The Single Window Concept in International Trade, Transport and Seaports

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ABSTRACT

This paper presents a review of electronic data exchange and Single Window concept in international trade, transport and seaports. The theoretic framework of international trade, trade facilitation, Single Window, transport sector, maritime transport and seaports is provided, as well as the definition of electronic data exchange and standards for data exchange. The time and cost (excluding tariffs) associated with documentary compliance procedure (exporting and importing a shipment of goods) are shown in order to better understand the complexity and the importance of simplifying administrative processes. The importance of stakeholder connectivity in the transport sector (with special emphasis on seaports) is demonstrated, and factors which affect the successful electronic data exchange in seaports are shown. The advantages of smoother electronic data exchange are provided through the analysis of several Single Window examples, which present regional best practices.

ARTICLE INFO

1 Introduction

International trade is an exchange of goods or services across national jurisdictions (Rodrigue, 2017). Bureaucratic delays and "red tape" pose a burden for moving goods across borders for traders (*WTO | Trade facilitation*, 2019). Trade facilitation – the simplification, modernization and harmonization of export and import processes – has therefore emerged as an important issue for the world trading system (*WTO | Trade facilitation*, 2019). Trade facilitation involves a wide and diverse range of public and private stakeholders seeking to establish a transparent, consistent and predictable environment for border transactions based on simple and standardised procedures and practices (*UNCTAD | Different types of National Trade Facilitation Bodies*, 2019). In this respect, many countries and international organisations have recognized the numerous benefits of electronic trade facilitation, promoting the development and implementation of trade portals that allow business operators and governments to process trade information submitted in electronic formats, typically in one place, to all the concerned

parties (Nowak, 2007). The processing of trade information in one place is enabled by a concept called "Single Window". Single Window is a trade facilitator which permits the trader or transporter to submit all the data needed for determining admissibility of the goods in a standardized format only once to the authorities involved in border controls and at a single portal (World Customs Organization, 2019). The development of electronic Single Windows started in the early 2000s. In the recent years the discussion turned to regional Single Windows and cross-border interoperability of national single Windows to cover entire supply chains (Nowak, 2007).

The transport sector, as a part of international trade, can be viewed as a part of the public infrastructure, a supply chain, a service provision or a business. The transport sector is handling both passenger and freight transport (Westerheim, 2014). The development of transport services and an adequate transport and communication infrastructure are increasingly becoming important in achieving the competitive edge and decidedly influence the position of a country in international trade (Pavlović

and Radoš, 2016). Transport documents lie at the heart of international trade transactions. These documents are issued by the shipping lines, airline, international trucking companies, railroad operators, freight-forwarders, logistics companies etc. To the shipping company, freight transport documents provide an accounting record of the transaction, instructions on where and how to ship the goods and a statement giving instructions for handling the shipment (Global Negotiator, 2010). Traditionally, paper documents needed to be generated, copied and sent all over the world. Paper document exchange is still maintained within the transport sector (Anh, 2018). Without automation or electronic exchange, such processes can be time consuming, which ultimately affects the performance of commercial and administrative operations (Jović, Čišić and Tijan, 2018). With advancement in Information and Communications Technology (ICT), some of the stakeholders (carriers, distributors, banks, insurers, government agencies, terminals, and customs authorities) were quick to take advantage of Electronic Database Interchange (EDI) systems capable of transferring data from computer to computer to speed up transactions in their trades (Anh, 2018).

Maritime transport, as a part of the wider maritime sector is composed of the organizations and activities such as shippers, seaport stakeholders, and a wide range of professional services around the maritime activities etc. (*Maritime Sector*, 2019). Maritime transport involves a lot of procedures, stakeholders and data that need to be exchanged. In that respect, the Convention on Facilitation of International Maritime Traffic (FAL convention) plays an important role in facilitation of data exchange in maritime transport as its main objectives are to prevent unnecessary delays in maritime traffic, to aid co-operation between Governments, and to secure the highest practicable degree of uniformity in formalities and other procedures (*Contribution of the International Maritime Organization to the UN Secretary-General's Report on Oceans and the Law of The Sea Preliminary Considerations*, 2018).

Seaports are important nodes in the intermodal transport; their earlier narrow focus on cargo handling has been replaced with a wide range of logistic activities giving the seaports a more active role in the transport chain (Roso and Lumsden, 2009). A seaport can also be defined as a nodal point between land and sea, or a modal interface between shipping or sea transportation system on the one side, and the land transport network on the other side (Unctad Secretary, 2004). Efficiency of a seaport is important in international trade since a seaport is the nerve of foreign trade of a country (*Relevance Of Major And Minor Ports In International Trade – iPleaders*, 2016). Numerous stakeholders operate in the complex seaport environment, (shipping companies, port authorities, terminal operators, freight brokers etc.). The quality of interaction among the seaport stakeholders determines the success of the seaports (Heilig, Schwarze and Voss, 2017). Electronic data exchange facilitates data exchange between seaport stake-

holders, as it represents a powerful application of computer communications technology. Its value includes such benefits as reduced paperwork, elimination of data entry overheads, improved accuracy, timely information receipt, accelerated cash flow, and reduced inventories (Masudin and Kamara, 2017). This paper has been drafted in connection with Activity D3.1.2. of DigLogs project "Analyses of the most attractive informatisation processes already on-going and directly transferable in the ITA-CRO area (prospective three years)". The DigLogs project involves cooperation between the two countries – Italy and Croatia, and is being implemented with the aim of creating the necessary concepts, technological solutions, models and planning to establish the most advanced digitized logistic processes for multimodal freight traffic and passenger services in the program area.

2 Theoretical framework

International trade is a set of actions that aim to exchange capital, goods, and services between foreign countries across their international borders (*What is International Trade? – Definition | Meaning | Example*, 2019). In most countries, companies engaged in international trade regularly have to submit large volumes of information and documents to governmental authorities (Abeywickrama, 2015). This information and documentation often must be submitted through several different agencies, each with its own specific system and different paper forms or templates. These requirements constitute a burden both to Governments and to the business community, particularly in developing countries (Abeywickrama, 2015).

Trade facilitation has emerged as a key factor for international trade efficiency and the economic development of countries (*TRADE FACILITATION IMPLEMENTATION GUIDE – Introduction*, 2019). The primary goal of trade facilitation is: to help make trade across borders (imports and exports) faster, cheaper and more predictable, whilst ensuring its safety and security; to simplify and harmonize formalities, procedures, and the related exchange of information and documents between the various partners in the supply chain (*TRADE FACILITATION IMPLEMENTATION GUIDE – Introduction*, 2019). In order to accelerate electronic data exchange among stakeholders, a concept of a Single Window (SW) was introduced. The most commonly accepted definition of a Single Window is the one provided by the United Nations Economic Commission for Europe (UNECE) Recommendation No. 33.: "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" (*The Single Window concept*, 2019). If information is electronic, then individual data elements should only be submitted once. Based on analysis of regional best practice cases, the following key features/characteristics of a SW can be outlined: single entry; single submis-

sion; paperless environment; standardized documents and data; sharing of information (information dissemination); centralised risk management; coordination of agencies and stakeholders; analytical capability; and electronic payment (*Single Window for Trade Facilitation: Regional Best Practices and Future Development*, 2018).

Transport sector is a part of international trade. When items are transported either domestically or internationally, the delivery must be accompanied by the relevant documentation (*Transport Documentation: Logistics and Supply Chain*, 2018). The application of electronic data exchange in transport sector involves the conversion of written documents into structured, machine readable formats so that a computer in one company or functional unit can receive and process data from another company's or unit's computer (Njoni *et al.*, 2016). Documents which can be exchanged electronically among stakeholders are: invoices, advance ship notices, bill of lading, customs documents, inventory documents, shipping status documents, payment documents etc. (*EDI Document Standards*, 2019).

In order to facilitate and to simplify the reporting formalities which are present in maritime transport sector, which is a part of transport sector, the European Parliament's Committee on Transport and Tourism published the draft report on the Commission's proposal for a Regulation creating a European Maritime Single Window environment, which came out on 17 May 2018 (*EU publishes draft report on European Maritime Single Window*, 2018). Its focus therefore lies on data related to ships and not information about cargo and trading. The key stakeholders for the Maritime Single Window are the European Maritime Safety Agency (EMSA) and national maritime administrations (Niculescu and Minea, 2016).

A paperless and standardized communication is not only a prerequisite for efficient maritime transport operations which include multiple stakeholders, but also for improving supply chain integration, coordination, and performance (*The importance of standardization – BNQ*, 2019). The International Organization for Standardization (ISO), The United Nations Economic Commission for Europe (UNECE) and The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) play a significant role in facilitating the electronic data exchange in a standardised way in maritime transport sector. Electronic data exchange is the electronic, computer-to-computer exchange of business information by standardized message formatting between business trading partners or between various units within an organization (Njoni *et al.*, 2016). ISO is the world's largest developer and publisher of International Standards (*ISO – International Organization for Standardization*, 2019). UNECE is one of five regional commissions of the United Nations and it sets out norms, standards and conventions to facilitate international cooperation within and outside the region (*UNECE Homepage*, 2019). UN/CEFACT is a subsidiary, intergovernmental body of the UNECE which serves as a focal point within the United Nations Economic

and Social Council for trade facilitation recommendations and electronic business standards (*UNECE Homepage*, 2019). Many UN/CEFACT standards have their basis in ISO standards.

Various standards for data exchange are used in maritime transport sector such as (Agostinho *et al.*, 2016):

1. STEP (STandard for the Exchange of Product model data) is a comprehensive ISO standard (ISO 10303) that describes how to represent and exchange digital product information (*ISO 10303 STEP Standards*, 2015).

2. UBL (Universal Business Language) defines a royalty-free library of standard XML business documents supporting digitization of the commercial and logistical processes for domestic and international supply chains such as procurement, purchasing, transport, logistics, intermodal freight management, and other supply chain management functions.

3. EDI/EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) is the main electronic data interchange standard adopted globally and used extensively in national Customs offices and international shipping, amongst others (*UNECE with UNCEFACT*, 2019). The EDIFACT standard provides a set of syntax rules to structure, an interactive exchange protocol and provides a set of standard messages which allow multi-country and multi-industry exchange of electronic business documents (*EDI Document Standards*, 2019).

4. ebXML (electronic business eXtensible Markup Language) a set of specifications that together enable a modular electronic business framework. The vision of ebXML is to enable a global electronic marketplace where enterprises of any size and in any geographical location can meet and conduct business with each other through the exchange of XML-based messages.

Seaports, as a part of maritime transport, play a very important role in maritime logistics. They are an integral part of international transportation as they act as interface between sea and land to conduct trade through sea (*Seaport Definition | Operations & Supply Chain Dictionary | MBA Skool-Study.Learn.Share.*, 2018). According to Conca, Febbraro, Giglio and Rebora, the document exchange among stakeholders in seaports is definitely too fragmented (Conca *et al.*, 2018). As a result, seaport activities are often uncoordinated. They concluded that such a lack of coordination in information exchange among all the involved stakeholders usually causes a significant waste of time, which my lead to a decrease of efficiency of maritime transport. Port operators should establish closer cooperation with local governments and try their best to strengthen the relationship among other actors such as shipping companies, customs, and railway operators (Bergqvist, 2016). According to CISCO (one of the leading companies in IT, networking, and cybersecurity solutions), new seaport information technologies should be integrated into an existing port information infrastruc-
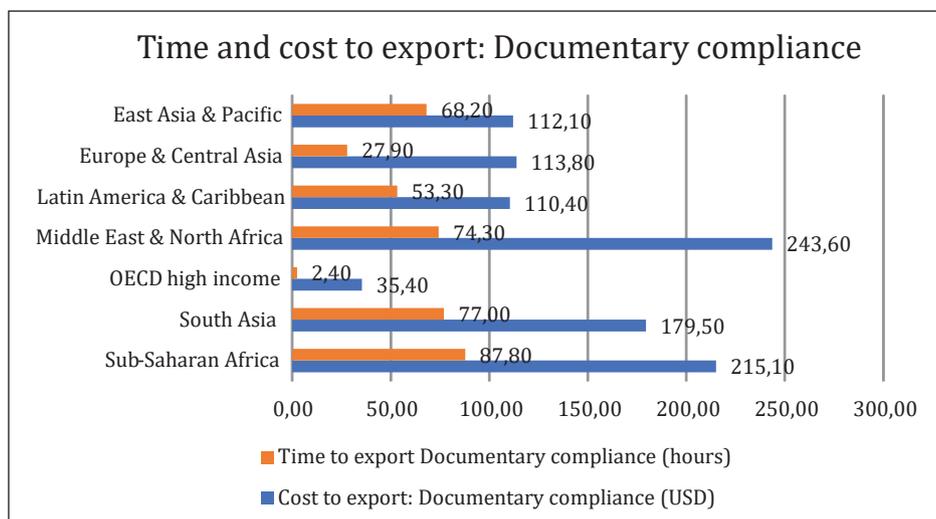
Figure 1 The time and cost associated with documentary compliance procedure (exporting a shipment of goods), in 2018

Source: *Trading across Borders – Doing Business – World Bank Group*, 2018

ture that, is often highly fragmented across both port authority and tenant operations. In this respect, a secure, unified standards-based communications infrastructure is needed to allow seaports to capitalize on emerging security, operational, and cost-cutting opportunities (CISCO, 2003).

3 Complexity of information flows in international trade, transport and seaports

Numerous documents are created and distributed in international trade, such as commercial documents, financial documents, transport documents, insurance documents and other international trade related documents (*International Trade And Documents*, 2013). The World Bank's Doing Business report (a World Bank Group flagship publication, which covers 11 areas of business regulations and Trading Across Borders is one of these areas (*Doing Business Trading Across Borders and Logistics Performance Index: similar yet different | The Data Blog*, 2016)) summarized the data about the time and cost related to exporting and importing goods in international trade. The report presents the time and cost (excluding tariffs) associated with three sets of procedures – documentary compliance, border compliance and domestic transport (within the overall process of exporting or importing a shipment of goods). Documentary compliance captures the time and cost associated with compliance with the documentary requirements of all government agencies of the origin economy, the destination economy and any transit economies (*Trading across Borders FAQ – Doing Business – World Bank Group*, 2019). The time and cost for documentary compliance include the time and cost for obtaining, preparing, processing, presenting and submitting documents. All electronic submissions of infor-

mation requested by any government agency in connection with the shipment are considered to be documents obtained, prepared and submitted during the export and import (*Trading across Borders FAQ – Doing Business – World Bank Group*, 2019). In this respect, Figure 1 shows the time and cost associated with documentary compliance procedure, related to exporting a shipment of goods (*Trading across Borders – Doing Business – World Bank Group*, 2018).

After comparing OECD countries and Sub-Saharan Africa countries practices, it is possible to notice a large difference in costs and time associated with documentary compliance procedure. While OECD countries recorded 35,40 USD (on average) for documentary compliance related to exporting a shipment of goods, Sub-Saharan Africa, due to underdevelopment, recorded far larger costs (215,10 USD on average). The lowest time needed for documentary compliance (time to export) was also recorded at OECD countries, which is 2,40 hours on average, while Sub-Saharan Africa countries spent considerably more time (87,8 hours on average).

Figure 2 shows the time and cost associated with documentary compliance procedure, related to importing a shipment of goods.

A large difference in costs and time between OECD countries and Sub-Saharan Africa countries exists in import as well. While OECD countries recorded 24,90 USD on average for documentary compliance related to importing a shipment of goods, Sub-Saharan Africa recorded 283,50 USD on average. The minimum time needed for documentary compliance (time to import) was also recorded at OECD countries (3,40 hours on average), while Sub-Saharan Africa countries recorded 97,70 hours on average.

According to United Nations Economic and Social Commission for Asia and the Pacific and United Nations

Time and cost to import: Documentary compliance

Region	Time to import (hours)	Cost to import (USD)
East Asia & Pacific	57,00	109,50
Europe & Central Asia	24,70	93,90
Latin America & Caribbean	79,10	116,30
Middle East & North Africa	75,50	269,00
OECD high income	3,40	24,90
South Asia	100,80	276,70
Sub-Saharan Africa	97,70	283,50

■ Time to import (hours)　■ Cost to import(USD)
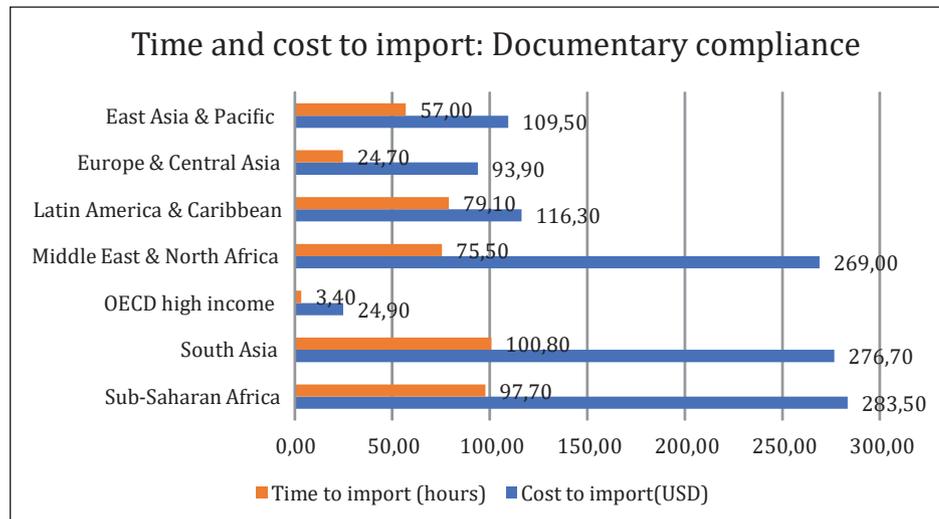
Figure 2 The time and cost associated with documentary compliance procedure (importing a shipment of goods), in 2018

Source: *Trading across Borders – Doing Business – World Bank Group*, 2018

Economic Commission for Europe from 2012, improvement can be progressively achieved through continuous simplification of import, export and transit procedures and documentation; OECD economies with extensive trade security legislation, e.g. the EU, the US and Japan, are still able to reduce the time and documents needed for exports and imports (United Nations Economic and Social Commission for Asia and the Pacific and United Nations Economic Commission for Europe, 2012).

According to Coordination Office or the Member States of the Organization of Islamic Cooperation (COMCEC) and their study "Single Window Systems in the OIC Member States" from 2017, "harmonizing trade documents, streamlining trade procedures, making trade-related information available and using automated processes could reduce total trade costs by 14.5% for low-income countries, 15.5% for lower-middle-income countries and 13.2% for upper-middle-income countries" (COMCEC, 2017).

Transport as a segment of international trade involves interconnected stakeholders who have to exchange documents in order to execute and complete transport services. Transport documents are contracts for carriage of goods exchanged between different stakeholders. They differ depending on the method of carriage used (*Transport documents — Single Window for Logistics, Luxembourg*, 2018). Maritime transport as one of the carriage methods, carries over 90% of world trade.

The seaports, as an open, complex and dynamic systems in maritime transport, have to constantly adapt to contemporary business conditions in order to remain competitive in the global market (Čišić, Hadžić and Tijan, 2009). Several factors affect the successful electronic data exchange in seaports such as: political support, long-term commitment from top management, a reliable institutional platform for inter-agency collaboration, effective man-

agement of stakeholders' expectations and perceptions, workable business procedures, architectural models, data and business interoperability, laws and regulations, and financial issues (*Single window implementation*, 2019).

Masudin and Kamara (Masudin and Kamara, 2017) state that, as numerous stakeholders exchange a large quantity of data in seaports, the involvement of stakeholders in information sharing will improve forecast accuracy, potentially reduce costs and improve customer responsiveness. Each of the business process usually consists of a series of actions – from filling of forms, lodging of documents to validation, decision-making and notification. According to COMCEC and their aforementioned study, "these actions are supported by Single Window services, whereby the same service can be provided for several business process; e.g. a payment services or the uploading of unstructured documents" (COMCEC, 2017). Table 1 (COMCEC, 2017) shows a possible range of Single Window business processes and supporting services, most of which can be related to the seaport business processes as well.

Not all of these actions are necessarily integrated into an electronic process in the Single Window. The range of services Single Windows offer vary significantly and can include the following:

- The filing and lodging of documents and data
- Processing of applications / decision making
- Coordination of joint controls
- Reporting and analysis
- Business intelligence
- Risk management / selectivity
- Data validation, authentication and authorisation
- Real time tracking of cargo
- E-payment.

Table 1 Single Window Processes and Supporting Services

Single Window					
Core Business Processes		**Supporting Service**			
Declaration Processing	Permit Certificate Management	The filing and lodging of documents and data	Processing of applications/ decision making	Real time status information	Messaging two-way communication/ feedback
User Profile Company profile	Transport and financial document management	Coordination of joined controls	Exchange of data between different systems and applications	Reporting and Analysis	Business Intelligence
Payments m-Payments	Manifest Management	Risk management/ selectivity	Data validation, authentication and authorization	Real time container/cargo tracking	E-payment

Source: (*Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017)

A Single Window is therefore a combination of seaport services and business processes that support clearly defined trade related activities (COMCEC, 2017).

Many countries are in the process of SW implementation in seaports or have already implemented it. These countries represent a broad spectrum of economic development, from Australia, Singapore, Sweden, and the United States to Benin, Colombia, Indonesia, and Vietnam, among others (Peterson, 2017). According to J. Peterson, the degree to which Single Windows replace traditional paper-based systems varies: "in some countries, for example, Single Window systems are used to process all customs documentation, including documents pertaining to other government certifications, such as sanitary and phytosanitary standards. In other countries, Single Windows coexist alongside paper-based systems, diminishing the time and cost savings that the former provides" (Peterson, 2017).

Singapore SW "TradeNet", which "handles almost all documents that are required for the customs import and export procedures, such as declarations, various types of permits, certificates and licences, etc.), does not handle other transportation/cargo documents such as air and sea manifests. For sea manifests (e.g., detailed lists of loaded cargo), the data are submitted and handled by another system, PortNet, which is operated by the port operator, while air transport-related cargo documentation is handled by yet another system, Cargo Community Network, which is operated by a subsidiary of Singapore Airlines" (*Single Window for Trade Facilitation: Regional Best Practices and Future Development*, 2018).

Japan's SW NACCS is managed by Nippon Automated Cargo and Port Consolidated System, Inc. (NACCS Center). It is a system for online processing of procedures of Japan Customs and other relevant administrative authorities, or relevant private-sector services for arriving/departing ships and aircrafts or import/export cargo (*The Advance Filing Rules on Maritime Container Cargo Information (Guidance) Customs and Tariff Bureau Ministry of Finance*, 2017). The NACCS system is divided into two subsystems: The Air-NACSS and Sea-NACCS. Sea-NACCS was only processing import and export procedures for container and bulk cargo in sea ports and small airports. In 1999, at the time of system upgrade, the Sea-NACCS enhanced its services for almost all customs procedures and also extend service area all over the country (*Japan Customs realize automation of customs procedures*, 2008). Private sector users may present a problem, as they are not obligated by law to utilize NACCS and SW services for trade and logistics procedures. In other words, the users still have the option of submitting the declaration manually (*Single Window for Trade Facilitation: Regional Best Practices and Future Development*, 2018).

The next stage of electronic data exchange refers to implementation of the interoperability platform that facilitates the integration of Single Windows (*Creating Interoperability of Single Windows*, 2015). "Interoperability" refers to the exchange of specific categories of foreign trade-related information in a structured format between two or more Single Window systems in different economies or countries; the scope of SW interoperability may be adjusted depending on the interest of parties (Caharles Sturt University, 2018). According to COMCEC, diversity of IT systems among SW stakeholders lead to difficult integration and interoperability in the SW (*Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017):

1. Technical interoperability: interconnectivity patterns like network systems, security devices and communication standards

2. Process interoperability: common process and data model

3. Message interoperability: common data definitions and structure (syntax and semantic).

4 The application and benefits of a Single Window as a facilitator of data exchange

UNECE observes Single Window as an important tool that supports the efficient data exchange between business and government, because trade related information and requested documents can be submitted once at a single-entry point. It is a wider concept that removes administrative barriers in international trade (Beškovnik, 2015). Single Window can be applied in the following activities (*Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017):

1. Activities of government agencies involved in the processing of trade procedures, such as government licenses, authorizations and certifications, customs clearance, food and sanitary inspection. The numbers of government agencies and their denominations varies according to the institutional set up but in some countries more than 30 government agencies may intervene in a trade transaction;

2. Activities of government agencies and organizations involved in the physical movement of cargo and the means of transport, such as port movement notifications, arrival and departure procedure, dangerous goods declarations;

3. Activities of commercial service providers involved in the physical movement of goods, such as warehousing, loading and unloading, transportation, and consolidation; and

4. Other activities of business involved in selling and sourcing of goods, such as invoicing and insurance.

Single Window does not only have to be limited to the national level. In this respect, according to Centre for Customs and Excise Studies (Charles Sturt University) and their review "Australia' s Progress Towards Implementation of the Single Window Concept" from 2018, countries and economies with mature Single Windows or data exchange systems in place are developing interoperability projects at the multilateral level, notably the Association of South East Asian Nations (ASEAN) group (Caharles Sturt University, 2018). *The Pacific Alliance regional free trade arrangement* (consisting of Chile, Columbia, Peru and Mexico) is the first to establish by treaty the obligation of members' national Single Window systems to interoperate at a regional level; it defines the obligation as establishing the "capacity of the systems to allow the electronic exchange of information, aligned to internationally accepted standards." (Caharles Sturt University, 2018).

According to the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and their survey "Trade Facilitation and Paperless Trade Implementation" from 2017, Australia has fully implemented the following measures under the Cross-Border Paperless Trade categories (APEC Policy Support Unit, 2018):

1. Laws and regulations for electronic transactions;

2. Recognized certification authority; and

3. Traders apply for letters of credit electronically from banks or insurers without lodging paper-based documents having a SWs in Australia.

Klynveld Peat Marwick Goerdeler (KPMG, a Swiss cooperative) concluded in their study "The Domestic Single Window" that potential benefits of having a SW in Australia are (APEC Policy Support Unit, 2018):

1. Reduction in costs of providing information resulting in lower cost per consignment which will improve price productivity.

2. Reduction in average processing times will reduce the risk of transporting perishable and time sensitive goods and improve the integration of the Global Value Chain (GVCs).

3. Increased service predictability will also be beneficial in the trade of perishable goods and strengthen the integration of the GVCs.

4. Reduction in cost of identifying domestic regulatory requirements will reduce barriers to trading, benefitting exporter and importers trading lower volumes and new traders.

5. Reduction in cost of identifying international regulatory requirements will also similarly be a one-off benefit of reduced barriers to trading.

COMCEC Trade Working Group listed the positive impacts (the reduction of time needed for various procedures) of SW implementation in different countries, as shown in Table 2 (*Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017).

SW positive effects refer to time reductions in border crossing (reduction of 160 minutes in Azerbaijan), documents collecting time (3 days less in Senegal), cargo turnaround time (33 days less in Benin), Customs clearance (357 hours less in Cameroon) etc. (*Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017).

"The pre-arrival information received will enable expedited movement of goods that would benefit traders. It will also allow the border authorities to apply risk management procedures more efficiently (Bal, Rajput and Alizada, 2017). Furthermore, SW can be observed as a potential to harmonise and streamline national procedures that will be beneficial for businesses (Bal, Rajput and Alizada, 2017).

Colombia has made a significant progress in strengthening its chief trade facilitation instrument, the Single Window for Foreign Trade (VUCE), the tool that enables electronic processing of the authorizations, permits, certifications or prior approvals required by the relevant National Government entities for import and export transactions (World Trade Organization, 2018). The Single

Table 2 Single Window impacts– the reduction of time needed for performing various procedures in different countries

Impact	From	Reduction	To	Country
Border Crossing	180 minutes	-160 minutes	20 minutes	Azerbaijan
Documents collecting	4 days	-3 days	1 day	Senegal
Cargo turnaround time	39 days	-33 days	6 days	Benin
	4 days	-2 days	2 days	Malaysia
Customs clearance	6 days	-357 hours	3 hours	Cameroon
Number of documents	3-35	-2 to -34	1	Singapore

Source: *Single Window Systems Conceptual Framework and Global Trends and Practices – OIC study 2017, 9 th Meeting of the COMCEC Trade Working Group*, 2017

Window for Foreign Trade benefits all foreign trade operators (importers, exporters and customs agents), in the sense that it lowers the transactions costs arising from periods of inactivity in the physical processing of formalities for export or import operations (World Trade Organization, 2018).

According to COMCEC and their aforementioned study, a successful Single Window project is expected to lead to (COMCEC, 2017):

1. Improved compliance management;
2. Improved process efficiency with better resource allocation;
3. Reduced process times through less idle times and agency collaboration; and
4. Reduced indirect and direct costs of formalities.

5 Conclusion

International trade includes a series of actions related to the movement of capital, goods, and services across international borders. In international trade, numerous stakeholders must submit large quantities of information and documents to government authorities and other involved parties on a regular basis. Therefore, trade facilitation emerges as an important issue in international trade. The main goal of trade facilitation is to enable faster, cheaper and more predictable trade across borders (imports and exports), while at the same time ensuring security during the international trade process. One such trade facilitator is a Single Window, which enables stakeholders to lodge standardized data with a single-entry point. The extent to which a Single Window replaces conventional paper document exchange can vary. For example, in certain countries Single Window systems are used both for processing all customs documents and documents related to other government certifications such as sanitary and phytosanitary standards. In other countries, Single Window is used parallel to paper-based document exchange, which reduces the cost and time of business processes to a lesser extent.

Single Window is not only limited to the national level, it can be established on a multinational level. One example is a development of multilateral interoperability projects in certain countries such as Association of South East Asian Nations (ASEAN) group or the Pacific Alliance regional free trade arrangement (consisting of Chile, Columbia, Peru, and Mexico). The first step toward interoperability is to establish the obligation of members' national Single Window systems to interoperate at a regional level. It means to allow the electronic exchange of information, aligned to internationally accepted standards. Several important characteristics of Single Window found in an analysis of regional best practices are as follows: single entry, paperless business, standardized messages, and coordination stakeholders.

The transport sector is a part of international trade and, when cargo is transported either domestically or internationally, the delivery must be accompanied by the relevant documents as well. The maritime transport sector, as part of the transport sector, is comprised of organizations and activities, including the maritime transport itself, seaports, a variety of professional services relating to maritime activities, etc. Maritime transport sector involves numerous stakeholders and documents. A paperless and standardized communication is a prerequisite not only for effective maritime transport operations involving many stakeholders but also for improving the integration, coordination, and performance of the supply chain. Therefore, the advantages of the standard messages are accelerating electronic data exchange process and reduction of administrative errors and costs, which eventually positively affect the execution of business and administrative activities.

Seaports as the open, complex and dynamic systems, must adapt constantly to contemporary business conditions in order to remain competitive in the global market. The growth and success of seaports are determined by the mutual interactions between large numbers of involved stakeholders. Seaport stakeholders cooperate by exchanging large quantities of data, which should be done in a standardized way. However, complete standardization is difficult to achieve, even in the most developed countries. For example, Singapore's Single Window does not handle certain transportation documents such as sea manifests (the data are submitted and handled by another system called PortNet). Similarly, in Japan, private sector users are not obligated by law to use NACCS and Single Window

services, and still have the option of making a manual submission/declaration. If the above-mentioned problems were solved, every party (stakeholders and governments) could benefit from a Single Window by reducing costs, reducing average processing times, increasing service predictability, etc.

Acknowledgments

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