to provide evidence of whether a declaration is performed or certified by the corresponding user.

- **No** - The system does not have the capability to authenticate users electronically or it has no capability to ensure electronic signature on any documents.

Good Practices

There are several electronic authentication methods that can be used to authenticate a user's identity ranging from a password to higher levels of security that utilize multi-factor authentication. For most electronic Customs with the required high level of security, the user may need to prove his or her identity through the use of security tokens, challenge questions or being in possession of a certificate from a third-party certificate authority that attests to their identity. For example, the public-key infrastructure (PKI) or other highly-secure technology may be used.

References and Case Studies

- An Electronic Authentication Guideline developed by NIST (The American National Institute of Standards and Technology) provides a basic framework on how the authentication process is accomplished regardless of jurisdiction or geographic region, https://csrc.nist.gov/publications/detail/sp/800-63/1/archive/2011-12-12
- A case study: National Digital ID Platform, https://ndidplatform.github.io
- A case study: Design and Implementation of a Digital Signature Solution for a Healthcare Enterprise, https://www.researchgate.net/publication/220891165_Design_and_Implementation_of_a_Digital_Signature_Solution_for_a_Healthcare_Enterprise

A2.1.1.4 Does it ensure data/document security?

Background

A lot of important information is electronically transmitted between users and e-Customs, and also stored in the system. The capability of electronic Customs to resist, react and recover from any unauthorized access is very crucial to ensure data/document security. Therefore, electronic Customs system must have strong measures to resist attacks or to protect digital data, e.g. Customs declarations transmitted and/or stored in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack.

For any authorized users, a mechanism for digital authentication or electronic authentication should work in conjunction with an electronic signature to provide evidence of whether data received have been tampered with after being signed by its original sender.

Expected Answers

- **Yes** - Electronic Customs ensures data and document security. The system has strong measures to resist attacks or to protect digital data, e.g. customs declarations under transmission or stored in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack. A mechanism for digital authentication for authorized

users should work in conjunction with electronic signatures to provide evidence of whether data received have been tampered with after being signed by its original sender.

- **No** - The system does not have strong measures to resist attacks or to protect digital data, e.g customs declarations under transmission or stored in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack.

Good Practices

Encryption is a technology which protects information by converting data into unreadable code that cannot be deciphered easily by unauthorized people. Encryption uses encryption software or hardware to encrypt every bit of data that goes on a disk or disk volume, or on information during communication/transmission. It is used to prevent unauthorized access to data storage or data during transmission.

Software and hardware-based mechanisms can be used to protect data. Software-based security solutions encrypt the data to protect it from theft. Hardware-based security solutions prevent read and write access to data, hence offering very strong protection against tampering and unauthorized access.

Data backups are used to ensure data which is lost can be recovered from another source. It is considered essential to keep a backup of any data or any files.

References and Case Studies

- Data Security, https://en.wikipedia.org/wiki/Data_security
- Disk Encryption, https://en.wikipedia.org/wiki/Disk_encryption
- Backups for business, https://www.staysmartonline.gov.au/protect-your-business/doing-things-safely/backups-business
- A case study, https://www.staysmartonline.gov.au/Protect-yourself/Doing-things-safely/backups

A2.1.1.5 What is the percentage of trade covered under this system?

Background

The information about what is the percentage of trade covered under electronic Customs should be collected, analyzed and used to understand the adoption rate and coverage of the current automation system. The percentage of coverage, or what is the percentage of major ports, trade zones or Customs posts in the country using electronic Customs instead of paper-based Customs processes, could provide some insights on where electronic Customs should be established or expanded for further coverage to better facilitate trade transactions.

Expected Answers

- **High (70-100%)** - The percentage of trade covered under Electronic Customs is high, or most major ports, trade zones and Customs posts have used Electronic Customs.
- **Medium (20-69%)** - The percentage of trade covered under Electronic Customs is medium, or few major ports still use paper-based processes.

- **Low or None (0-19%)** - The percentage of trade covered under Electronic Customs is low or none. Most ports use paper-based processes, or only some steps are operated electronically.

Good Practices

A feasibility study or data collection about Customs-related procedures and document requirements is normally conducted and analyzed. The purpose of this study is not only to understand the current situations abut also to analyze bottlenecks and identity improvement opportunities, especially to propose the feasibility to establish e-Customs or expand its coverage to more major ports, trade zones or Customs posts.

A comprehensive feasibility study is a key element of the overall analysis and development. It should determine the potential scope, the user needs, possible scenarios for implementation, potential for and nature of a pilot implementation, resources required e.g. financial, human, technical, etc., potential benefits and risks, a time frame, and an implementation and management strategy. This study could be based on direct face-to-face interviews with key players in both government and transport/logistics service providers, complemented by questionnaires to collect information from a wider circle of potential participants and users.

References and Case Studies

- Single Window Project Management Guide, https://www.unescap.org/sites/default/files/8%20-%204.%20Single%20Window%20Project%20Management.pdf
- Guidelines and case studies in Africa, http://www.swguide.org/single_window/AACE_guidelines_Single_Window_2013.pdf

A2.1.1.6 Are community partners/stakeholders connected to it electronically?

Background

All of community partners/stakeholders especially those business users, e.g. traders, customs brokers and freight forwarders, should be connected to electronic Customs to reap its benefits. All community partners/stakeholders involving with trade regulations e.g. relevant government authorities responsible for issuing import/export/transit certificates and permits, should also be connected to electronic Customs to provide better trade services and coordination.

Expected Answers

- **Yes** - Most or all of community partners/stakeholders especially those business users, i.e. customs brokers and freight forwarders, are connected to the customs system electronically. Most or all community partners/stakeholders involving with trade regulations, i.e. Ministries and other government agencies responsible for issuing import/export certificates and permits, are also connected to the electronic customs system.
- **Partially Yes** - Some but not all community partners/stakeholders especially those business users, i.e. customs brokers and freight forwarders, are connected to the electronic customs system. Many of them still interact with paper-based customs procedures.

- **Partially Yes** - Some but not all community partners/stakeholders involving with trade regulations, i.e. Ministries and other government agencies responsible for issuing import/export certificates and permits, are connected to the electronic customs system.
- **No** - Community partners, i.e. customs brokers, freight forwarders, Ministries and other government agencies involving with trade regulations, are not connected to the electronic customs system.

Good Practices

Business community partners/stakeholders should understand and recognize the benefits of electronic Customs. They should be trained and equipped with the capability to connect and utilize electronic Customs effectively. In many countries, awareness events, conferences and training programmes are regularly conducted, especially when there are any new or additional trade facilitation features, and electronic services.

References and Case Studies

- A Customs Capacity Building Strategy by WCO, http://siteresources.worldbank.org/INTBANGLADESH/Trade-Facilitation-Seminar/20211890/Simon%20Royals%20Capacity%20Building%20in%20Customs.PDF
- Promoting trade facilitation, paperless trade and electronic commerce for achieving the Sustainable Development Goals, https://www.unescap.org/sites/default/files/pre-ods/CTI5_3E.pdf
- A case study: a national capacity building workshop, https://www.unescap.org/events/national-consultative-workshop-cross-border-paperless-trade-facilitation
- A case study: a capacity building workshop on cross-border paperless trade, https://www.unescap.org/events/aptff-capacity-building-workshop-cross-border-paperless-trade-facilitation

A2.1.2 [Electronic port] Has your country implemented electronic Port systems (including air, sea, road, rail and inland ports)?

A2.1.2.1 Does it have the ability to receive, process and issue documents electronically?

Background

Electronic Port (e-Port), or a Port Community System (PCS), is a neutral and open electronic platform enabling intelligent and secure exchange of information between public and private stakeholders in order to improve the competitive position of the sea and air ports' communities. Electronic Port should have the ability to receive, process and issue documents electronically to facilitate procedures among stakeholders within ports including air, sea, road, rail and inland ports.

e-Port could optimize, manage and automate port and logistics processes through a single submission of data and connecting transport and logistics chains. This system should handle electronic communication in ports between the private transport operators (shipping lines, agents, freight forwarders, stevedores, terminals, depots), the private hinterland (pre- and on-carriage by road, rail

and inland waterways), the importers and exporters, the port authorities, Customs and other authorities.

Expected Answers

- **Yes** - Electronic Port (e-Port), so called Port Community System (PCS), has been implemented and used in major sea, air, road, rail and inland ports in the country. The system has the capability to receive, process, and issue documents electronically in a paperless environment integrating full workflow automation in a secure manner and with electronic payments.
- **Partially Yes** - e-Port has been partially implemented and used for some major sea, air, road, rail and inland ports in the country, and with only few electronic types of information exchange, i.e. some of the functions are electronically and/or manually processed.
- **No** - No e-Port system has been established to coordinate transport and logistics processes in any sea, air, road, rail or inland ports in the country.

Good Practices

Electronic Port is an electronic platform which connects the multiple systems operated by a variety of organizations that make up a seaport, airport or inland port community. It is shared in the sense that it is set up, organized and used by firms in the same sector – in this case, a port community.

e-Port in general provides a range of services and key features as followings:

- Easy, fast and efficient electronic data information exchange, re-use and centralization, available 24/7/365
- Customs declarations
- Electronic handling of all information regarding import and export of containerized, general and bulk cargo
- Status information and control, tracking and tracing through the whole logistics chain
- Processing of dangerous goods
- Processing of maritime and other statistics

The successful implementation of e-Port is directly related to the design of its business model. Issues related to ownership, the operation model, revenue streams, and services orientation need to be defined based on the stakeholders involved. The key challenge to successful implementation lies in overcoming resistance to change among different public and private stakeholders.
It is suggested to integrate UN/CEFACT Recommendation No. 36 on Single window interoperability.

References and Case Studies

- International Port Community System Association (IPCSA) provides good guidelines and case examples about Port Community Systems, https://ipcsa.international/pcs, https://ipcsa.international/downloads/publications
- https://www.unescap.org/sites/default/files/ICTConsultant_Port%20Community%20System.pdf

- https://publications.iadb.org/publications/english/document/International_case_studies_and_good_practices_for_implementing_Port_Community_Systems_en_en.pdf
- Dubai PCS: a case study, https://ipcsa.international/news/2017-02-06-ipcsa-publishes-its-first-case-study-member-profile-on-dubai-trade

A2.1.2.2 Is it integrated with an electronic payment system?

Background

Electronic Port should be integrated with an electronic payment system such that payments of transport and logistics services related to port operations can be conducted electronically, e.g. via e-Banking, or electronic funds transfer.

Expected Answers

- **Yes** - The exiting e-Port is integrated with an electronic payment system such that payments of transport and logistics services related to port operations can be conducted electronically, e.g. via e-Banking, or electronic funds transfer. The payment from the e-Port system to the users is also integrated using this e-Payment service.
- **No** - There is no integration of e-Port with any electronic payment system.

Good Practices

The port community and the entity in charge of the e-Port implementation should cooperate with commercial banks to develop online solutions for electronic payment purposes. It is essential to consider the business arrangement such that the payment charges are reasonable and do not present an unnecessary burden to the users. The interconnectivity of the e-Port and the online banking or payment system must be implemented to support such electronic payment transactions. It is expected that the facility of e-Payment is integrated with majority of the banks across the country who offer such services so that enough of competition and options are made available to trade and industry.

References and Case Studies

- https://www.unescap.org/sites/default/files/ICTConsultant_Port%20Community%20System.pdf
- https://www.unece.org/fileadmin/DAM/trade/Trade_Facilitation_Forum/BkgrdDocs/HowToDevelopPortCommunitySystem-EPCSAGuide.pdf

A2.1.2.3 Does it have the ability to authenticate users electronically?

Background

Electronic Port should have the ability to authenticate users electronically. The electronic authentication system and associated processes must be established such that the user's identity and work can be confirmed or certified.

Expected Answers

- **Yes** - The system has the capability to authenticate users electronically. The digital authentication system and associated processes are established such that the user's identity and

work can be confirmed or certified. Used in conjunction with an electronic signature, it provides evidence of whether a document or data are sent, performed or certified by the corresponding user.

- **No** - The system does not have the capability to authenticate users electronically.

Good Practices

Electronic Port must be established with the capability of electronic authentication services and associated process to establish confidence in user identities electronically. Digital authentication or electronic authentication works along with the authentication process to confirm or certify a person's identity and works. When used in conjunction with an electronic signature, it provides evidence of whether data received has been tampered with after being signed by its original sender. This digital authentication would verify that a person is who he/she say he/she is when performing transactions online.

There are several e-authentication methods that can be used to authenticate a user's identity ranging from a password to higher levels of security that utilize multi-factor authentication. For e-Port with the required high level of security, the user may need to prove his or her identity through the use of security tokens, challenge questions or being in possession of a certificate from a third-party certificate authority that attests to their identity. For example, the public-key infrastructure (PKI) or other highly-secure technology may be used.

References and Case Studies

- An Electronic Authentication Guideline developed by NIST (The American National Institute of Standards and Technology) provides a basic framework on how the authentication process is accomplished regardless of jurisdiction or geographic region, https://csrc.nist.gov/publications/detail/sp/800-63/1/archive/2011-12-12
- A case study: National Digital ID Platform, https://ndidplatform.github.io
- A case study: Design and Implementation of a Digital Signature Solution for a Healthcare Enterprise, https://www.researchgate.net/publication/220891165_Design_and_Implementation_of_a_Digital_Signature_Solution_for_a_Healthcare_Enterprise

A2.1.2.4 Does it ensure data/document security?

Background

Electronic Port must ensure the security of data and documents electronically collected, communicated, processed and stored within the system. Several measures must be established to resist cyberattacks and to protect digital data, such as data stored in a database and data during transmission, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack. An electronic authentication mechanism must be established to work in conjunction with an electronic signature. These mechanisms should provide the evidence whether a document or data are sent, performed or certified by the authorized users.

Expected Answers

- **Yes** - Electronic Port has the capability to endure data/document security. The system does have strong measures to resist cyberattacks and to protect digital data, such as data stored in a database and data during transmission, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack.
- **No** - Electronic Port does not have good measures to resist cyberattacks or to protect digital data, such as data stored in a database or under transmission, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach attack.

Good Practices

Encryption is a technology which protects information by converting it into unreadable code that cannot be deciphered easily by unauthorized people. For example, disk encryption uses disk encryption software or hardware to encrypt every bit of data that goes on a disk or disk volume. It is used to prevent unauthorized access to data storage

Both software and hardware-based mechanisms are normally used to protect data. Software-based security solutions encrypt the data to protect it from theft. Hardware-based security solutions prevent read and write access to data, hence offering very strong protection against tampering and unauthorized access.

Data backups are used to ensure data which is lost can be recovered from another source. It is considered essential to keep a backup of any data or any files.

References and Case Studies

- Data Security, https://en.wikipedia.org/wiki/Data_security
- Disk Encryption, https://en.wikipedia.org/wiki/Disk_encryption
- Backups for business, https://www.staysmartonline.gov.au/protect-your-business/doing-things-safely/backups-business
- Case Example, https://www.staysmartonline.gov.au/Protect-yourself/Doing-things-safely/backups

A2.1.2.5 What is the percentage of trade covered under these systems?

Background

The information about the percentage of trade covered under Electronic Port could provide some insight about its coverage and usage adoption, e.g. how many percentages of ports within the country have established and used Electronic Port, or how many percentages of port-related procedures are covered with electronic services under the current Electronic Port, or how many percentages are still using paper-based procedures.

Expected Answers

- **High (70-100%)** - The percentage of traders covered under Electronic Port is high. About 70-100% of trade users, e.g. traders, customs brokers, and freight forwarders) have used Electronic Port, or the system covers or is used in most major ports.

- **Medium (20-69%)** - The percentage of traders covered under Electronic Port is medium. About 20-60% of trade users, e.g. traders, customs brokers, and freight forwarders) have used Electronic Port, or the system covers or is used in most major ports, and few ports still use paper-based processes.
- **Low or None (0-19%)** - The percentage of traders covered under Electronic Port is low or none. About 0-19% of trade users, e.g. traders, customs brokers, and freight forwarders) have used Electronic Port, or most ports still use paper-based processes, or only some steps are operated electronically.

Good Practices

A feasibility study and data collection are recommended. Even better, it should be conducted to not only capture the above information and insight, but also to provide recommendations and feasibility for establishing or further extending the coverage of Electronic Port.

A more comprehensive feasibility study should be conducted to understand the current situations of port procedures and documentation requirements, pain points and bottlenecks, and propose possible scenarios for improvement with Electronic Port, resources required (financial, human, technical, etc.), potential benefits and risks, a time frame, and an implementation and management strategy.

References and Case Studies

- International Port Community System Association (IPCSA) provides good guidelines and case examples about Port Community Systems, https://ipcsa.international/pcs, https://ipcsa.international/downloads/publications
- https://www.unescap.org/sites/default/files/ICTConsultant_Port%20Community%20System.pdf
- https://publications.iadb.org/publications/english/document/International_case_studies_and_good_practices_for_implementing_Port_Community_Systems_en_en.pdf

A2.1.2.6 Are community partners/stakeholders connected to it electronically?

Background

Most or all of community partners/stakeholders especially traders and transport/logistics service providers, i.e. customs brokers, freight forwarders, transporters, terminal operators and carriers, should be aware, encouraged to connect to, and utilize Electronic Port to gain the full benefits of the system.

Expected Answers

- **Yes** - Most or all of community partners/stakeholders especially those transport and logistics service providers, i.e. customs brokers, freight forwarders, transporters, terminal operators and carriers, are connected to e-Port electronically.
- **Partially Yes** - Some but not all community partners/stakeholders who provide transport and logistics services, i.e. i.e. customs brokers, freight forwarders, transporters, terminal operators and carriers, are connected to e-Port.

- **No** - Community partners/stakeholders who provide transport and logistics services, i.e. customs brokers, freight forwarders, transporters, terminal operators and carriers, are not connected to e-Port.

Good Practices

Business community partners/stakeholders should understand and recognize the benefits of Electronic Port, and they should be trained and equipped with the capability to connect and utilize this Electronic Port effectively. Awareness events, conferences and training programmes shall be regularly conducted, especially when there are any new or additional Electronic Port services.

References and Case Studies

- How to develop a port community system, https://www.ipcsa.international/armoury/resources/ipcsa-guide-english-2015.pdf
- Capacity Building and Case Study of Ukraine Port Community System, https://www.unece.org/info/media/news/trade/2018/unece-trade-facilitation-success-story-for-odessa-ports-inspires-broader-use-of-international-standards-in-ukraine/doc.html
- Case example: a capacity building workshop on port community systems, https://www.unescap.org/sites/default/files/ICTConsultant_Port%20Community%20System.pdf

A2.1.3 [Electronic license, permit & certificate] Has your country implemented Electronic licenses, electronic permits and electronic certificates?

(Please fill out the appendix for this question.)

A2.1.4 [Other cross-border trade systems] Has your country implemented any cross-border trade systems other than those specified above?

A2.1.4.1 Does it have the ability to receive, process and issue documents electronically?

Background

With different context and needs, some countries may establish electronic systems for cross-border trade other than above specified (other than e-Customs, e-Port, e-Licenses, e-Certificates and e-Permits). These electronic systems may have some specific abilities to electronically receive, process and issue documents/data to support cross-border trade.

The systems may provide some fundamental and enhanced electronic services on top of other systems, e.g. national digital identity management services for trade, or electronic services for cross-border trade finance.

Expected Answers

- **Yes** - There are systems of cross-border trade other than above established and used, i.e. other than e-Customs, e-Port, e-Licenses, e-Certificates and e-Permits. The systems have the capability to electronically receive, process and issue documents/data related to cross-border trade in a paperless environment integrating full workflow automation in a secure manner and with electronic payments. The systems may also provide related supported services, e.g. a national

digital identity management system for trade, cross-border identity management, or cross-border trade finance.

- **No** - There is no system of cross-border trade other than above established and used.

Good Practices

Within the context of each country, there might be some specific pain points and improvement requirements to better facilitate cross-border trade with electronic systems other than e-Customs, e-Port, e-Licenses, e-Certificates and e-Permits.

For example, a national digital identity management system could solve the problems about identification, authentication and electronic signature issues at the national level. This system could help reduce identity risks of individuals as well as business entities in conducting electronic cross-border trade transactions.

Another possibility is to adopt some emerging but appropriate technologies that may have potential to better facilitate international trade, e.g. blockchain solutions for speeding up cross-border payment transactions, or for increasing efficiency and reducing risks of trade finance services, or for goods traceability.

References and Case Studies

- A case study: A National Digital ID Platform, https://ndidplatform.github.io
- A case study: Blockchain for trade finance, https://www2.deloitte.com/content/dam/Deloitte/global/Documents/grid/trade-finance-placemat.pdf

A2.1.4.2 Is it integrated with an electronic payment system?

Background

The electronic systems for cross-border trade other than e-Customs, e-Port, e-Licenses, e-Certificates, and e-Permits, as discussed above should be integrated with an electronic payment system if there are any needs for payment transactions. The integration with an electronic payment system of commercial banks or financial institutes could facilitate payments of related services, e.g. via e-Banking, or electronic funds transfer.

Expected Answers

- **Yes** - If there exists an electronic system(s) for cross-border trade other than e-Customs, e-Port, e-Licenses, e-Certificates, and e-Permits, it is integrated with an electronic payment system. This integration facilitates payments of related services, if any, to be conducted electronically, e.g. via e-Banking, or electronic funds transfer. The payment from these electronic systems to the users is also integrated using this e-payment service.
- **No** - The electronic system(s) mentioned is not integrated with any electronic payment system such that payments of related services, if any, must be conducted manually.

Good Practices

The agent in charge of this electronic system implementation should cooperate with commercial banks or financial institutes to develop online solutions for payment purposes. It is essential to consider the business arrangement such that the payment charges are reasonable and do not present an unnecessary burden to the users. The interconnectivity of the electronic systems and the online banking or payment system must be implemented to support such electronic payment transactions. It is expected that the facility of e-Payment is integrated with majority of the banks across the country who offer such services so that enough of competition and options are made available to trade and industry.

References and Case Studies

- Electronic payment of customs duties and taxes, http://tfig.unece.org/contents/electronic-payment-customs-duties-and-taxes.htm
- Innovation in business processes & e-payments in Single Window, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/single-window/compendium/swcompendiumvol2partiv.pdf
- A case study: National Payment Roadmap, https://www.bot.or.th/English/PaymentSystems/PolicyPS/Documents/PaymentRoadmap_2021.pdf
- Innovation in business processes & e-payments in Single Window, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/single-window/compendium/swcompendiumvol2partiv.pdf

A2.1.4.3 Does it have the capability to authenticate users electronically?

Background

The system should have the capability to authenticate users electronically. The digital authentication system and associated processes should be established such that the user's identity and work can be confirmed or certified.

Expected Answers

- **Yes** - The system has the capability to authenticate users electronically. The digital authentication system and associated processes are established such that the user's identity and work can be confirmed or certified. When used in conjunction with an electronic signature, it can provide evidence of whether a document or data are submitted or certified by the corresponding user.
- **No** - The system does not have the capability to authenticate users electronically.

Good Practices

The electronic system should be developed with the capability of electronic authentication services along with associated process to establish confidence in user identities electronically. Electronic authentication must work along with the authentication process to confirm or certify a person's identity and works. When used in conjunction with an electronic signature, it provides evidence of

whether data received has been tampered with after being signed by its original sender. This digital authentication shall verify that a person is who they say they are when performing transactions online.

There are several e-authentication methods that can be used to authenticate a user's identity ranging from a password to higher levels of security that utilize multi-factor authentication. If the electronic systems require a high level of security, the user may need to prove his or her identity through the use of security tokens, challenge questions or being in possession of a certificate from a third-party certificate authority that attests to their identity. For example, the Public-Key Infrastructure (PKI) or other highly-secure technology may be used.

References and Case Studies

- An Electronic Authentication Guideline developed by NIST (The American National Institute of Standards and Technology) provides a basic framework on how the authentication process is accomplished regardless of jurisdiction or geographic region, https://csrc.nist.gov/publications/detail/sp/800-63/1/archive/2011-12-12
- A case study: National Digital ID Platform, https://ndidplatform.github.io
- A case study: Design and Implementation of a Digital Signature Solution for a Healthcare Enterprise, https://www.researchgate.net/publication/220891165_Design_and_Implementation_of_a_Digital_Signature_Solution_for_a_Healthcare_Enterprise

A2.1.4.4 Does it ensure data/document security?

Background

To ensure data/document security, the system should have the capability to resist cyberattacks and to protect digital data, such as data stored in a database and data under transmission, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach. A digital authentication mechanism for authorized users must be established also. The digital authentication must work in conjunction with electronic signatures to provide evidence of whether a document or data are submitted or certified by the corresponding and authorized users.

Expected Answers

- **Yes** - The system could ensure data and document security. It has a capability to resist cyberattacks and to protect digital data, such as data stored in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach.
- **No** - The system does not have a capability to protect digital data, such as data stored in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach.

Good Practices

Disk encryption is a technology which protects information by converting it into unreadable code that cannot be deciphered easily by unauthorized people. Disk encryption uses disk encryption software or hardware to encrypt every bit of data that goes on a disk or disk volume. It is used to prevent unauthorized access to data storage

Both software and hardware-based mechanisms are normally adopted to protect data. Software-based security solutions encrypt the data to protect it from theft. However, a malicious program or a hacker could corrupt the data in order to make it unrecoverable, making the system unusable. Hardware-based security solutions prevent read and write access to data, hence offering very strong protection against tampering and unauthorized access.

Data backups are used to ensure data which is lost can be recovered from another source. It is considered essential to keep a backup of any data or any files.

References and Case Studies

- Data Security, https://en.wikipedia.org/wiki/Data_security
- Disk Encryption, https://en.wikipedia.org/wiki/Disk_encryption
- Backups for business, https://www.staysmartonline.gov.au/protect-your-business/doing-things-safely/backups-business
- A case study, https://www.staysmartonline.gov.au/Protect-yourself/Doing-things-safely/backups

A2.1.4.5 What is the percentage of trade covered under this system?

Background

Information about the coverage of the electronic system mentioned above should provide some insight about the usage adoption by traders or potential users. At least, the percentage of traders currently using this system should be monitored and analyzed such that necessary measures, e.g. better awareness and training programmes, could be conducted for potential traders/users to adopt and benefit from the system.

Expected Answers

- **High** (70-100% of traders using the electronic system)
- **Medium** (20-69% of traders using the system)
- **Low or None** (0-19% of traders using the system)

Good Practices

Business community partners/stakeholders should understand and recognize the benefits of the electronic system established. They could be trained and equipped with the capability to connect and utilize this system effectively. Awareness events, conferences and training programmes should be regularly conducted, especially when there are any new or additional features and services.

References and Case Studies

- A Customs Capacity Building Strategy by WCO, http://siteresources.worldbank.org/INTBANGLADESH/Trade-Facilitation-Seminar/20211890/Simon%20Royals%20Capacity%20Building%20in%20Customs.PDF

- Promoting trade facilitation, paperless trade and electronic commerce for achieving the Sustainable Development Goals, https://www.unescap.org/sites/default/files/pre-ods/CTI5_3E.pdf
- Case example: a national capacity building workshop, https://www.unescap.org/events/national-consultative-workshop-cross-border-paperless-trade-facilitation
- Case example: a capacity building workshop on cross-border paperless trade, https://www.unescap.org/events/aptff-capacity-building-workshop-cross-border-paperless-trade-facilitation

A2.1.5 [Targeted timeline] What is your country's targeted timeline to cover all trade transactions through these systems, (i.e. e-customs, e-port, e-certificates, e-licenses, e-permits and others)?

Background

If the country has not established electronic systems to cover all trade transactions, i.e. e-Customs, e-Port, e-Certificates, e-Licenses, e-Permits, etc., the relevant authority should consider to develop a future plan and a targeted time to implement such electronic systems to better facilitate and more effectively regulate trade transactions.

Good Practices

There are several guidelines and practices for policy managers, policymakers and those who are tasked to plan and manage e-Customs, e-Port, e-Certificates, e-Licenses or e-Permits development projects. Several issues that must be considered include analysis and design of trade processes, data/document harmonization and modelling, different technological and organizational models of electronic single window, legal issues, capacity building, implementation plan, timeline, and necessary resources.

References and Case Studies

- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- A case study: UNNExT Brief No. 18, Streamlining and Automating Procedures in Agricultural Trade: A Case Study of the Philippines, https://www.unescap.org/resources/unnext-brief-no-18-streamlining-and-automating-procedures-agricultural-trade-case-study
- A case study: UNNExT Brief No. 5, Senegal's Transition from a Paper-based System to a Paperless Trading System, https://www.unescap.org/resources/unnext-brief-no-5-senegals-transition-paper-based-system-paperless-trading-system
- Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A2.2 [Single Window System] Has a single window system been implemented in your country to expedite cargo movement/clearance and to facilitate the international trade supply chain?

Background

A single window system is an electronic facility that allows parties involved in a trade transaction to electronically lodge data and documents with a single-entry point to fulfil all import, export and transit-related regulatory requirements. In many countries, the single window systems have been implemented and used to expedite cargo movement/clearance and to facilitate international trade supply chain. This digital trade facilitation facility helps reducing the regulatory burden for traders when completing import, export and transit-related procedures.

This single window system normally provides electronic services and the connectivity with e-Customs of the Customs Authority, and with e-Licenses, e-Certificates, and e-Permits of relevant government agencies.

Expected Answers

- **Yes** - A single window system has been implemented and used in the country to expedite cargo movement/clearance and to facilitate international trade supply chain.
- **Partially Yes** - A single window system is partially implemented, e.g. e-Customs Single Window may exist but not connect with e-Licenses/e-Certificate/e-Permit/etc. systems of other regulatory agencies.
- **No** - No single window system has been implemented and used in the country.

Good Practices

The most commonly accepted definition of a single window (SW) is the one provided by UN/CEFACT Recommendation No. 33. It describes the SW as a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single-entry point to fulfill all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once".

A single window is such an important trade facilitation tool as the World Trade Organization (WTO) Trade Facilitation Agreement encourages all its WTO members to set up a single window (Article 10.4).

A single window system, if implemented effectively, can achieve the following benefits?

- For the government as a whole: increase in government revenue, enhanced compliance with rules, improved efficiency in resource allocation, better trade statistics,
- For economic operators, such as traders: faster clearance times, a more transparent and predictable process and less bureaucracy,
- For an administration such as Customs: improved staff productivity through the upgraded infrastructure, increase in customs revenue, a more structured and controlled working environment, and enhanced professionalism,
- For the national economy as a whole: improved transparency and governance and reduced corruption, due to fewer opportunities for physical interaction.

References and Case Studies

- UN/CEFACT Recommendation No. 33 - Recommendation and Guidelines Establishing A Single Window, http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf
- UN/CEFACT Recommendation No. 36 - Single Window Interoperability, http://www.unece.org/fileadmin/DAM/trade/Publications/ECE-TRADE-431E_Rec36.pdf
- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A2.2.1 (If A2.2 is yes) [Electronic data reception] How does it receive data electronically, i.e., what kind of user interface and communication channel is used (Internet-based network or dedicated/secured private network)?

Background

If a single window system has been established in the country, it is necessary to assess how does it receive data electronically, and what kind of user interfaces it provides. This is to understand, analyze and recommend possible further improvement, if any.

Expected Answers

More than one choice below can be selected.

- Web-based front-end browsers
- A specific software application/client-server software
- Through the Internet-based network,
- Through a dedicated/secured private network
- Application Programming Interface (API)
- Push/Pull Methods
- Or other channels

Good Practices

Users of the electronic single window system should be able to send and receive electronic data, and access to single window's services through web-based front-end browsers, or specific software applications.

Connectivity to users could be provided through any internet-based networks, e.g. provided by the telecom operators within the country. However, the interconnectivity of electronic systems to systems could better be established through a dedicated and secure private network.

References and Case Studies

- A case study: UNNExT Brief No. 3, Case of Korea's National Paperless Trade Platform – uTradeHub, https://www.unescap.org/resources/unnext-brief-no-3-case-korea%e2%80%99s-national-paperless-trade-platform-%e2%80%93-utradehub
- A case study: UNNExT Brief No. 8, Developing a National Single Window for Import, Export and Logistics in Thailand, https://www.unescap.org/resources/unnext-brief-no-8-developing-national-single-window-import-export-and-logistics-thailand

A2.2.2 (If A2.2 is yes) [Support of paperless environment] Does it support a paperless environment?

Background

If the single window system has been established, it should be evaluated whether the system could support a paperless environment or not, i.e. could the system facilitate documents/data submission with electronic authentication and documents/data security integrating instruments like electronic signature without any additional paper-based document submission.

Expected Answers

- **Yes** - The single window system does support a paperless environment. The system allows documents and data to be submitted electronically without any additional paper-based document submission. The users' identities and work can be ensured with electronic authentication and electronic signature.
- **No** - It does not support a paperless environment. This means paper-based documents and manually operations are still needed for submission, validation, approval and processing.

Good Practices

If the current single window system established and used so far has not supported the paperless trade environment yet, it is recommended that the system should be improved to facilitate electronic authentication and electronic signature. Identification of users must be authenticated, and their transactions and data submission must be certified by users to ensure paperless transactions without any additional paper-based document transactions.

Electronic authentication methods must be deployed for authenticating a user's identity ranging from a password to higher levels of security that utilize multi-factor authentication. If the electronic systems require a high level of security, the user may need to prove his or her identity through the use of security tokens, challenge questions or being in possession of a certificate from a third-party certificate authority that attests to their identity. For example, the Public-Key Infrastructure (PKI) or other highly-secure technology may be used.

References and Case Studies

- UN/CEFACT Recommendation No. 33 - Recommendation and Guidelines Establishing A Single Window, http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf

- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A2.2.3 (If A2.2 is yes) [Connection to Single Window] How many agencies are connected to the single window?

Background

There are several government agencies responsible for regulating different types of procedures and control related to international trade, e.g. several agencies responsible for issuing import/export-related certificates, licenses and permits. It is necessary to assess how many agencies of those total are already connected electronically to the single window system.

Good Practices

It is recommended that all government authorities responsible for issuing import/export-related certificates, licenses and permits should connect electronically to the single window system. If those agencies have established their own internal electronic systems, those systems should be interconnected or integrated with the centralized single window subsystem in order to streamline trade transactions electronically.

References

- UN/CEFACT Recommendation No. 33 - Recommendation and Guidelines on Establishing A Single Window, http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf
- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A2.2.4 (If A2.2 is yes) [System operation] Who operates this system?

Background

The single window system is a comprehensive national system comprising of several subsystems and involving many government and private stakeholders. Normally, there is a centralized electronic subsystem that facilitates as the interconnectivity hub or provides integration facilities with electronic systems of other authorities and business stakeholders. Since electronic traffics of confidential information are running through this interconnectivity/integration hub, it is necessary to have a right and legitimate organization to operate and provide services of this centralized facility.

Good Practices

The operator or the organization who operates the interconnectivity or integration single window hub and related services should be designated or mandated by the top management of the country, or by laws. The sustainability of this system and by this organization is crucial in the long run. The right organizational and financial model of this system, as well as the institutionalization by laws, therefore are very important. It is also important to ensure that the operator so selected should be a neutral organization preferably other than any stakeholder but enjoys the confidence of all stakeholders.

References and Case Studies

- Organizational and financial issues addressed in the UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A2.2.5 (If A2.2 is no) [Future plan] What is your country's future plan and the targeted timeline to implement a single window system?

Background

If a single window system has not been established yet, the country as led by a relevant authority may need to develop a future plan and a targeted time to implement such a single window system for electronic trade transactions.

Good Practices

There are several guidelines and practices for policy managers, policymakers and those who are tasked to plan and manage the single window development projects. Several issues that must be considered include analysis and design of trade processes, data/document harmonization and modelling, different technological and organizational models of electronic single window, legal issues, capacity building, implementation plan, timeline, and necessary resources.

References and Case Studies

- UN/CEFACT Recommendation No. 33 - Recommendation and Guidelines on Establishing A Single Window, http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf
- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Case Studies in Asia and the Pacific Region, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development

A3 ICT Infrastructure for Paperless Trade

A3.1 [Network service availability] Is network service available at all border posts, including ports, airports and cargo clearance facilities, in your country?

Background

A good and secure information and communication technology (ICT) infrastructure is one of the essential elements for an efficient paperless trade system. Unavailability of network services could be one of the obstacles in full implementation of a trade facilitation system when the business process is incomplete due to missing parties in the network connectivity.

Expected Answers

- **Yes** - Secure network services with adequate bandwidth are available at all Customs stations, including ports, airports and cargo clearance houses in the country.
- **Partially Yes** - Network services are available only at some but not all Customs stations in the country especially in the remote Customs stations. Moreover, the scenario where all stations are covered but the bandwidth is not adequate, should be recorded here.
- **No** - Network services are not available for all Customs stations, including ports, airports and cargo clearance houses in the country.

Good Practices

Telecommunication infrastructure and network services should be available at all Customs stations, including ports, airports and cargo clearance houses in the country. Technological innovation and the decreasing costs of wireless and other telecommunication technologies, combined with progressive policy and regulatory environments, could result in the provision of telecommunication services in all areas including remote areas in the country.

If the network services are not available to all border ports yet, the country should consider establishing the future plan and targeted timeline to develop such infrastructure and services to connect all stakeholders including controlling agencies. Different network infrastructure options that are financially and technologically appropriate for different areas could be deployed, e.g. using fiber optics, wireless devices, and satellites. Next-generation high-speed network (NGN) could be considered since it refers to the worldwide move from circuit-switched to packet-based network. The migration to NGNs has reduced service providers' investment costs and operation costs and enabled the rollout of a rich variety of services.

In the above writeup of section A3.1, much emphasis is given on availability of adequate network at all stations indicated above. It is important to emphasize that all stakeholders in the country including importers, exporters, agents, service providers etc. should also have access to such robust networks for effective electronic interactions otherwise the systems may face constraints.

References and Case Studies

- Next-generation network, https://www.itu.int/en/ITU-T/about/groups/Pages/sg13.aspx

- Case Example: Satellite Connectivity to Remote Areas in Bhutan, https://www.itu.int/en/ITU-D/Technology/Documents/RuralCommunications/Bhutan-Report.pdf
- Telecommunications Privatization in Developing Countries: The Real Effects of Exclusivity Periods, https://www.researchgate.net/publication/5076286_Telecommunications_Privatization_in_Developing_Countries_The_Real_Effects_of_Exclusivity_Periods

A3.2 [Common/single network (e-system)] Are any of the systems mentioned in A2.1, "Electronic systems", connected via a common or single network?

Background

It is not uncommon that different stakeholders have different levels of automation and systems using different platforms. To ease interfacing and interoperability between these systems, a common or a single network may be adopted to provide connectivity and integration with several heterogeneous systems.

Good Practices

In many countries, a common or single network of interconnectivity among different regulatory agencies are established with a dedicated and secure network infrastructure. The network supported by cables/fiber optics and network equipment is developed and used only for connecting among government agencies, and they are not open to the public.

Other secure hardware and software technologies should be deployed to ensure the security and integrity of the system, e.g. using Virtual Private Network (VPN) software, HTTPS/SSL, and other encryption software/hardware equipment.

References and Case Studies

- Case Example: Government Information Network (GIN), https://www.dga.or.th/en/content/872/234/
- ICT for Trade and Transport Facilitation, https://www.unescap.org/sites/default/files/ICT%20for%20Trade%20and%20Transport%20Facilitation.pdf

The following questions are relevant if the answer to question A3.2 is yes.

A3.2.1 (If A3.2 is yes) Is it integrated and secure?

Background

The systems of several agencies, e.g. e-Customs, e-Ports, e-Licenses, e- Certificates and e-Permits, should be integrated via this common or single network. The primary function of this network is to serve also as a secure channel for information exchange between the participating parties.

Expected Answers

- **Yes** - The systems mentioned in section A2.1 "Electronic systems" are integrated via a common or single network. The communication channel in this network is secure.

- **No** - The systems mentioned in section A2.1 "Electronic systems" are not integrated via a common or single network, or if they are integrated but the communication is not secure, e.g. using the open Internet network without secure channels to connect among different government agencies.

Good Practices

In many countries, a common or single network of interconnectivity among different regulatory agencies are established with a dedicated or secure network infrastructure. The network supported by cables/fiber optics and network equipment can be developed and used only for connecting government agencies, and they are not open to the public.

Other secure hardware and software technologies should be deployed to ensure the security and integrity of the system, e.g. using Virtual Private Network (VPN) software, HTTPS/SSL, and other encryption software/hardware equipment.

References and Case Studies

- Case Example: Government Information Network (GIN), https://www.dga.or.th/en/content/872/234/
- ICT for Trade and Transport Facilitation, https://www.unescap.org/sites/default/files/ICT%20for%20Trade%20and%20Transport%20Facilitation.pdf

A3.2.2 (If A3.2 is yes) Is it able to provide a high availability rate of minimum 99.9 percent in terms of service level agreement for trade data exchange in paperless environment?

Background

The availability and reliability of paperless systems including the network infrastructure is very important for the continuity of trade transactions. High availability should be the key characteristic of these systems, which aims to ensure an agreed service level. A high availability of minimum 99.9 percent of service level agreement is normally recommended which ensures the percent of uptime or the amount of time that the services are available and operational. A 99.9% uptime equates to 43 minutes and 50 seconds of downtime per month.

Expected Answers

- **Yes** - The network infrastructure and the paperless trade system can provide a high availability of minimum 99.9 percent in terms of SLA for trade data exchange in paperless environment.
- **Partially Yes** - The network infrastructure and the paperless trade systems cannot provide a high availability of minimum 99.9 percent in terms of SLA. It includes the scenario where the SLA conditions are maintained but for some systems but not all.
- **No** - The network infrastructure and the paperless trade system can offer an availability less than 99.9 percent in terms of SLA for trade data exchange.

Good Practices

High availability is a characteristic of a system which aims to ensure an agreed level of operational performance. It is usually measured by uptime or an amount of time that a system and its network remain operational even if one or more components fail.

There are several tactics to achieve high availability, e.g. using high quality hardware and backups, increasing fault tolerance with redundant equipment (e.g. two power supplies in the server, multiple internet connection, two firewalls, and two servers) and keeping spare parts available.

References and Case Studies

- Planning for network availability, https://www.ibm.com/support/knowledgecenter/en/POWER5/iphae_p5/highavailability.htm
- Creating a High Availability Strategy, https://searchservervirtualization.techtarget.com/tip/Create-a-high-availability-strategy-to-prevent-system-failure

A3.2.3 (If A3.2 is yes) Is it able to support various communication protocols?

Background

There are various options of communication and network protocols used by different systems, such as multi-protocol label switching (MLPS), Internet protocol (IP), virtual private network (VPN), and secure hypertext transfer protocol (HTTPS). The network infrastructure for paperless environment should support those various communication protocols to enable connectivity and interoperability between heterogeneous platforms.

Expected Answers

- **Yes** - The network infrastructure can support various communication protocols.
- **Partially Yes** - The network infrastructure can support only some communication protocols.
- **No** - The network infrastructure cannot support only one or two communication protocols.

Good Practices

In order to streamlining international trade supply chain operations among different stakeholders, the paperless trade systems need the capability to connect and interoperate with diverse ICT platforms of public and private stakeholders. Therefore, the network infrastructure and associated equipment must support multiple communication protocols in order to accommodate some specific protocols already used by the existing stakeholders' ICT platforms.

The multiple communication protocols should also cover several abstraction layers (e.g. transport layer or presentation layer). At least, international well-known and open protocols based upon the needs and requirements of the relevant agencies are normally included, for example, TCP/IP, HTTP, FTP, SSL, ebXML Messaging Services, SOAP, JSON, etc.

References and Case Studies

- Communication Protocols, ISO 26000 Communication protocol.

- The 7 layers of Open System Interconnectivity (OSI) model, https://www.iso.org/ics/35.100/x/
- Case Examples: Using ICT Infrastructure for cross-border paperless trade in Asia and the Pacific Region, http://www.apmenet.org/wp-content/uploads/2016/07/Practices-on-Using-ICT-Infrastructure-for-Cross-border-Trade-and-Supply-Chain-Connectivity-by-APEC-Economies.pdf

A3.2.4 (If A3.2 is yes) Is it able to provide secure information exchanges that ensure confidentiality and data integrity?

Background

When a document or information is exchanged between users using electronic systems, or between any two electronic systems, the system must ensure confidentiality (i.e. the information is private only for two parties of communications) and data integrity (i.e. the accuracy and consistency of data is maintained and assured over its entire life cycle).

Good Practices

Confidentiality and data integrity of the electronic information exchange between and among public and private stakeholders are very crucial for reliable and trust-worthy cross-border trade transactions.

The ICT infrastructure of the paperless trade system must ensure the confidentiality or privacy of data exchange only with the two intended parties. The communication infrastructure must also have the ability to ensure the exchanged data will not be tampered or un-intendedly changed during the communication.

It is also expected that the network be robust enough to safeguard from hacking.

Several measures to ensure secure information change normally include:

- Dedicated network infrastructure separating from the open-public network for some sensitive connectivity, e.g. government-to-government network connection.
- Virtual Private Networks, or other software measures to ensure security of communication channels for information exchange.
- Using encryption protocols, e.g. SSL, and also special hardwares and specific software to keep users' digital identities, to provide additional encryptions and authentication services.
- The ICT infrastructure should be designed with the defense-in-depth strategy, e.g. multiple ring-based zoning design, to increase the security level of the system.

References and Case Studies

- Confidentiality, Integrity and Availability, https://security.blogoverflow.com/2012/08/confidentiality-integrity-availability-the-three-components-of-the-cia-triad/
- Cryptography Concept, https://www.cryptomathic.com/news-events/blog/applying-cryptographic-security-services-a-nist-summary
- A Security Architecture Framework for Critical Infrastructure with Ring-based Nested Network Zones, https://ieeexplore.ieee.org/abstract/document/8426099

- Case Example: Privacy and Confidentiality in EU, https://www.cr-online.de/17-06-29_vzbv-amendments_eprivacy-regulation.pdf

A3.2.5 (If A3.2 is yes) Is it designed to take into account future requirements such as device and technology upgrades?

Background

The current ICT infrastructure must be designed by talking into account future requirements such as mobile devices and technology upgrades as much as possible.

Expected Answers

- **Yes** - The ICT infrastructure especially its network equipment is designed with the ability of future device and technology upgrades and extension.
- **No** - The ICT infrastructure especially its network equipment is not designed with the ability of future device and technology upgrades.

Good Practices

The ICT infrastructure including its servers and supporting network equipment is normally designed with the possible future device and technology upgrades to a certain point. Scalability should be the property of the system to handle a growing amount of work by adding resources to the system. The potential of future expansion that should be considered, for example, increased number of users of the systems, increased number of ICT nodes of connectivity, future requirements of higher performances and throughput of electronic services.

It is also suggested that the network and equipment be free from vendor locking.

References and Case Studies

- Scalability, ISO/IEC 25010:2011 - Systems and software engineering — Systems and software Quality Requirements and Evaluation — System and software quality models.
- WCO Single Window Architecture, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/single-window/compendium/swcompendiumvol2partvii.pdf

A3.3 [Single Window Interoperability] Is the single window system, if implemented, interoperable with other systems?

Background

A single window (SW) system is generally defined as "a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single-entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once." The World Trade Organization (WTO) Trade Facilitation Agreement, which entered into force in February 2017, has dedicated provisions on single window. This digital trade facilitation measure aims at reducing the regulatory burden for

traders when completing import, export and transit-related procedures. It has emerged more than a decade ago and has become a core component of trade facilitation reforms. A single window system is considered as an important component of Cross border paperless trade initiative.

Expected Answers

- **Yes** - A single window system has been implemented to electronically connect eCustoms of Customs Authority, and e-Licenses, eCertificates and ePermit services of other regulatory agencies together. This SW enables cross-border traders to electronically submit regulatory documents at a single facility. Such documents are typically customs declarations, applications for import/export permits, and other supporting documents such as certificates of origin and trading invoices.
- **Partially Yes** - A single window system has been partially implemented to electronically. It connects only to some relevant government agencies, e.g. with e-Customs of Customs Authority, and some other regulatory agencies.
- **No** - A Single Window system has not been implemented to electronically connect e-Customs, e-Licenses, e-Certificates or e-Permits services.

Good Practices

The main value proposition for having a single window for a country is to increase the efficiency through time and cost savings for traders in their dealings electronically instead of physically with government authorities for obtaining the relevant clearance and permit(s) for moving cargoes across national borders.

The single window facility aims to deliver specific benefits to the main communities and stakeholders in cross-border trade, e.g. government (customs, permit-issuing agencies, Ministries and other trade monitoring bodies), shipping and forwarding community, shippers and traders, banking and insurance community.

In a cross-border environment, SW can facilitate single point authenticated data sharing with counterparts in other jurisdictions in trusted environment.

References and Case Studies

- UN/CEFACT Recommendation No. 33 - Recommendation and Guidelines on Establishing A Single Window, http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf
- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- Single Window Repository, https://www.unece.org/cefact/single_window/welcome.html

A3.4 Strategic plan to address ICT infrastructure

A3.4.1 Does your country have a strategic plan to address ICT infrastructure issues for paperless trade?

Background

A country should put in place a strategic plan to address information and communication technology (ICT) infrastructure issues to support paperless trade.

Good Practices

The lack of an ICT infrastructure policy and strategic plan at the national level has caused the country to suffer huge financial and opportunity losses. This is due to haphazard planning of ICT systems resulting in poorly designed and implemented ICT systems that hardly meet the need and requirements of government, business and citizens. A number of countries have geared their national ICT policies towards accelerated national development by incorporating their national ICT policies into the national development plan.

Trade facilitation is commonly considered as a key contributor to sustainable development. The simplification and automation of trade facilitation could further assist traders, logistics-related service providers and regulatory agencies with paperless trade systems. Therefore, the strategic ICT infrastructure development at the national level should incorporate the paperless trade requirements of network connectivity among trading partners all over the country, especially in the remote customs posts and areas.

National paperless trade systems, along with other economic development engines and supporting electronic platforms, need high-speed always-on access to services, applications and content, depends on ubiquitous, affordable, modern, and resilient ICT infrastructure.

References and Case Studies

- ICT Infrastructure business planning toolkit 2019 (ITU), https://www.itu.int/en/ITU-D/Technology/Documents/Publications/ICT%20Infrastructure-business-toolkit.pdfNational
- ICT Planning, https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Policies.aspx
- A Case Example, http://icta.go.ke/powerassets/uploads/2019/11/ICT_Infrastructure_Masterplan_v10Print-Version2_NoCopy.pdf

A3.5 Disaster recovery

A3.5.1 Is there a policy for the establishment of a disaster recovery plan at the agency level?

Background

A disaster recovery plan (DRP) of any electronic systems, including for example a data center that houses ICT infrastructure and paperless trade systems, is a business plan that describes how work can be resumed quickly and effectively after a disaster. When the paperless trade systems are in operations, a DPR is essential to ensure that the effects of operating disruptions are properly mitigated. A policy for a disaster recovery plan must be established at the agency level for its electronic system.

Expected Answers

- **Yes** - There is a disaster recovery plan for all ICT systems supporting paperless trade at the agency level, e.g. at the Customs Authority, and at other regulatory agencies.
- **Partially Yes** - There is a disaster recovery plan for some ICT systems supporting paperless trade at the agency level.
- **No** - There is no policy and no mitigation plan for disaster recovery at the agency level.

Good Practices

Disaster recovery focuses on the ICT or electronic systems supporting critical business functions of the organization, as opposed to business continuity, which involves keeping all essential aspects of a business functioning despite significant disruptive events. Disaster recovery can therefore be considered as a subset of business continuity.

Disaster Recovery involves a set of policies, tools and procedures to enable the recovery or continuation of the vital ICT infrastructure and systems following a natural or human-induced disaster. The tools and procedures include, for example, routine backups, having spare parts and redundancies, and also having a disaster recovery data center at a different seismic zone along with a primary data center.

References and Case Studies

- ISO 22301:2012 Societal security — Business continuity management systems — Requirements.
- ISO/IEC 27031:2011 Information technology — Security techniques — Guidelines for information and communication technology readiness for business continuity.
- Steps for Disaster Recovery Plan, https://www.softchoice.com/blogs/advisor/uncategorized/9-steps-to-building-a-disaster-recovery-plan

A3.5.1.1 Please indicate the level of implementation for the disaster recovery plan (specify percentage of agencies).

Background

It is important that a disaster recovery plan established at the agency level has been tested and practices to ensure successful recovery when really facing the actual disaster.

Expected Answers

- **Yes** - all agencies having trade-related electronic systems have established and implemented the agencies' disaster recovery plan, e.g. developing and testing/practicing the DRP of each individual agency.
- **Partially Yes** - Some agencies have implemented, conducted and tested their own DRP, but some agencies have not so yet.
    - Description expected - please specify % of agencies which have implemented and tested their DRPs.
- **No** - No agency has implemented nor tested its own DRP yet.

Good Practices

Disaster recovery policies, procedures and plans must be carried out routinely, e.g. backups. It is important to test and practice those disaster recovery plans at specified frequencies, e.g. testing/practicing shutting down the primary data center (PDC) and operating on the disaster recovery center (DRC), and then switching back to PDC. This is to ensure that the system could be recovered successfully whenever any actual disaster occurs.

References and Case Studies

- ISO 22301:2012 Societal security — Business continuity management systems — Requirements.
- ISO/IEC 27031:2011 Information technology — Security techniques — Guidelines for information and communication technology readiness for business continuity.

A3.5.2 Is there a policy for the establishment of a disaster recovery plan at the national level?

Background

A national policy must be put in place for the establishment of a disaster recovery plan for any critical electronic systems in the country. It is essential to ensure the effects of operating disruptions on any of those electronic systems are properly mitigated.

Expected Answers

- **Yes** - There is an established disaster recovery plan at the national level for coordinating among different government and business stakeholders of the national paperless trade platform.
- **No** - There is no disaster recovery plan for the paperless trade system at the national level.

Good Practices

A disaster recovery plan (DRP) for the paperless trade systems of a country is a business plan that describes how work can be resumed quickly and effectively after a disaster.

Disaster recovery policies, procedures and plans at the national level should be established. Normal steps for building disaster recovery plan include: perform a risk assessment, define criticality of applications and data, define recovery objectives, evaluate and update your plan, determine the right tools and techniques, get stakeholder buy-in, document and communicate the plan, test and practice the DR plan, and evaluate and update the plan regularly.

References and Case Studies

- ISO 22301:2012 Societal security — Business continuity management systems — Requirements.
- ISO/IEC 27031:2011 Information technology — Security techniques — Guidelines for information and communication technology readiness for business continuity.
- Steps for Disaster Recovery Plan, https://www.softchoice.com/blogs/advisor/uncategorized/9-steps-to-building-a-disaster-recovery-plan

A3.5.2.1 Please indicate whether the disaster recovery plan is implemented at the national level.

Background

It is important that a disaster recovery plan established at the national level has been tested and practices to ensure successful recovery when really facing the actual disaster.

Good Practices

Disaster recovery policies, procedures and plans established at the national level must be the mandate for all government agencies having critical electronic systems. Those agencies should conduct testing and practicing of these disaster recovery plans in a regular basis.

References and Case Studies

- ISO 22301:2012 Societal security — Business continuity management systems — Requirements.
- ISO IEC 27031:2011 Information technology — Security techniques — Guidelines for information and communication technology readiness for business continuity.

A3.6 [Business continuity plan] Does your country have a business continuity plan for paperless trade systems?

Background

Business continuity planning (BCP) is the process of creating systems of prevention and recovery to deal with potential threats to the normal operations. In addition to prevention, the goal is to enable ongoing operations of government and business users before and during execution of disaster recovery. The country should establish a business continuity plan for paperless trade systems since the systems are very important for the continuity of operations of traders and controlling agencies.

Good Practices

A Business Continuity Plan outlines a range of disaster scenarios and the steps the government and business stakeholders will take in any particular scenario to return to regular trade and regulatory operations. BCP's are written ahead of time and can also include precautions to be put in place. Usually created with the input of key staff as well as stakeholders, a BCP is a set of contingencies to minimize potential harm to businesses during adverse scenarios.

Business continuity is the intended goal of proper execution of Business continuity planning and Disaster recovery before and during the real disaster incidents, therefore it is very important that the BCP plan should be tested and practiced before the real incidents' occurrence.

References and Case Studies

- Steps for business continuity exercises, https://www.continuitycentral.com/feature1290.html
- Best Practices for Business Continuity, https://www.thebci.org/training-qualifications/good-practice-guidelines.html
- A Case Example, http://www.bousai.go.jp/kyoiku/kigyou/pdf/guideline03_en.pdf

A3.6.1 (If A3.6 is yes) Is it regularly tested at defined frequency?

Expected Answers

- **Yes** - The business continuity plan for paperless trade systems has been established, and regularly tested and practiced.
- **No** - The business continuity plan has been established but never been nor regularly tested.

A4 Security

A4.1 [IT security policy] Is there an information technology security policy for your country?

Background

Computer security, cybersecurity or information technology security is the protection of computer systems and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide. Security of information technology and the paperless trade systems should ensure the confidence of users to replace paper-based documents with electronic information or data.

A nation wishes to adopt the paperless trade systems should establish an information technology cybersecurity policy at the national level. At the national level, cybersecurity is a shared responsibility which requires coordinated action for prevention, preparation, response, and incident recovery on the part of government authorities, the private sector and civil society. The main purpose of cybersecurity is to ensure Confidentiality, Integrity, and Availability (CIA) of data and services.

Expected Answers

- **Yes** - An information technology (IT) security policy has been established for the country, e.g. the policy established through a cyber-security law, an IT security policy and guidelines mandated by the Head of Government/the Cabinet or by the ICT/Digital Economy Ministry.
- **No** - There is no information technology security policy established at the national level.

Good Practices

IT-related security laws along with security policies and practical guidelines should be established at the national level. These cyber-security policies and related practices should be mandated at least for the critical IT infrastructures of the country. Cyber-security policies and guidelines should be promoted and practiced by business and citizens as necessary based on the sensitivity of related usage systems.

An information technology security policy normally includes a framework for setting its objectives by considering all relevant business, legal, regulatory and contractual security requirements; the criteria for the evaluation of risk and its structure.

References and Case Studies

- Information Security Policy (ISO 27001), https://www.isms.online/iso-27001/information-security-policy/
- Information Security Operations Procedures, https://www.isms.online/iso-27001/annex-a-12-operations-security/
- Case Example: Cybersecurity Act, https://thainetizen.org/wp-content/uploads/2019/11/thailand-cybersecrutiy-act-2019-en.pdf
- Case Example: A National Cyber Strategy, https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf

A4.2 [Security measures (e-Systems)] If any of the systems mentioned in A2.1, "Electronic systems" , have been implemented, what kind of security measures are in place to protect them from unauthorized access?

Background

Security, in the present context, refers to the system's ability to protect data and information from unauthorized access while still providing access to users and systems that are authorized. An action taken against a computer system with the intention of doing harm is referred to as an attack and can take a number of forms. It may be an unauthorized attempt to access data or services or to modify data, or it may be intended to deny services to legitimate users.

Several security measures should be in place to protect the paperless trade systems deployed in the country e.g. e-Customs, e-Ports, e-Licenses, e-Certificates and e-Permits, from unauthorized access and attacks.

Expected Answers

- **Yes** - Security measures have been extensively established for the systems mentioned in section A2.
- **Partially Yes** - Security measures have been established but for some systems mentioned in section A2, or only some not all necessary security measures have been established.
- **No** - Security measures have not been established, or they are partially established so that the systems mentioned in section A2 are not fully protected from unauthorized access or still with high risks of attacks.

Good Practices

It is recommended that a defense-in-depth security strategy should be deployed for this highly-secure paperless trade and single window systems, e.g. using multi-layered secure-zoning architecture for the primary data centers as well as for the disaster recovery data centers. These multi-layered security protections could reduce risks of attacks or unauthorized accesses.

Several security measures with specific hardware and software capability should be deployed, e.g. distributed denial-of-access services (DDOS) protection, firewall equipment, cryptography, advanced

persistence threat (APT) protection, secure software design and coding practices, regular risk assessments, penetration testing, and vulnerability assessment.

References and Case Studies

- Defense-in-Depth and Multi-layered Zoning Architecture, https://ieeexplore.ieee.org/abstract/document/8426099
- NIST Cybersecurity Framework, https://www.nist.gov/cyberframework
- ISO 27001 Risk Assessment, https://www.itgovernance.co.uk/iso27001/iso27001-risk-assessment
- Penetration Testing, ISO/IEC 27001:2013 Information technology — Security techniques — Information security management systems — Requirements.
- Vulnerability Assessment, ISO/IEC 29147:2018 Information technology — Security techniques — Vulnerability disclosure.

A4.3 [Authentication mechanism] What kind of authentication mechanism is used to ensure security of information transmitted electronically?

Background

Authentication is the act of proving an assertion, such as the identity of a computer system user. In contrast with identification, the act of indicating a person or thing's identity, authentication is the process of verifying that identity. There are several kinds of authentication mechanism used to ensure security of information transmitted electronically by a particular identified person.

Expected Answers

- **Yes** - The authentication mechanism is established for ensuring security of information transmitted electronically between intended parties or systems.
- **No** - The authentication mechanism has not been established or the security of information transmitted electronically between intended parties or systems is not ensured.

Good Practices

There are generally three recognized types of authentication factors as follows:

- **Type 1 - Something You Know** - includes passwords, PINs, combinations, code words, or secret handshakes. Anything that the user can remember and then type, say, do, perform, or otherwise recall when needed falls into this category.
- **Type 2 - Something You Have** - includes all items that are physical objects, such as keys, smart phones, smart cards, USB drives, and token devices. A token device produces a time-based PIN or can compute a response from a challenge number issued by the server.
- **Type 3 - Something You Are** - includes any part of the human body that can be offered for verification, such as fingerprints, palm scanning, facial recognition, retina scans, iris scans, and voice verification.

Multi-factor authentication is normally recommended as a method of logon verification where at least two different factors of proof are required for adding an extra layer of security. Multi-factor authentication is preferred, as it is much more difficult for an intruder to overcome. With just a password, an attacker only has to have a single attack skill and wage a single successful attack to impersonate the victim. With multi-factor authentication, the attack must have multiple attack skills and wage multiple successful attacks simultaneously in order to impersonate the victim. This is extremely difficult and, thus, a more resilient logon solution or digital identification of users or of the servers to be communicated with.

To ensure confidentiality of data exchange between any two intended parties or system, at least a secure transport protocol (e.g. HTTPS) must be employed. If a higher level of confidentiality is required, an additional encryption algorithm at the application software level could be deployed.

References and Case Studies

- Multi-factor authentication, https://www.globalknowledge.com/ca-en/resources/resource-library/articles/the-three-types-of-multi-factor-authentication-mfa/
- Case Example: A guideline for secure data exchange, https://uwaterloo.ca/information-systems-technology/about/policies-standards-and-guidelines/security/guidelines-secure-data-exchange-choosing-information

A4.4 [Communication protocol] What kind of communication protocol is used for electronic data exchange currently?

Background

There are several kinds of communication protocol that can be used for electronic data exchange in the paperless trade or single window systems. Sharing information about the communication protocol currently used in the country could be useful for future collaboration and lessons learned.

Good Practices

Different communication protocols have been used for electronic data exchange of different countries. Some of those are, FTP (file transfer protocol), SFTP (secure file transfer protocol), HTTP (hypertext transfer protocol), ASx protocols, ebXML messaging service protocol, REST and web services over HTTP.

References and Case Studies

- Cross-border Single Window Interoperability: A Managerial Guide, https://www.unescap.org/resources/cross-border-single-window-interoperability-managerial-guide
- Electronic data interchange, http://tfig.itcilo.org/contents/recommendation-26.htm
- Communication Protocols, ISO 26000 Communication protocol.
- ebXML, http://www.ebxml.org/
- Representational state transfer, https://standards.rest/
- Web services, https://www.w3.org/standards/

A4.5 [Future Plan] What is your country's future plan and targeted timeline to enhance the security level in A4.1 and A4.2?

Background

Security as the measures to protect information systems from any threats, such attacks and unauthorized accesses, is crucial in creating trust and confidence for the paperless trade systems. The country's future plan and targeted timeline to enhance the security of these infrastructure and systems must be established.

Good Practices

The ICT risk assessment, e.g. based on ISO 27003 risk assessment procedures, along with vulnerability assessment and penetration testing, should be conducted on the paperless trade systems of the country. The output from these assessments should be utilized to propose specific security measures and then to develop the country's future plan and targeted timeline to enhance its security.

References and Case Studies

- ISO 27001 Risk Assessment, https://www.itgovernance.co.uk/iso27001/iso27001-risk-assessment
- Guide for Developing Security Plans, https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-18r1.pdf
- Case Example: Risk Assessment, https://pdfs.semanticscholar.org/59f3/dc37e451fb24d35ca14b14e84ad3da937b76.pdf
- Defense-in-Depth and Multi-layered Zoning Architecture, https://ieeexplore.ieee.org/abstract/document/8426099

A5 Business process re-engineering

A5.1 [BPR for paperless trade] Have the stakeholders in your country conducted re-engineering and streamlining of business processes to support paperless trade or a national single window:

A5.1.1 At the agency level?

Background

Failure to review and re-engineer a manual procedures/processes in the development of an electronic system will often lead to inefficiency of the system. Business process analysis and re-engineering at the agency level is recommended as the first step to be taken before undertaking other trade facilitation measures related to the simplification, harmonization, and automation of trade procedures and documents.

It is important that a clear and detailed picture of the as-is business processes involved in importing or exporting be available, as it will provide a sound basis for the selection and prioritization of trade facilitation measures aimed at streamlining these processes, especially with electronic information exchange and automation.

Expected Answers

- **Yes** - Each and every agency responsible for cross-border trade regulations/facilitation and/or trade transactions has conducted re-engineering and streamlining of business processes at the agency level to support paperless trade or a national single window.

  Please list names of the agencies (description expected).

- **Partially Yes** - Some agencies responsible for cross-border trade regulations or trade transactions have conducted re-engineering and streamlining of business processes at the agency level to support paperless trade or a national single window. Some agencies related to cross-border trade regulations or trade transactions have not conducted re-engineering of their business processes yet.

  Please list those agencies conducted business process re-engineering, and those agencies not conducted business process re-engineering yet (description expected)

- **No** - No agency responsible for cross-border trade regulations and/or trade transactions has conducted re-engineering and streamlining of business processes at the agency level yet.

Good Practices

Within each agency, a step-by-step approach should be conducted to understand the business processes related cross-border regulations and controls of that agency, Bottlenecks identification, analysis and the development of recommendations for future improvement should follow. Business process re-engineering with digitized process streamlining and electronic information processing should be proposed prior to the implementation of these measures. Adoption of standards and standard tools for business process re-engineering is recommended, e.g. using UN/CEFACT Modelling Methodology (UMM).

References and Case Studies

- UN/CEFACT Modelling Methodology (UMM), https://www.unece.org/tradewelcome/un-centre-for-trade-facilitation-and-e-business-uncefact/outputs/uncefacttechnicalspecifications/uncefact-modelling-methodology-umm.html
- UNNExT Business Process Analysis Guide to Simplify Trade Procedures, https://unnext.unescap.org/content/business-process-analysis-guide-simplify-trade-procedures-0
- Business Process Analysis to simplify trade procedures: case studies, https://unnext.unescap.org/content/business-process-analysis-simplify-trade-procedures-case-studies
- E-Learning Series on Business Process Analysis for Trade Facilitation, https://www.unescap.org/our-work/trade-investment-innovation/trade-facilitation/bpa-course

A5.1.2 At the national level?

Background

If business processes along trade supply chain are not analyzed, reengineered and streamlined to ensure seamless flow of information, it will jeopardize integration and interfacing of paperless trade or the single window of the country. It is therefore recommended that the business process re-engineering at the national level should be carried out for the implementation of these inter-agency electronic systems to be effective.

Expected Answers

- **Yes** - Re-engineering and streamlining of business processes to support paperless trade or a national single window have been conducted at the national level. This means all key stakeholders or their representatives of cross-border trade supply chain have participated in the analysis, re-engineering and streamlining of those inter-agency processes. The improvement measures, proposed to-be business processes and automation from these collaborations have been incorporated in designing and implementation of paperless trade and the national single window.
- **Partially Yes** - Re-engineering and streamlining of business processes to support paperless trade or a national single window have been partially conducted. It has not covered all key business processes or not covered all key stakeholders of cross-border trade supply chain.
- **No** - No re-engineering nor streamlining of business processes to support paperless trade or a national single window have been conducted at the national level. Key stakeholders or their representatives of cross-border trade supply chain have not participated in the analysis of any inter-agency processes.

Good Practices

Cross-border trade transactions for each particular shipment involve several regulatory agencies and different business stakeholders. To be able to propose specific simplification and automation of these transactions, business processes along the cross-border commercial, regulatory, transport and financial chain must be analyzed. Bottlenecks identification, analysis and the development of recommendations for future improvement should follow. Business process re-engineering with digitized process streamlining and electronic information processing should be proposed prior to the implementation of these measures.

It is important that a clear and detailed picture of the as-is business processes involved in importing, exporting or transiting of goods be available. It will provide a sound basis for the selection and prioritization of paperless trade/single window measures aimed at streamlining these processes, especially with electronic information exchange and automation among different stakeholders. Adoption of standards and standards tools, e.g. UN/CEFACT Modelling Methodology (UMM), and UNNExT Business Process Analysis Guide to Simplify Trade Procedures, is recommended for re-engineering and streamlining of business processes to support paperless trade or a national single window.

References and Case Studies

- UNNExT Business Process Analysis Guide to Simplify Trade Procedures, https://unnext.unescap.org/content/business-process-analysis-guide-simplify-trade-procedures-0

- Business Process Analysis to simplify trade procedures: case studies, https://unnext.unescap.org/content/business-process-analysis-simplify-trade-procedures-case-studies
- E-Learning Series on Business Process Analysis for Trade Facilitation, https://www.unescap.org/our-work/trade-investment-innovation/trade-facilitation/bpa-course

A5.2 [Implementation of paperless trade transactions] Has your country implemented any paperless trade transactions?

Background

The country should establish a future plan and targeted timeline to implement paperless trade transactions, if not done earlier. However, specific kinds of transactions and also types of documents to be exchanged electronically should be carefully considered.

Expected Answers

- **Yes** - The country has implemented paperless trade transactions.
- **Partially Yes** - The country has partially implemented some forms of electronic trade transactions, and paper or manual transactions still co-exist.
- **No** - The country has not implemented any paperless trade transactions, or the existing electronic systems require both electronic information submission but also physical papers. .

Good Practices

The feasibility and in-depth study are normally conducted to identify and propose value propositions/benefits, specific improvement for establishing paperless trade environment, risks and critical factors, and return-on investment.

The country's future plan and targeted timeline can be developed and consulted among all key stakeholders for refinement in different perspectives, i.e. technical, financial, organizational, and legal.

References and Case Studies

- UNNExT Single Window Planning and Implementation Guide, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0
- A Roadmap toward Paperless Trade, https://www.unece.org/fileadmin/DAM/cefact/publica/ece_trd_371e.pdf
- Case Examples: APEC Paperless Trade Individual Action Plan, https://www.apec.org/Groups/Committee-on-Trade-and-Investment/Electronic-Commerce-Steering-Group/Paperless-Trading-Individual-Action-Plan.aspx

A6 Data harmonization and standardization

A6.1 [Data harmonization and standardization] Has the data harmonization and standardization been conducted on the data elements for paperless trade:

A6.1.1 At the agency level?

Background

Data compatibility is one of the main issues that need to be addressed for successful implementation of any electronic systems within an agency which can ultimately facilitate its interface with other stakeholders. Adoption of international standards on the subject is a prerequisite for achieving cross border data/document sharing.

Expected Answers

- **Yes** - Each and every agency responsible for cross-border trade regulations/facilitation and/or trade transactions has conducted data harmonization and standardization on the data elements for paperless trade.

  Please list names of the agencies (description expected)

- **Partially Yes** - Some agencies responsible for cross-border trade regulations/facilitation or trade transactions have conducted data harmonization and standardization on the date elements for paperless trade. Some agencies related to cross-border trade regulations or trade transactions have not conducted their data harmonization and standardization yet.

  Please list those agencies already conducted and not conducted data harmonization and standardization at the agency level yet (description expected)

- **No** - No agency responsible for cross-border trade regulations/facilitation and/or trade transactions has not conducted data harmonization and standardization on the data elements for paperless trade at the agency level yet.

Good Practices

In order to simplify, streamline and automate trade transaction and regulatory processes within any agency, documents and data elements used within each of that agency must be harmonized and standardized. Data harmonization and standardization is a necessary step towards the implementation of electronic and automated systems of the agency.

The simplification and standardization process of data elements normally involves at least the following 4 stages:

- **Capture** - prepare data inventory of the agency's data and information requirements from current automated systems and paper documents to cover all requirements for the international trade procedures related to import, export and transit.
- **Define** - prepare a record giving the name, definition and representation (text, format or code) of each data element
- **Analyse** - prepare an analysis of the information requirements and data element, establishing whether its need is essential and its use can be demonstrated.

- **Reconcile** - prepare a consolidation of the defined and analyzed trade data listing through the process of reconciliation.

International standards of data elements, e.g. based on UNTDED, UN/LOCODE, UN Core Components Library (CCL), and WCO Data Model, should be adopted.

References and Case Studies

- UNECE Recommendation No. 34: Data Simplification and Standardization for International Trade, http://tfig.unece.org/contents/recommendation-34.htm
- UNNExT Data Harmonization and Modelling Guide for Single Windows Environment, https://www.unescap.org/resources/data-harmonization-and-modelling-guide-single-windows-environment
- WCO Date Model, http://tfig.unece.org/contents/wco-data-model.htm
- Data Harmonization Case Study, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/data-harmonization-for-sw-a-case-study-from-oman-_-wco-news-february-2014.pdf?la=en
- UN/CCL, https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html

A6.1.2 At the national level?

Background

The data compatibility is important to support connectivity among ICT systems of different agencies. If data harmonization and standardization, using international standards, can be carried out as early as possible, seamless data exchange could be achieved It is important to note that data harmonisation and standardisation, using international standard, is an important prerequisite to achieve compatibility in cross border data/document exchange.

Expected Answers

- **Yes** - Data harmonization and standardization on the data elements for paperless trade has been conducted at the national level. This means all key stakeholders or their representatives of cross-border trade supply chain have participated in the analysis, harmonization and standardization of all data elements required for cross-border trade supply chain transactions. The national harmonized data set has been developed and agreed among all key stakeholders. This national harmonized data set is the basis for streamlining and implementing the paperless trade and single window systems of the country.
- **Partially Yes** - Data harmonization and standardization on the data elements for paperless trade has been partially conducted. The harmonized data set has been partially developed and has not covered all data elements relevant to cross-border trade yet.
- **No** - Data harmonization and standardization on the data elements for paperless trade has not been conducted at the national level. There is no harmonized data set at the national level for the implementation of any paperless trade or single window systems of the country.

Good Practices

In order to simplify, streamline and automate cross-border trade supply chain and transactions, all required documents and data elements must be harmonized and standardized. Data harmonization and standardization is a necessary step towards the streamlining and implementation of paperless trade and single window at the national level.

International standards of data elements, e.g. based on UNTDED, UN Codes for trade, UN Core Components Library (CCL), and WCO Data Model, should be adopted for this endeavour. The harmonized/standardized national data set for trade facilitation which is the outcome of this exercise will be the basis for streamlining and implementing the paperless trade and/or national single window systems at the national level.

References and Case Studies

- UNECE Recommendation No. 34: Data Simplification and Standardization for International Trade, http://tfig.unece.org/contents/recommendation-34.htm
- UNNExT Data Harmonization and Modelling Guide for Single Windows Environment, https://www.unescap.org/resources/data-harmonization-and-modelling-guide-single-windows-environment
- WCO Date Model, http://tfig.unece.org/contents/wco-data-model.htm
- Data Harmonization Case Study, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/data-harmonization-for-sw-a-case-study-from-oman-_-wco-news-february-2014.pdf?la=en
- UN/CCL, https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html

A6.1.3 (If A6.1.1 and/or A6.1.2 is yes) has a data model been adopted and is it based on international standards/guidelines such as United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport; United Nations Codes for Trade and Transport Locations; Core Component Technical Specification; core component library; and/or the World Customs Organization Data Model?

Background

A data model should be adopted while data harmonization and standardization has been conducted both at the agency level and the national level. It should be based on international standards/guidelines such as UN rules for data exchange for Administration, Commerce and Transport; UN Codes for Trade and Transport Locations; Core Component Technical Specification; core component library; and/or the World Customs Organization Data Model.

Expected Answers

- **Yes** - The data harmonization and standardization in A6.1.1 and A6.1.2 has been conducted based on international standards/guidelines such as UN rules for data exchange for Administration, Commerce and Transport; UN Codes for Trade and Transport Locations; Core Component Technical Specification; Core Component Library; and WCO Data Model.

- **Partially Yes** - The data harmonization and standardization in A6.1.1 and A6.1.2 has partially adopted only few international standards/guidelines such as UN rules for data exchange for Administration, Commerce and Transport; UN Codes for Trade and Transport Locations; Core Component Technical Specification; Core Component Library; and WCO Data Model. For example, UN Location codes might not be fully adopted, or WCO Data Model has not been incorporated.
- **No** - The data harmonization and standardization in A6.1.1 and A6.1.2 has not adopted any international standards/guidelines such as UN rules for data exchange for Administration, Commerce and Transport; UN Codes for Trade and Transport Locations; Core Component Technical Specification; Core Component Library; and WCO Data Model.

Good Practices

Data harmonization and standardization to develop the national data set should adopt international standards/guidelines such as UN rules for data exchange for Administration, Commerce and Transport; UN Codes for Trade and Transport Locations; Core Component Technical Specification; Core Component Library; and WCO Data Model.

UN/EDIFACT (the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport) comprise a set of internationally agreed standards, directories, and guidelines for the electronic interchange of structured data, between independent computerized information systems.

The "United Nations Code for Trade and Transport Locations" is commonly more known as "UN/LOCODE". Currently, UN/LOCODE includes over 103,034 locations in 249 countries and territories. It is used by most major shipping companies, by freight forwarders and in the manufacturing industry around the world. It is also applied by national governments and in trade related activities, such as statistics.

The key elements of the UN/CEFACT's Core Components Library (CCL) are the standardized set of core Components and business information entities related to cross-border trade.

WCO Data Model includes data sets for different customs procedures and also information needed by other cross-border regulatory Agencies for the cross-border release and clearance at the border. The WCO Data Model supports the implementation of a Single Window as it allows the reporting of information to all government agency through the unique way it organizes regulatory information.

References and Case Studies

- UNECE Recommendation No. 34 Data Simplification and Standardization for International Trade, http://tfig.unece.org/contents/recommendation-34.htm
- UNNExT Data Harmonization and Modelling Guide for Single Windows Environment, https://www.unescap.org/resources/data-harmonization-and-modelling-guide-single-windows-environment
- WCO Date Model, http://tfig.unece.org/contents/wco-data-model.htm

- Data Harmonization Case Study, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/data-harmonization-for-sw-a-case-study-from-oman-_-wco-news-february-2014.pdf?la=en
- UN/CCL, https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html

A7 Capacity building

A7.1 [Awareness programme] Has your country conducted any awareness programme and/or workshop to ensure the stakeholders, including government agencies and traders, have a common understanding on paperless trade as well as their respective roles to help realize cross-border paperless trade data exchange?

Background

Capacity building is an ongoing activity in most projects. It is particularly important at the onset of implementing cross-border paperless trade projects to ensure that the stakeholders would have a common understanding on the projects, and their respective role and responsibilities to make it a success. The activity of capacity building is necessary at every stage of the cross border paperless trade project.

Expected Answers

- **Yes** - The country has conducted awareness programme and workshops to ensure the stakeholders, including government agencies and traders, would have a common understanding on paperless trade as well as their respective roles to help realize cross-border paperless trade data exchange.
- **Partially Yes** - The country has conducted some or few awareness programme and workshops. Some key stakeholders including government agencies and traders do not have a common understanding on paperless trade as well as their respective roles to help realize cross-border paperless trade data exchange.
- **No** - The country has not conducted any awareness programme and workshops for the stakeholders, including government agencies and traders. Most key stakeholders do not have a common understanding on paperless trade and they cannot take their respective roles well enough to help realize cross-border paperless trade data exchange.

Good Practices

Awareness creation programme on cross-border paperless trade and single window systems should be provided for all relevant stakeholders covering government agencies, traders, agents, service providers etc.

Capacity building and training workshops covering specific topics for different levels of stakeholders should be conducted such that they understand and develop necessary skills to take their respective roles to help realizing cross-border trade data exchange.

Awareness programme and training workshops should be conducted at the national level and also at the agency level. Topics of those workshops should include at least about WTO trade facilitation agreement, business process analysis to simplify trade procedures, paperless trade/single window strategic planning, monitoring mechanism, data harmonization, ICT strategy, security policy, related standards and guidelines.

References and Case Studies

- Customs Capacity Building Strategy, http://www.wcoomd.org/en/topics/capacity-building/overview/~/media/3C486A00F972488DB85F687EA0F551FB.ashx
- UNNExT Capacity-building Workshop: Single Window Project Planning and Implementation, https://www.unece.org/tradewelcome/outreach-and-support-for-trade-facilitation/global-trade-facilitation-conference/unnext-capacity-building-workshop.html
- Trade Facilitation for Sustainable Development Workshop, https://www.unescap.org/events/escap-artnet-itd-trade-facilitation-sustainable-development-workshop-2019
- E-Learning Series on Business Process Analysis for Trade Facilitation, https://www.unescap.org/our-work/trade-investment-innovation/trade-facilitation/bpa-course
- UNNExT Capacity Building Workshop on Data Harmonization and Modelling for Single Window Environment, https://www.unescap.org/events/unnext-capacity-building-workshop-data-harmonization-and-modelling-single-window-environment

A7.2 [Understanding of the single window approach] Do the stakeholders of cross-border trade in your country fully understand the single window approach?

Background

It is crucial to assess whether the stakeholders of cross-border trade in the country have full understanding about the single window approach.

Expected Answers

- **Yes** - The key stakeholders of cross-border trade in the country fully understand the single window approach.
- **Partially Yes** - Some stakeholders of cross-border trade in the country fully understand the single window approach, and some may not understand it fully.
- **No** - Not all key stakeholders of cross-border trade in the country fully understand the single window approach.

Good Practices

National-level awareness and capacity building programme about the single window approach should be conducted for all key government and business stakeholders in the country. The programme aims to raise awareness of several aspects of the single window environment. It should include the early planning and implementation stages, potential challenges such as ensuring effective stakeholder

engagement, an enabling legal framework, re-engineering business processes, data harmonization, and lessons learned from other countries in implementing a paperless single window environment.

References and Case Studies

- ESCAP-ARTNET-ITD Trade Facilitation for Sustainable Development Workshop, https://www.unescap.org/events/escap-artnet-itd-trade-facilitation-sustainable-development-workshop-2019
- Single Window for Trade Facilitation: Regional Best Practices and Future Development, https://www.unescap.org/resources/single-window-trade-facilitation-regional-best-practices-and-future-development
- UN/CEFACT Conference on Single Window: sharing implementation experiences and best practices, https://www.unece.org/uncefact/34thcfforum-conf-swbestpractices.html
- Workshop on Cross-Border Trade Facilitation and Single Window Implementation in Northeast Asia, https://www.unescap.org/events/workshop-cross-border-trade-facilitation-and-single-window-implementation-northeast-asia

A7.3 [Awareness programme on single window] Has your country conducted any awareness programme or workshop on single window?

Background

Planning and implementing a single window environment involve multi-facet challenges including several policy, legal, organizational and technical issues. Awareness programme and training workshop on single window should be conducted to raise levels of understanding and skills necessary for key stakeholders from governments and private sectors.

Good Practices

The awareness programme and training workshops should be conducted to raise awareness of several aspects of the single window environment. The topics covered should include in planning, implementation issues, potential challenges such as ensuring effective stakeholder engagement, legal aspects, re-engineering business processes, data harmonization, and lessons learned from other countries in implementing a national Single Window.

References and Case Studies

- UN/CEFACT Conference on Single Window: sharing implementation experiences and best practices, https://www.unece.org/uncefact/34thcfforum-conf-swbestpractices.html
- Case Example: A Single Window Industry Survey, https://www.surveymonkey.com/r/DHGSMMD
- Workshop on Cross-Border Trade Facilitation and Single Window Implementation in Northeast Asia, https://www.unescap.org/events/workshop-cross-border-trade-facilitation-and-single-window-implementation-northeast-asia

A7.4 [Future plan] What is your country's future plan and timeline to enhance capacity-building for cross-border paperless trade data exchange?

Background

The country should develop a plan and targeted timeline to conduct awareness and training programme to build capacity of stakeholders for implementing cross-border trade data exchange.

Good Practices

A survey or an assessment to understand the level of understanding among stakeholders of cross-border paperless trade/single window could be conducted such that an appropriate awareness and capacity building programme on single window can be developed and conducted.

The plan for awareness and training programmes should aims to raise awareness and build capacity in several aspects of the Single Window environment in the early planning and also implementation stages, looking at potential challenges such as ensuring effective stakeholder engagement, introducing an enabling legal framework, and re-engineering business processes, data harmonization, interoperability, mutual recognition with trading partner(s) and also at lessons learned from other countries in implementing a national Single Window.

References and Case Studies

- UN/CEFACT Conference on Single Window: sharing implementation experiences and best practices, https://www.unece.org/uncefact/34thcfforum-conf-swbestpractices.html
- Case Example: A Single Window Industry Survey, https://www.surveymonkey.com/r/DHGSMMD
- Workshop on Cross-Border Trade Facilitation and Single Window Implementation in Northeast Asia, https://www.unescap.org/events/workshop-cross-border-trade-facilitation-and-single-window-implementation-northeast-asia

A8 Other matters

A8.1 [Computer literacy]

A8.1.1 What is the level of computer literacy in the trading community in your country as a whole to support electronic transactions?

Background

Computer literacy is the knowledge and ability to use computers and related technology including internet efficiently. It can also refer to the comfort level someone has with using computer programs and applications. To utilize electronic transactions for paperless trade, the trading community in the country should possess working level knowledge of computer literacy in understanding how computers work and operate. In this context, computer literacy of the trading community can be measured through questionnaires or practical assessment to test their ability to write and modify text, trouble-shoot minor computer operating issues, and use software applications related to paperless or single window systems. The trading community should have a good level of comfort to utilize paperless systems within the country for their trade transactions.

Expected Answers

- **High (70-100%)**
- **Medium (20-69%)**
- **Low or None (0-19%)**

Good Practices

To increase their computer literacy, computer users should distinguish which computer skills they want to improve, and learn to be more purposeful and accurate in their use of these skills. By learning more about computer literacy, users can discover more computer functions that are worth using. The Internet offers great potential for effective and widespread dissemination of knowledge and for the integration of technological advances. Improvements in computer literacy and training for the trading community should increase their levels of comfort in using electronic systems for trade transactions.

Reference and Case Studies

- How to Improve Computer Literacy, https://learn.org/articles/How_Can_I_Improve_My_Computer_Literacy.html
- Trade Facilitation and Paperless Trade, https://www.unescap.org/our-work/trade-investment-innovation/trade-facilitation/about

A8.1.2 Are they ready to accept changes arising from reengineered business processes in implementing paperless trade systems?

Background

The barriers for traders to better adoption of paperless trade systems is normally due to the lack of proper knowledge, education and skills among owners, managers and employees within the trading community. It is, therefore, important that the country should assess the level of readiness of the trade community related to knowledge and acceptance on changes arising from reengineered business processes in implementing and using paperless trade systems.

The second aspect of human behaviour in general, and traders in particular, shows resistance to change even if it is for their betterment. Therefore, trader engagement during the conceptualisation, development and implementation of the reengineered process is also an important element of the success factor.

Good Practices

Lack of understanding, low skills and resistance to change, especially among SMEs are normally the major critical barriers in adopting paperless trade systems in a country. Therefore, capacity building and skills upgrading programme is necessary to reduce these barriers.

References and Case Studies

- Barriers to ICT adoption in SMEs: how to bridge the digital divide?, https://www.emerald.com/insight/content/doi/10.1108/13287260810897738/full/html

- Customs Capacity Building Strategy, http://www.wcoomd.org/en/topics/capacity-building/overview/~/media/3C486A00F972488DB85F687EA0F551FB.ashx
- UNNExT Capacity-building Workshop: Single Window Project Planning and Implementation, https://www.unece.org/tradewelcome/outreach-and-support-for-trade-facilitation/global-trade-facilitation-conference/unnext-capacity-building-workshop.html
- Trade Facilitation for Sustainable Development Workshop, https://www.unescap.org/events/escap-artnet-itd-trade-facilitation-sustainable-development-workshop-2019
- E-Learning Series on Business Process Analysis for Trade Facilitation, https://www.unescap.org/our-work/trade-investment-innovation/trade-facilitation/bpa-course
- UNNExT Capacity Building Workshop on Data Harmonization and Modelling for Single Window Environment, https://www.unescap.org/events/unnext-capacity-building-workshop-data-harmonization-and-modelling-single-window-environment

A8.2 Budget constraints

A8.2.1 Does your country encounter budget constraints in implementing paperless trade systems?

Background

In many cases, budget constraints in implementing paperless trade systems impede the country to gain potential benefits of a better trade facilitation environment. Recognizing the different context within each country, there could be several different reasons for these budget constraints. The country should consider establishing a future plan and targeted timeline to overcome these financial constraints.

Good Practices

A development plan and its cost/benefit analysis on the paperless trade initiative should be conducted such that value propositions and cost estimation for this initiative could be analyzed.
Business investment and financial models could also be developed so that the high-level policy decision makers could select the best options for the country. Several schemes could be deployed to accommodate these financial constraints, for example, phasing development, public/private partnership, and concession.

Participation in the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific can also be helpful in addressing the financial constraints.

References and Case Studies

- Financial and business model analysis for Single Window, https://www.unescap.org/sites/default/files/9%20-%205.%20Financial%20and%20business%20model%20analysis.pdf
- Case Examples: Public-Private Partnership for Paperless Trade, http://www.tradeforum.org/Case-Study-Public-Private-Partnerships-for-Integrated-Customs-Services-in-Ghana/

- The Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, https://www.unescap.org/resources/framework-agreement-facilitation-cross-border-paperless-trade-asia-and-pacific

Section B: National Status towards Cross-Border Data Exchange

B1 [Electronic systems]

B1.1 If any of the systems mentioned in A2.1, ”Electronics systems” have been implemented, what percentage support cross-border data exchange?

Background

Ideally, all stakeholders of cross-border trade should be on board for cross-border data exchange projects to bring forth full benefits. The information systems of those stakeholders especially of regulatory agencies should support cross-border data exchange. In this respect, assessing the percentage of systems that have already supported or haven’t supported cross-border data exchange yet is important to explore for further extending possibilities and benefits of cross-border data exchange.

Good Practices

Several government or government led agencies within a country involve with different types of import/export/transit related regulatory control and procedures. Licenses, certificates and permits related to exportation or importation of different agricultural and food products may be managed and issued by different authorities.

Those agencies involved should move away from the paper-based and manual operations to electronic and paperless transactions. Implementation of e-Licenses, e-Certificates and e-Permits can help reduce forgery, increase transparency and enhance predictability of trade, and facilitate faster clearance of goods at the entry points. The system should have the capability for the users to submit application documents electronically without paper-based documentation, then those data should be validated and approved electronically, and also the approval status of the submitted documents could be informed to relevant parties electronically.

Any documents and data, e.g. licenses and permits, that are issued in one country, and then used in the other partner country, should be exchanged electronically in a secure and mutually recognised environment across the countries such that cross-border trade transactions can be speed up and any frauds could be further reduced or eliminated.

References and Case Studies

- Virtual Consultative workshop on CITES electronic Permit information exchange (EPIX) for Parties from the UNECE and ESCAP region, https://www.unescap.org/events/virtual-consultative-workshop-cites-electronic-permit-information-exchange-epix-parties-unece
- Guide for implementing e-CITES Permits, https://cites.org/eng/prog/eCITES, https://cites.org/sites/default/files/eng/prog/e/cites_e-toolkit_v2.pdf
- Case Example: Australia/New Zealand e-Cert exchange, https://www.agriculture.gov.au/import/online-services/electronic-certification
- Case Example: e-Certificate of Origin and ASEAN ATIGA/Form D, https://standard.etda.or.th/afact2019/file/DFT_e-FormD_AFACT37%20(22MAY19)%20Final-2.pdf

B2 [Single window system]

B2.1 If a single window system mentioned in A2.2 has been implemented, does it support cross-border data exchange?

Background

A single window system is meant to connect systems of the stakeholders in the country via a single point of connectivity providing more efficient integration/interfacing. Likewise, a national single window is also meant to support cross-border data exchange. It acts as the national single point of connectivity which will ease integration/interfacing for cross-border data exchange with dialogue partners.

Good Practices

The single window system normally acts as the national single point of connectivity with all public and private stakeholders within the countries and also with dialogue partners. With the single point of connectivity, it eases integration and interfacing for cross-border data exchange. The country needs to engage with dialogue partners to discuss and agree on potential mutual benefits and challenges of cross-border electronic data exchange along value chains, namely information exchange between single windows. The challenges also focus on interoperability and suitable models between single windows to exchange and use information, in secure manner agreeing to a mutual recognition protocol, across borders without additional effort on the part of the users.

References and Case Studies

- Cross-border single window interoperability: a managerial guide (particularly on Chapter 4: D. Connectivity), https://www.unescap.org/sites/default/files/CROSS-BORDER%20SINGLE%20WINDOW%20INTEROPERABILITY.pdf
- UNECE Recommendation NO. 36: Single Window Interoperability, http://www.unece.org/fileadmin/DAM/trade/Publications/ECE-TRADE-431E_Rec36.pdf
- Case Example: ASEAN Single Window Architecture, https://asw.asean.org/index.php/faq, https://www.unescap.org/sites/default/files/S7-8_NSW-ASW%20presentation%20%288%20Aug%202018%29.pdf

B2.2 (If B2.1 is yes) Does it function as the national single window, which acts as the national single point of connectivity for any cross-border data exchange with other dialogue partners?

Expected Answers

- **Yes** - the system functions as the national single window which acts as the national single point of connectivity for any cross-border data exchange with other dialogue partners.
- **No** - the current system does not function as the national single window. It does not act as the national single point of connectivity for any cross-border data exchange with other dialogue partners.

B3 [Business process re-engineering]

B3.1 If your country has implemented paperless transactions at the national level, as mentioned in A5.2, has re-engineering and streamlining of business processes been conducted to support cross- border data exchange?

Background

Business process analysis and re-designing of cross-border procedures/processes is a necessary step to support the development and implementation of cross-border paperless data exchange. To eliminate or replace manual and paper-based transactions with paperless transactions, re-engineering and streamlining of business processes must be conducted by taking into account the requirements of cross-border data exchange with dialogue partners.

Good Practices

The country should reach out to actively collaborate with dialogue country partners for establishing cross-border data exchange. High-level political will to collaborate between countries bilaterally, multilaterally or regionally should be established, e.g. through signed agreement, or through a concession on the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific. Inter-governmental steering group and working groups acts as catalyst among the country's dialogue partners to collaboratively work on business process re-engineering and streamlining of cross-border procedures/processes, legality and other technical issues to support cross-border data exchange. In such initiatives, adoption of international standards and guidelines is of prime importance.

References and Case Studies

- Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, https://www.unescap.org/resources/framework-agreement-facilitation-cross-border-paperless-trade-asia-and-pacific-0
- Cross-border single window interoperability: a managerial guide (particularly on Chapter 4: D. Connectivity), https://www.unescap.org/sites/default/files/CROSS-BORDER%20SINGLE%20WINDOW%20INTEROPERABILITY.pdf
- Agreement to Establish and Implement the ASEAN Single Window, https://asean.org/?static_post=agreement-to-establish-and-implement-the-asean-single-window-kuala-lumpur-9-december-2005-2
- Intergovernmental Steering Group on Cross-border Paperless Trade Facilitation, https://www.unescap.org/intergovernmental-body/intergovernmental-steering-group-cross-border-paperless-trade-facilitation?page=1

B4 [Data harmonization and standardization]

B4.1 Has data harmonization and standardization been conducted based on international standards/guidelines, such as the United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport, United Nations Code for Trade and Transport Locations, single

window recommendation of the United Nations Centre for Trade Facilitation and Electronic Business, to support cross-border paperless trade data exchange?

Background

Data harmonization and standardization involves a set of activities that improve the consistency in the use of data elements in terms of their meaning and representation format. A standard set of data, codes and messages to meet all information requirements related to import, export, and transit procedures should be adopted. If this data harmonization and standardization is done based on international standards which are adopted by most organizations or countries in the region, it will minimize changes in the national system process and database structure when implementing cross-border data exchange electronically.

Good Practices

Documents and data elements used for cross-border data exchange must be harmonized and standardized between the dialogue country partners. When data harmonization and standardization for automated systems or the single window systems of the country is developed based on international standards and guidelines, it minimizes changes in the national system process and database structure when implementing cross-border data exchange electronically. International standards and guidelines should be adopted for this endeavor, such as the UN rules for Electronic Data Interchange for Administration, Commerce ad Transport; UN Code list; UN Core Components Library; WCO Data Model; and UN/CEFACT single window recommendations.

References and Case Studies

- UNNExT Data Harmonization and Modelling Guide for Single Windows Environment, https://www.unescap.org/resources/data-harmonization-and-modelling-guide-single-windows-environment
- UNECE Recommendation No. 34: Data Simplification and Standardization for International Trade, http://tfig.unece.org/contents/recommendation-34.htm
- UNECE Recommendation No. 33: Recommendations and Guidelines on establishing a Single Window, https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf
- WCO Data Model, http://tfig.unece.org/contents/wco-data-model.htm
- UN/CCL, https://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html
- Data Harmonization Case Study, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/data-harmonization-for-sw-a-case-study-from-oman-_-wco-news-february-2014.pdf?la=en

B5 International transit

B5.1 [National transit] Has the country implemented a paperless customs declaration for national transit procedures (inbound transit, outbound transit, inland transit)?

Background

Among issues faced by transit traders under the current international transit procedure in many countries in the region are:

i. Repetitive submission of a customs transit declaration at entry to every country of transit; and
ii. A security document needs to be registered at every country of transit.

To address the above issues at the national level, the electronic customs system should be developed to facilitate and automate electronic customs transit declarations and other related procedures including inbound, outbound and inland transit. The system should allow a single customs transit declaration to be valid for the whole transit route.

Good Practices

The electronic customs system should have the capability to receive, validate and approve customs transit declarations electronically, covering inbound transit, outbound transit, and inland transit operations. The national transit operations here refer to transports of goods between departure and destination offices within the same country or territory.

With the aim of both securing and facilitating the transit operations, Customs administrations should establish effective information sharing among customs offices and other related agencies en route. This will help monitoring the transit movement, and ascertain whether the goods have been correctly declared for transit and whether the transit procedure has been correctly completed at each stage of the transit route up to the final destination.

An effective exchange of secure information helps gather intelligence, and allows all border agencies involved to take appropriate decisions concerning the applicable control measures. Effective exchange of information reduces the unnecessary administrative burden on both Customs administrations and economic operators.

References and Case Studies

- WCO Transit Guidelines (particularly on Chapter 2 - ICT and Efficient Information Management), http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/transit/transit-guidelines.pdf?db=web
- Case Examples: Innovative practices in transit, http://www.wcoomd.org/-/media/wco/webtool/es/art-9/transit-practices.pdf

B5.2 [International transit] Has the country implemented a paperless customs declaration for international transit?

Background

Transit traders face several issues, e.g. repetitive submission of a customs transit declaration at entry to every country of transit, and security document registration at every country of transit. To address those issues, the following could be considered, (a) a single customs transit declaration to be valid for the whole transit route, and (b) a single guarantee to be valid for the whole transit route

The country should implement electronic customs system to also support international transit procedures. Data and information of the customs transit declaration could be submitted and approved electronically at the country of departure and shared across borders with the countries of transit and the country of destination. Relevant data/information of the guarantee could be registered at the country of departure and shared across borders with countries of transit and the country of destination by electronic mean.

Good Practices

The country's customs administration should actively collaborate with dialogue country partners to establish agreements in order to implement single customs transit declaration and single guarantee valid for the international transit route in the region.

Bilateral, multilateral, regional, or international agreements should also focus on the exchange of information, or may be broader in scope, comprising exchange of information as just one part of the agreement. In any event, an agreement to exchange information should consider at least the following guidelines:

- Agreements/arrangements on transit should envisage obligations for customs administrations to ensure the integrity of the information exchanged, provided by transit operators.
- Agreements/arrangements should allow for immediate exchange of information electronically, i.e. an explicit request from the customs office to obtain the information should not be required.
- Agreements/arrangements should enable a guarantee registered at the country of departure, covering the highest duty amount calculated based on the duty rate of each country in the transit route, to be valid and accepted throughout the transit route; and
- Agreements/arrangements should support a regional/sub-regional format and content of the single guarantee.

References and Case Studies

- Guide on Establishing an Automated Customs Transit Transport System, https://www.unescap.org/resources/guide-establishing-automated-customs-transit-transport-system
- Case Example: ASEAN Transit System, https://www.unescap.org/sites/default/files/Aivaras_Pigaga_6feb2018_bangkok.pdf

B5.3 [One-stop inspection system] Has your country implemented a one stop inspection system by all controlling agencies at the borders at the time of exit/export?

Background

If single stop inspection is done by all controlling agencies at the exporting country and data of the inspection results is shared with the importing country, preferably electronically, it will definitely expedite cargo clearance.

Good Practices

The customs administration works collaboratively with all other controlling agencies in the country to establish and operate a single stop inspection with the support of paperless/single window systems. The country needs to work collaboratively also with dialogue country partners bilaterally, multilaterally or regionally to develop electronic cross-border data exchange capability. The electronic system is established in such a way that the inspection result in the export country can be created electronically, and then sent or shared with the electronic system of the importing country.

References and Case Studies

- Case Examples: Single Window Inspection & Single Stop Inspection, https://www.unescap.org/sites/default/files/ESCAP%20Presentaiton_Single%20Window%20Inspection-Single%20Stop%20Inspection.pdf

B6 Awareness Programme

B6.1 [Awareness programme] Does your country have an awareness programme (for example capacity-building, training, workshops) for stakeholders to have a better understanding of the following issues?

B6.1.1 [Cross-border data exchange] How could cross-border data exchange be implemented?

Background

Awareness programme is important for stakeholders to understand how cross-border data exchange could be carried out so as to reduce their anxiety and that they will be prepared to address any issues that may arise. Capacity building and training workshops must be conducted to build understanding and skills among stakeholders on topics such as, data harmonization, simplification, compatibility, interoperability , and security.

Good Practices

Awareness programme aims to raise understanding and also build capacity of both public and private stakeholders in several aspects of cross-border data exchange. The awareness and capacity building programme should be conducted in the early planning and also during implementation stages.

The awareness programme should address benefits and also potential challenges such as ensuring effective stakeholder engagement, an enabling legal framework, and re-engineering business processes, and data harmonization. It could also cover lessons learned from other countries in implementing cross-border data exchange.

If a country lacks the expertise to carry out such awareness programme to cover some certain topics such as business process analysis, data harmonization & simplification, system development, project management, etc., it may look for technical assistance from external parties under the Framework Agreement on Cross-border Paperless Trade.

References and Case Studies

- A Case Example on Capacity Building Workshop for Cross-border Paperless Trade Facilitation, https://www.unescap.org/events/capacity-building-workshop-cross-border-paperless-trade-facilitation-implications-emerging
- A Regional Workshop on Cross-Border Trade Facilitation and Single Window Implementation in Northeast Asia, https://www.unescap.org/events/workshop-cross-border-trade-facilitation-and-single-window-implementation-northeast-asia

B6.1.2 [Potential business transactions and documents] Potential business transactions and documents for cross-border data exchange?

Background

Potential benefits and possibility of business transactions and documents appropriate for cross-border data exchange may not be obvious. Awareness and capability building programme could help public and private stakeholders to understand those issues including potential transactions and documents for cross-border data exchange.

Good Practices

There are several potential business transactions and documents related to international trade that cross-border data exchange could be beneficial to stakeholders. However, it depends on the context, specific needs and priority of each country which is different.

Different countries have chosen different documents and related business transactions for establishing electronic cross-border data exchange, e.g. certificates of origin, phytosanitary and sanitary certificates, CITES Permits, and customs declarations including transit data.

References and Case Studies

- Virtual Consultative workshop on CITES electronic Permit information exchange (EPIX) for Parties from the UNECE and ESCAP region, https://www.unescap.org/events/virtual-consultative-workshop-cites-electronic-permit-information-exchange-epix-parties-unece
- Cross-border eCITES data exchange, https://cites.org/eng/prog/eCITES
- Electronic Phytosanitary, https://www.ippc.int/en/ephyto/
- Electronic Certificate Business Requirements, https://www.unece.org/fileadmin/DAM/cefact/brs/BRS_ExportCertificate__eCert__v5.1.0.pdf

- ASEAN Certificates of Origin (ATIGA) Cross-Border Data Exchange, https://asw.asean.org/about-asw

B6.1.3 [Methods of identifying inhibitors] Methods of identifying inhibitors that need to be addressed?

Background

Many countries recognize the benefits of cross-border paperless trade by enabling the exchange of trade-related data and documents in electronic form across the countries. However, there are several challenges and inhibitors that need to addressed. In several cases, the country may lack the expertise and methods to identify inhibitors and how to address those challenges.

Good Practices

The awareness programme should raise understanding of stakeholders about potential challenges and inhibitors for establishing cross-border data exchange, and also methods to identify them, and how to deal with those issues under the country's context. Lessons learned from other countries in dealing with inhibitors e.g. lack of sustainable political will, or weakness of the inter-agency collaborative platform, and how to implement cross-border data exchange including critical factors are valuable and should be shared.

References and Case Studies

- Lessons learned in implementing cross-border data exchange for trade, https://www.unescap.org/resources/session-1-lessons-cross-border-data-exchange-initiatives-region-and-beyond
- Case Studies: Barriers to cross-border data flow, https://unctad.org/meetings/en/Contribution/dtl_ict4d2016c01_Kommerskollegium_en.pdf

B6.2 [Future plan] If your country has not conducted any awareness and capacity building programmes related to B6.1.1 - B6.1.3, what is your country's future plan and targeted timeline to conduct an awareness programme?

Background

Awareness program is important for stakeholders to understand how cross-border data exchange could be carried out so as to reduce their anxiety and that they will be prepared to address any issues that may arise. If a country has not conducted any awareness and capacity building programme or does not have enough of such programme, the future plan and targeted timeline to conduct an awareness programme should be established.

Good Practices

The country should access the levels of awareness and understanding of stakeholders related to cross-border paperless trade including potential benefits, organizational and technical issues and challenges. Key public agencies and representatives of private sectors could work together to identify needs and develop the country's future plan and targeted timeline for awareness and capacity building programme.

References and Case Studies

- UNNExT Masterclass to build capacity related to trade facilitation and paperless trade, https://www.unescap.org/events/4th-unnext-masterclass
- Planning and Implementation Guidelines for Single Window and Cross-border Paperless Trade, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0, https://www.unescap.org/resources/cross-border-single-window-interoperability-managerial-guide

B6.3 [Capacity] Does your country have the capacity to carry out the following: (i) business process analysis; (ii) data harmonization and simplification; (iii) system development; and (iv) project management?

Background

Awareness and training programme is very important for building understanding and skills among stakeholders on how cross-border data exchange and paperless trade systems could be implemented. Key stakeholders must understand and possess skills related to several technical tasks, especially on business process analysis, data harmonization and simplification, system development, and project management. If a country lacks the expertise for those specific tasks it may look for technical assistance from external parties for training and consultation.

Good Practices

Awareness and training programme is important for key stakeholders to understand and build skills on how cross-border data exchange could be implemented. The capability building programme should cover topics related to streamlining processes on license, permits, certificates and other regulatory restrictions in a cross-border data exchange environment, data harmonization and standardization of those documents and required data, multi-agency large-scale project management, and system development.

References and Case Studies

- UNNExT Masterclass to build capacity related to trade facilitation and paperless trade, https://www.unescap.org/events/4th-unnext-masterclass
- Planning and Implementation Guidelines for Single Window and Cross-border Paperless Trade, https://unnext.unescap.org/content/single-window-planning-and-implementation-guide-0, https://www.unescap.org/resources/cross-border-single-window-interoperability-managerial-guide
- UNECE Recommendation 36: Single Window Interoperability, https://www.unece.org/fileadmin/DAM/trade/Publications/ECE-TRADE-431E_Rec36.pdf

B7 Other matters

B7.1 Authorized Economic Operator (AEO)

B7.1.1 In general, what is the level of compliance of traders in your country (high, medium or low)?

Background

The lack of trust on traders and economic operators normally impedes trade. The level of compliance of traders in the country should be high in order to increase trust of traders in conducting cross-border trade. The country should establish and improve some schemes and measures that can improve and/or enforce the level of compliance of traders in the country.

Expected Answers

- **High (70 – 100%)**
- **Medium (20 –69%)**
- **Low (0 –19%)**

Good Practices

There are some schemes or measures that can increase the level of compliance and trust of traders for cross-border trade transactions. The WCO framework of standards to secure and facilitate global trade (SAFE Framework) provides several scheme to raise the levels of trust, security and compliance among traders. One of the flagship programme of the SAFE Framework is the authorized economic operator (AEO) scheme which is a Customs-Business partnership program for secure trade.

Establishing a national trusted digital authentication scheme, e.g. national digital identification and authentication mechanism, national single window, and effective risk management can also improve the level of compliance of traders in the country.

References and Case Studies

- The WCO framework of standards to secure and facilitate global trade (SAFE Framework), http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/frameworks-of-standards/safe_package.aspx
- AEO Implementation Guidance, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-implementation-guidance.pdf?la=en, http://tfig.unece.org/contents/authorized-economic-operators.htm
- Case Examples, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-compendium.pdf

B7.1.2 Has the authorized economic operator (AEO) scheme been implemented in your country?

Background

Some countries which are ready for cross-border data exchange may not be willing to participate in a pilot project. One of the reasons is the lack of trust on economic operators of their dialog partners. If the economic operators in the country are able to comply with AEO (Authorized Economic Operator) scheme and mutually recognized by the dialog partners, it will expedite cross-border data exchange.

Good Practices

The authorized economic operator (AEO) scheme is a programme under the support of the World Customs Organization (WCO) SAFE Framework of Standards to secure and facilitate Global Trade. The scheme aims to enhance international supply chain security and facilitate movement of legitimate goods.

An authorized economic operator (AEO) is a party involved in the international movement of goods in whatever function that has been approved by or on behalf of a national Customs administration as complying with WCO or equivalent supply chain security standards. Authorized Economic Operators include inter alia manufacturers, importers, exporters, brokers, carriers, consolidators, intermediaries, ports, airports, terminal operators, integrated operators, warehouses and distributors.

References and Case Studies

- AEO Implementation Guidance, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-implementation-guidance.pdf?la=en, http://tfig.unece.org/contents/authorized-economic-operators.htm
- The WCO framework of standards to secure and facilitate global trade (SAFE Framework), http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/frameworks-of-standards/safe_package.aspx
- Case Examples, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-compendium.pdf

B7.1.3 Is your country ready to sign any mutual recognition agreements for authorized economic operations with dialogue partners?

Background

The country should assess the readiness, identify and address inhibitors for signing the mutual recognition agreement for AEOs with dialogue partners.

Good Practices

The authorized economic operator (AEO) scheme is the flagship customs-business partnership programme under the WCO SAFE Framework for secure international trade. Before signing any mutual recognition agreement for AEOs with dialogue partners, the country should establish the AEO scheme for the country first. The business traders must build their capability and improve their trust and compliance level through this AEO scheme.

With the high percentage of AEOs, the country then considers exploring the possibility of signing any mutual recognition agreement for AEOs with dialogue partners.

References and Case Studies

- AEO Implementation Guidance, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-implementation-guidance.pdf?la=en, http://tfig.unece.org/contents/authorized-economic-operators.htm
- The WCO framework of standards to secure and facilitate global trade (SAFE Framework), http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/frameworks-of-standards/safe_package.aspx
- AEO Case Examples, http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/aeo-compendium.pdf

B7.2 [Change management] Are the stakeholders and the trade community ready to accept changes arising from the re-engineered processes towards cross-border data exchange?

Background

In the preparatory stage, it is useful to assess the readiness of stakeholders to accept changes arising from cross-border data exchange.

- Regulatory agencies
- Agents/customs brokers
- Traders
- Port community
- Financial institutions
- Other (please specify)

Expected Answers

- **Yes** - Each group of stakeholders and trade community is ready to accept changes arising from the re-engineered processes towards cross-border electronic data exchange.
- **No** - Each group of stakeholders and trade community is not ready to accept changes arising from the re-engineered processes towards cross-border electronic data exchange.

Please specify which group not ready yet.

- Regulatory agencies
- Agents/customs brokers
- Traders
- Port community

- Financial institutions
- Other (please specify)

Good Practices

Awareness programme aims to raise understanding and also build capacity of both public and private stakeholders in several aspects of cross-border data exchange. The awareness and capacity building programme should be conducted in the early planning and also during implementation stages. These programmes could reduce anxiety and misunderstanding in each group of stakeholder and trade community.

Awareness and capacity building should be a part of change management programme to address benefits and potential challenges. It could also cover lessons learned from other countries in implementing cross-border data exchange.

References and Case Studies

- A Case Example on Capacity Building Workshop for Cross-border Paperless Trade Facilitation, https://www.unescap.org/events/capacity-building-workshop-cross-border-paperless-trade-facilitation-implications-emerging
- A Regional Workshop on Cross-Border Trade Facilitation and Single Window Implementation in Northeast Asia, https://www.unescap.org/events/workshop-cross-border-trade-facilitation-and-single-window-implementation-northeast-asia

B7.3 [Budget] Has your country's government budget provisioned for the transition to cross-border paperless trade data exchange?

Background

In the preparatory stage, it is useful to assess the availability of funds for any potential cross-border paperless trade project.

Good Practices

It could be helpful for the high-level policy decision makers who have the authority to grant the government budget to understand or realize the return-on-investment on the establishing of cross-border paperless data exchange. The cost of implementation and tangible/intangible benefits to traders, governments and the national economy as the whole, should be included in the analysis.

If the return-on-investment analysis including cost and the impacts of establishing cross-border paperless trade data exchange is promising, the country's government budget should be provisioned reasonably and hopefully in a timely basis.

References and Case Studies

- Financial and business model analysis for establishing paperless trade and single window systems, https://www.unescap.org/sites/default/files/9%20-%205.%20Financial%20and%20business%20model%20analysis.pdf

B7.4 [Pilot project] Is your country considering cross-border data exchange for any of the documents and related processes? (Y=Yes, N=No. Please select the top five prioritized documents)

Background

Sharing information on the country's preferences and plan on the prioritized documents or those documents that have already been implemented for cross-border data exchange can help identify potential participants having the same or similar preferences to work together on data exchange and also on pilot projects.

Expected Answers

i. Seaway bill
ii. (Advance) Manifest
iii. Customs transit declaration
iv. Transit bond
v. Phytosanitary certificate
vi. Sanitary certificate
vii. Fumigation certificate
viii. Convention on International Trade in Endangered Species of Wild Fauna and Flora certificate
ix. Certificate of origin (preferential)
x. Certificate of origin (non-preferential)
xi. Pharmaceutical certificate
xii. National standard and quality certificate
xiii. ISO and other international standards and quality certificates
xiv. Certificate of medical devices
xv. Certificate of electrical and electronic components, equipment and products
xvi. Dangerous Goods List
xvii. Material safety data sheet
xviii. Letter of credit
xix. Bill of lading
xx. Invoice
xxi. Packing list
xxii. Import permit
xxiii. Others (please specify)

Good Practices

Different countries have different needs, requirements and strategies for cross-border data exchange. Therefore, top prioritized documents and data for cross-border exchange will be different.

Sharing information on a country's preferences on the prioritized documents for cross-border data exchange can help identify potential participants having the same or similar preferences to work together on pilot projects.

References and Case Studies

- Case Example: Australia/New Zealand e-Cert exchange, https://www.agriculture.gov.au/import/online-services/electronic-certification

- Case Example: e-Certificate of Origin and ASEAN ATIGA/Form D, https://standard.etda.or.th/afact2019/file/DFT_e-FormD_AFACT37%20(22MAY19)%20Final-2.pdf
- Case Example: ASEAN Transit System, https://www.unescap.org/sites/default/files/Aivaras_Pigaga_6feb2018_bangkok.pdf
- Development of Northeast Asia Logistics Information Service Network (NEAL-NET), https://www.unescap.org/resources/session-2-development-northeast-asia-logistics-information-service-network-neal-net

B7.5 [Priorities] For each of the five prioritized documents identified in B7.4, please provide/specify further information on the following: document name; implementing agency; and percentage of the paperless documents and related processes.

Background

Sharing more detailed information about the country's prioritized document could be useful for exploring possible future collaboration.

Good Practices

Different countries have different needs, requirements and strategies for cross-border data exchange. Therefore, top prioritized documents and data for cross-border exchange will be different.

Sharing information on a country's preferences on the prioritized documents for cross-border data exchange can help identify potential participants having the same or similar preferences to work together on pilot projects.

References and Case Studies

- Case Example: Australia/New Zealand e-Cert exchange, https://www.agriculture.gov.au/import/online-services/electronic-certification
- Case Example: e-Certificate of Origin and ASEAN ATIGA/Form D, https://standard.etda.or.th/afact2019/file/DFT_e-FormD_AFACT37%20(22MAY19)%20Final-2.pdf
- Case Example: ASEAN Transit System, https://www.unescap.org/sites/default/files/Aivaras_Pigaga_6feb2018_bangkok.pdf
- Development of Northeast Asia Logistics Information Service Network (NEAL-NET), https://www.unescap.org/resources/session-2-development-northeast-asia-logistics-information-service-network-neal-net