



**Asia-Pacific  
Economic Cooperation**

**Advancing** Free Trade  
for Asia-Pacific **Prosperity**

# **Compendium of Best Practice Technology Solutions for Single Window Interoperability**

**APEC Committee on Trade and Investment**

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## Introduction

With all APEC members having now implemented a Single Window system for the processing of trade documents, great efficiencies have been realized in each economy. Providing international traders with a single access point to interact with Public Agencies and Other Government Departments (OGDs) to exchange documents and information has unquestionably helped to raise GDP in each participating economy. What if further efficiencies could be gained by integrating the various Single Window Systems? This is by no means a simple undertaking. Regional interoperability and adoption of international standards require an in-depth study to thoroughly understand the potential challenges to achieving harmonization. Assessing the feasibility of this undertaking will require an in-depth study of each APEC NSW, bearing in mind the technological aspects of harmonization as well as political and administrative considerations for implementation.

Exploring best practices and lessons learned from relevant case studies can help shed light on what is working around the world and what could possibly be improved. For instance, in 1996 the Group of Seven (G7) Industrial Nations agreed to an undertaking to simplify the customs process by harmonizing data required by traders to conduct business. The work completed by the G7 Initiative is the basis for data simplification and harmonization work being undertaken by the World Customs Organization (WCO) to introduce an international standard. If all Single Windows adopted the same WCO Data Model, moving to integrate the Single Window systems might be an easier task. However, that is not presently the case, with APEC NSWs currently using a variety of data formats (UN/EDIFACT, ANSI X12, XML, and proprietary formats). As APEC looks toward interoperability, a technology compatibility plan will be an important component of RSW implementation.

## Scope of the Compendium

This compendium takes a detailed look at the current state of the APEC member Single Window systems focusing on the following:

- Use of WCO Data Model and or use of International Standards
- Messaging technology used
- Governance (Gov't agency, private corporation, PPP (Public-Private Partnership))
- IT Infrastructure
- Openness to adopting international interoperability
- How responsive is the receiving NSW to requests from another NSW
- NSW autonomy
- Service Level Agreements
- Sustainability
- Features/functionality

There is also a myriad of associations and platforms that are forming or are in place today trying to piece together the challenge of international Trade and the issues of interoperability between nations and trading blocs. The emergence of Blockchain has led to a sharp increase in trade associations and platforms built on distributed ledger technology. The compendium will take in an in-depth look into some of these associations and platforms to analyze their success factors and if the APEC members can accelerate the integration of their Single Window systems by leveraging on this technology.

## 5 Evolutionary Stages of Single Window Maturity

Single Windows typically develop in a linear and incremental fashion due to the complexity of required changes in trading practice, business processes and complexity of implementing projects for a Single Window. The development of a Single Window can be divided into five distinct levels of maturity according to the Ten Years of Single Window Implementation: Lessons Learned for the Future.<sup>1</sup> However, it is important to note that these levels should only be used as a reference model as levels may bleed into each other. As such, the model is effective in helping determine where the economy is at, and then using it to prioritize and define objectives, to improve or move to the next level.

The move to the Single Window usually starts with migration from paper documentation to electronic submission platforms. International trade often involves companies having to prepare and submit a lot of documents and information to fulfil regulatory export and import laws. Given the high complexity of such processes, they usually turn out to be slow, and expensive. Therefore, the move to electronic preparation and submission is gaining steam given how efficient paperless systems are.

While it can take several years to fully implement, the cost and time saving can be significant. When fully implemented it can save economies billions of dollars each year. Moreover, the process can be started with a few agencies or a few processes going electronic, before it is expanded to other agencies and processes of international trade. For instance, once the customs authority goes fully electronic with customs declarations, it can then go electronic with certificates and import/export permits.

### The Single Window Roadmap Modeled as Five Evolutionary Stages

It was at the 2005 forum by UNECE on “Paperless Trade in International Supply Chains”<sup>2</sup> that it was proposed that the automation and simplification of procedures and documentation happen stage by stage in an incremental fashion. Collecting best practices and lessons from economies that had developed effective Single Windows systems, the forum came up with five evolutionary stages as set out below.

#### Level 1: Paperless customs

Usually includes Paperless Customs + electronic payment of customs duties + electronic risk-based inspection

The Customs declaration system is typically the first to go electronic given that exports and imports need to be declared to customs. Customs declarations are moved from the traditional paper-based systems to paperless systems. Traders only must submit electronic documents through electronic value-added networks<sup>3</sup> and do not have to physically visit customs officers or resubmit papers at later stages. Once declarations are successfully ported to electronic systems, the system can be extended to cover other aspects of the trade such as the electronic association of physical containers such as vessel stow plans, customs declarations, risk-based inspection strategies, electronic risk assessment, and online duty payment.

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<sup>1</sup> “Ten Years of Single Window Implementation: Lessons Learned for the Future,” a discussion paper by Jonathan Koh Tat Tsen, during the 2011 Global Trade Facilitation Conference, [http://www.unece.org/fileadmin/DAM/trade/Trade\\_Facilitation\\_Forum/BkgrdDocs/TenYearsSingleWindow.pdf](http://www.unece.org/fileadmin/DAM/trade/Trade_Facilitation_Forum/BkgrdDocs/TenYearsSingleWindow.pdf)

<sup>2</sup> <https://www.unece.org/forums/forum05/welcome.html>

<sup>3</sup> VAN providers are the go-betweens in EDI transmissions. They receive EDI transactions, examine the from and the to information and route the transaction to the final recipient.

Many economies have developed the first level of paperless customs environments. However, according to the Trading Across Borders Report released by the World Bank in 2011<sup>4</sup>, some transition and developing economies are yet to go paperless even for customs declarations.

The most effective way of developing a Single Window is by adopting a paperless Custom system. Where paperless customs declarations are yet to be implemented it should be prioritized. The most critical components of such a system should include risk-based inspections, automated risk assessment, electronic payment of duty, and paperless submission of customs declaration at all land, sea and airport entry points.

### Level 2: Regulatory Single Window

Integrated with the information systems of other regulatory agencies, they link customs and traders through paperless electronic documentation, customs procedures and other related electronic submissions such as permits and certificates.

Once economies have developed a portal for linking customs and traders electronically, the next stage is to develop an electronic document exchange system. The Single Window document exchange portal needs to be able to link two or more government agencies that deal with the regulation of exports and imports. Through such a portal, traders can apply for and get issued with electronic export and import certificates and permits that can then be exchanged with various government agencies. A good example of this is the Malaysian Single document window where traders can get their export/import permits that can then be submitted to Customs for easier and convenient checking and clearance. A more advanced system is Singapore's new Networked Trade Platform (NTP)<sup>5</sup> where traders can submit all their certificates and permits for exports and imports to different government agencies.

However, most regulatory Single Windows are yet to implement single entry point submissions. Traders still must submit their documents and data to the Single Window separately for each agency that needs the information. The Single Window in such instances has central G2G electronic document exchange hubs that come with multiple data entry windows for different government agencies. This goes against Recommendation No. 33 of UNECE<sup>6</sup> which asserts that best practice is to have all documents and trade-related information standardized and submitted at a single point<sup>7</sup>. The single point should serve as a portal, where all agencies can connect and access submissions of documents and information on exports and imports.

### Level 3: B2B Port Community System Port Single Window

At this level, the Single Window is integrated with systems of intermediaries at major borders, seaports, and airports and those of private sector industry participants. Level three Single Windows are typically referred to as Port SWs or Port Community Systems.

According to the European Community System Association, a PCS is an open and neutral platform that makes it possible to have a secure and intelligent exchange of information between private and public

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<sup>4</sup> Trading across borders <http://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB13-Chapters/Trading-across-borders.pdf>

<sup>5</sup> <https://www.ntp.gov.sg/public/introduction-to-ntp---overview>

<sup>6</sup> Recommendation and Guidelines on establishing a Single Window [https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33\\_trd352e.pdf](https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf)

<sup>7</sup> [https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33\\_trd352e.pdf](https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf)

stakeholders to enhance competitiveness and efficiency.<sup>8</sup> The Port Single Window will typically be integrated with regulatory authorities and electronic customs declaration systems. The system automates, manages and optimizes logistics and port procedures through a single submission platform, to enhance competitiveness and efficiency within the airport and sea communities.

The biggest challenge for the level 3 window is trying to extend the functionality to cover the services and operations of all stakeholders in the port or airport community. Economies typically have many ports of entry and tons of stakeholders who may be required to adhere to different procedures and produce a wide variety of documentation. Deployment of the Single Window is thus a complicated affair given that something like a dry port may have different systems to those used by a seaport.

However, despite the challenges the third level Single Window has been successfully implemented in some jurisdictions. For instance, several European economies have set up port community systems that connect to the systems of various stakeholders that make the airport or seaport community. The best example of this is the DAKOSY system in Hamburg Germany.<sup>9</sup> It is an electronic document exchange system that reduces costs on the preparation, and submission of documents which saves as much as €22.5 million every year. The German ports have come up with different Port Community Systems that work independently of each other.

It is important to note that level 3 Single Window development does not necessarily have to be interconnected with the regulatory G2G Single Window of the second level. But the two levels work best when integrated, which is why many European economies are now combining regulatory G2G Single Windows with Port Community Single Window systems.<sup>10</sup> Moreover, it is critical to note that level 3 PCS may have been fully set up and deployed before the full implementation of the regulatory Single Windows of the second level.

This means that an economy with a regulatory Single Window system and a fully functioning paperless Customs system can achieve better efficiency by setting up the Port Single Window, especially if there are many local stakeholders, and the processes involved are highly complex.

#### Level 4: Fully Integrated Single Window

This is an advanced Single Window with high levels of connectivity. It usually includes all the linkages found in level one and level two Single Window platforms. Additionally, it is expanded to include other industry actors such as carriers, trade and bank finance, ship agents, cargo insurance companies, freight forwarders and traders.

A good case of such a Single Window is Korea u-Trade<sup>11</sup> which is the Republic of Korea's electronic trade portal. The platform provides linkages between regulatory authorities, customs, traders and other associated participants in trade transactions including logistics service providers, freight forwarders, insurance companies, customs brokers and banks. A level 4 Single Windows system may or may not be

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<sup>8</sup> Europe has a long history of Port Community Systems, in particular Germany, the United Kingdom, France, the Netherlands and Spain

<sup>9</sup> <https://www.dakosy.de/en/>

<sup>10</sup> [http://tfig.unece.org/pdf\\_files/A9R149C.pdf](http://tfig.unece.org/pdf_files/A9R149C.pdf)

<sup>11</sup> Towards a Single Window Trading Environment

[https://www.uncitral.org/pdf/english/colloquia/EC/SHIM\\_Sang\\_Bee\\_brief3Korean\\_case.pdf](https://www.uncitral.org/pdf/english/colloquia/EC/SHIM_Sang_Bee_brief3Korean_case.pdf)

integrated with the port community Single Window. Even the Korea u-Trade is not fully integrated with KL-Net marine community information-exchange system.

Best practice for level 4 systems if an economy has already developed a Port Community System and Single Window is to fully integrate the Single Window into its major ports. This could be of benefit to medium and small-sized businesses that do not yet have access to Single Window services. Nonetheless, not every economy needs a fully integrated level 4 Single Window and cost-benefit analysis needs to be performed on a case by case basis.

#### Level 5: Cross-border Single Window Platform

In level 5 Single Window Platforms are integrated and interconnected into regional or bilateral electronic information exchange platforms.

At the highest level of a Single Window is regional integration, which enhances trade by fostering collaboration, trust and security through electronic information exchange across international borders. A good case study of this is the integration between the New Zealand Food and Safety Authority (NZFSA) and the Australian Government Department of Agriculture. The two organizations have interconnected systems that make it possible to exchange electronic phytosanitary and sanitary certificates and permits to facilitate seamless verification and fact-checking of exports and imports between the two jurisdictions.

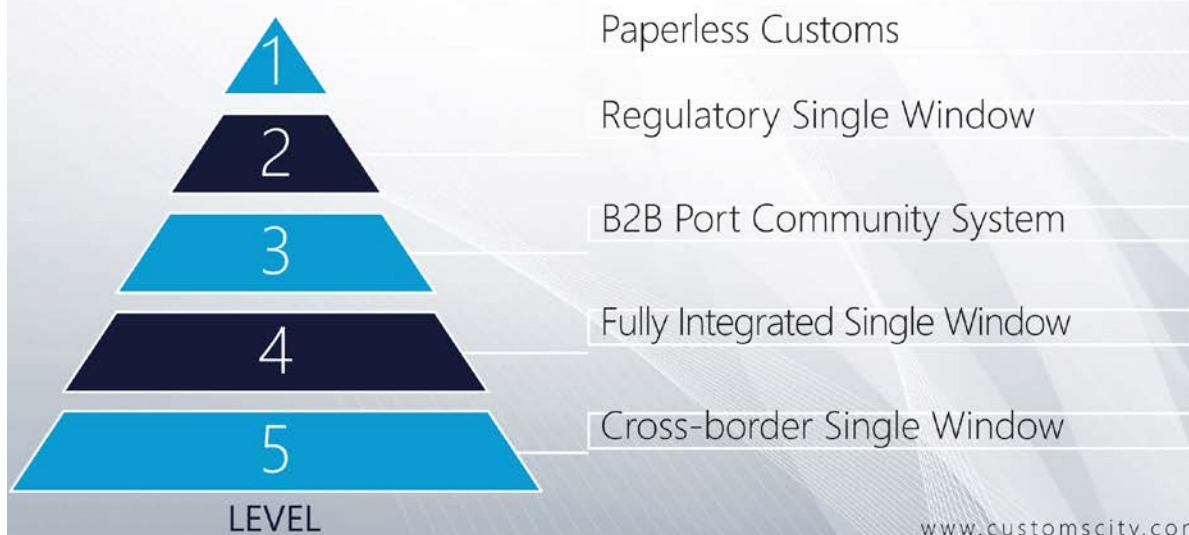
The level 5 Cross border Single Window involves cross border exchanges and transactions between two or more nations. A good example of this is the Association of Southeast Asian Nations (ASEAN) that has been working on a Single Window initiative for its ten member nations since 2004. This is one of the highest levels of Single Window development. It intends to promote integration to facilitate the exchange of electronic documents not only between ASEAN member economies but also with other ASEAN trading partner economies and Single Windows.

The initiative has been relatively successful in promoting electronic document exchange between and among ASEAN trade partners through a variety of initiatives. These initiatives include the ASEAN Trade in Goods Agreement (ATIGA) that has already been piloted and will soon be fully launched, and the ASEAN Common Effective Preferential Tariff (CEPT).

#### 5 Evolutionary Stages of Single Window Maturity Diagram



## 5 EVOLUTIONARY STAGES OF SINGLE WINDOW MATURITY



### Benefits of the Single Window

Single Windows are a critical component of any development of a Single Windows system at any level of operation. Single Windows are very effective especially when combined with a cross border electronic document exchange system between two or more economies or among several economies in a federation such as ASEAN or the Asia Pacific Economic Cooperation (APEC). The following are some of the benefits of the development of the Single Window:

1. Enable and contribute to economic integration by easing the movement of goods. Windows ease trade flows but also manage risk better between and among the economies that exchange e-documents on the shared platform.
2. The Single Window improves the authenticity and availability of information and in doing so simplifies and expedites the flow of information between regulatory authorities and trade, reduces fraud and harmonizes the exchange and sharing of data between government agencies. This will overall enhance trade and bring many benefits to all stakeholders in import and export transactions.
3. The window will lead to effective and efficient regulatory controls and improved security. This will reduce costs for traders and the government participating in the electronic exchanges given that they will save on resources needed to transact and regulate trade.

## WHAT IS A SINGLE WINDOW SYSTEM?

The Single Window System is a complex government implementation of a computer system to facilitate international trade by enabling submission of regulatory documents to a single entity or a single location.



### Conclusion

The exchange of information across borders can begin at any point in the implementation of paperless customs. As such, the levels of development of Single Windows Systems will not hinder the exchange of information but rather the scope or effectiveness of the exchange. The type of data that may be exchanged on the Single Window will depend on how developed it is. A paperless customs system at the first level will provide simple cross border data exchange. At the higher levels, the fully integrated Single Window provides commercial transactions and transport data to regulators and traders.

As such, an economy that has Port Community Systems (PCS) and Single Windows and/or regulatory Single Window and/or Paperless customs systems, and sub-regional or bilateral trade agreements are best set up to work together with other regional Single Window operators to come up with cross border information exchange among members of regional bodies. It is recommended that economies collaborate with each other with other regional bodies such as ASEAN or APEC to come up with regional or bilateral information exchange platforms in development level 5. The reason for this is that these are typically more efficient and are better at facilitating convenience and ease of use for both traders and regulators.

## Section I

### Summary of the APEC Member Single Window Systems

#### Canada

##### WCO Data Model

Ranging in versions 1.0 to 3.5 depending on the project<sup>12</sup>

##### Messaging Technology

Depending on the project:

- Web portal
- EDI (EDIFACT, ANSI X12)
- HTTPS, AS2 communication protocols
- VPN (direct connect)

##### Governance

Government Agency- CBSA

##### IT Infrastructure

CBSA hosts and manages own data centre environment

##### International Interoperability

CBSA has been an eager participant in adopting and using the WCO data model. CBSA has also been eager to explore a Regional Single Window with USA and Mexico<sup>13</sup>

##### Service Level Agreements

CBSA strives to answer all client calls (or return messages) on the same business day. Emails are answered in roughly 24-48 hours. New client applications are processed on a weekly basis. Electronic messages are processed within 1-3 minutes. During CBSA system outages there is a client communication plan which includes:

- Email updates sent updating on the system status
- Phone greeting is updated so callers can first hear the latest status of the system outage
- During system outages, clients can still proceed to the border and clear cargo using paper. After the system outage clients are instructed to send any messages electronically for cargo that has already crossed the border

##### Sustainability

Self-funded- CBSA does not charge any fees to process electronic transactions

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<sup>12</sup> [http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/data-model/global-adoption-of-the-wco-data-model\\_en-2018.pdf?la=en](http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/data-model/global-adoption-of-the-wco-data-model_en-2018.pdf?la=en)

<sup>13</sup> <https://www.apec.org/Publications/2018/08/Study-on-Single-Window-Systems-International-Interoperability>

## Features/functionality

CBSA (Canada Border Services Agency) manages the Single Window System for Canada. CBSA divides the names and functionality of their NSW into the following;

- Single Window Interface (SWI) which is the system used by importers or customs brokers
- ACI (Advance Commercial Information) which is the cargo security system used by the transportation community.
- RNS (Release Notification System) is a messaging system which notifies warehouses, customs brokers, importers, carriers and freight forwarders on the release status of cargo

The SWI system connects the trading community with CBSA and nine other departments and agencies representing 38 government programs.<sup>14</sup> The current government departments that traders in Canada can connect to using SWI are as follows<sup>15</sup>:

- CBSA
- Canadian Food Inspection Agency (CFIA)
- Natural Resources of Canada (NRCan)
- Transport Canada (TC)
- Health Canada (HC)
- Environment and Climate Change Canada (ECCC)
- Public Health Agency Canada (PHAC)
- Global Affairs Canada (GAC)
- Fisheries and Oceans Canada (DFO)
- Canadian Nuclear Safety Commission (CNSC)
- Document Image Functionality (DIF) for licenses, permits, certificates, and other (LPCO)

Importers and customs brokers can electronically send cargo release requests to CBSA, report duty & tax owing for their shipments. Total duty & tax owing are sent electronically on a daily and monthly basis via a system known as ARL (Accounts Receivable Ledger)<sup>16</sup>

Advance Commercial Information (ACI) is the name of the mandatory cargo security system which commercial carriers and freight forwarders interact with when their cargo information is sent. Depending on the mode of transportation the minimum timeframes for the submission of ACI cargo and conveyance data is as follows<sup>17</sup>:

- Marine- 24 hours before loading at the foreign port
- Air- 4 hours before the arrival of the flight. If the flight is less than 4 hours, at wheels up
- Rail- 2 hours before the arrival of the railcar at the border
- Highway- 1 hour before the arrival of the truck at the border

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<sup>14</sup> <https://www.cbsa-asfc.gc.ca/prog/sw-gu/menu-eng.html>

<sup>15</sup> <https://www.cbsa-asfc.gc.ca/prog/sw-gu/ogd-amg-eng.html>

<sup>16</sup> <https://www.cbsa-asfc.gc.ca/prog/arl-glcc/menu-eng.html>

<sup>17</sup> <https://www.cbsa-asfc.gc.ca/prog/aci-manif-ipec/menu-eng.html>

The onboarding of new CBSA clients is managed by the Technical Commercial Client Unit (TCCU). New software providers are assigned a dedicated representative from the TCCU and a series of accreditation tests are completed to test the software provider's readiness. Trade participants have the option of sending data either in EDIFACT or ANSI X12 format

## The United States

### WCO Data Model

A Major contributor to the WCO Data Model Project since the days of the G7 WCO Data Model<sup>18</sup>

### Messaging Technology

Depending on the project:

- Web portal
- EDI (EDIFACT, ANSI X12, proprietary formats (CAMIR, CATAIR, AESTAIR))
- VPN, VAN (value-added network) communication protocols

## Governance

Government Agency- CBP

### IT Infrastructure

CBP hosts and manages own data centre environment

### Service Level Agreements

CBP operates a 24 x7 call centre for its Single Window Automated Commercial Environment (ACE).

EDI clients are assigned a client representative who they are requested to work directly with for questions or assistance with EDI transactions sent or received with ACE.

During a system outage:

- Email updates sent updating on the system status. A ticket number will be referenced in the email which clients can use to cross the border using paper during the system outage
- During system outages, clients can still proceed to the border and clear cargo using paper referencing the trouble ticket number <sup>19</sup>

## Sustainability

CBP does not charge any fees to process electronic transactions

### Features/functionality

The CBP ACE system has the following functionality:

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<sup>18</sup> [http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/data-model/global-adoption-of-the-wco-data-model\\_en-2018.pdf?la=en](http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/data-model/global-adoption-of-the-wco-data-model_en-2018.pdf?la=en)

<sup>19</sup> More information about CBP outages and the detailed procedures to follow for each system and mode of transport can be found here <https://www.cbp.gov/sites/default/files/assets/documents/2018-Feb/CBP%20Downtime%20Policy%20for%20Trade%20version%201.0%20Final%20and%20Approved.pdf>

- ACE is the commercial trade processing system that connects CBP, the International trade community and Partner Government Agencies (PGAs). ACE facilitates legitimate trade while strengthening border security by providing government officials with better-automated tools and information.
- In February 2018, CBP deployed the last of the major scheduled core ACE deployments, marking a significant milestone for government and industry. All import manifest, cargo release, post-release, export, and PGA integration functionality scheduled for delivery in ACE is now available.
- PGA (Participating Government Agencies)
  - Department of Agriculture
    - Agriculture Marketing Service (AMS)
    - Animal and Plant Health Inspection Service
    - Food Safety and Inspection Service
    - Foreign Agricultural Service
    - Grain Inspection, Packers & Stockyards Administration
  - Department of Commerce
    - Bureau of Industry and Security
    - U.S. Census Bureau
    - Foreign Trade Zones Board
    - Enforcement and Compliance
    - Office of Textiles and Apparel
    - Marine Fisheries Service
  - Department of Defense
    - Army Corps of Engineers
    - Defense Contract Management Agency
  - Department of Energy
    - Office of Fossil Energy
    - Energy Information Administration
    - Office of General Counsel
  - Department of Health and Human Services
    - Centers for Disease Control and Prevention
    - Food and Drug Administration
  - Department of Homeland Security
    - United States Coast Guard
    - Customs and Border Protection
    - Transportation Security Administration
  - Department of the Interior
    - Fish and Wildlife Service
  - Department of Justice
    - Bureau of Alcohol, Tobacco, Firearms and Explosives
    - Drug Enforcement Administration
  - Department of Labor

- Bureau of Labor Statistics
- Department of State
  - Bureau of Administration, Office of Logistics Management
  - Directorate of Defense Trade Controls
  - Bureau of Ocean and International Scientific Affairs
  - Office of Foreign Missions
- Department of Transportation
  - Bureau of Transportation Statistics
  - Federal Aviation Administration
  - Federal Highway Administration
  - Federal Motor Carrier Safety Administration
  - Federal Railroad Administration
  - Highway Traffic Safety Administration
  - Pipeline Hazardous Materials Safety Administration
- Department of Treasury
  - Internal Revenue Service
  - Office of Foreign Assets Control
  - Alcohol and Tobacco Tax and Trade Bureau
  - Financial Crimes Enforcement Network
- Independent Agencies
  - Consumer Product Safety Commission
  - Environmental Protection Agency
  - Export-Import Bank
  - Federal Communications Commission
  - Federal Maritime Commission
  - International Trade Commission
  - Nuclear Regulatory Commission
  - U.S. Agency for International Development
  - Office of the United States Trade Representative

## Mexico Single Window - VUCEM

Mexico's National Single Window known as VUCEM (Ventanilla Unica de Comercio Exterior Mexicano) is an integrated platform that facilitates customs clearance, logistics, foreign trade operations, compliance, and guarantees transparency in trade procedures.<sup>20</sup> It is a single shared platform where customs brokers, exporters, importers and various Mexican government agencies can exchange information and documents. VUCEM is currently used by more than 150,000 users who are served by more than 10,000 officials from different government agencies.<sup>21</sup>

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<sup>20</sup> Single Window for Foreign Trade in Mexico <https://www.ventanillaunica.gob.mx/vucem/ventanillaunica.html>

<sup>21</sup> Agencies include SAT, SE-DGN, SAGARPA, SEMARNAT, SEDENA, SALUD, SENER, PROFEPA, INBA, INAH and two regulatory bodies AMECAFE and CRT.

## Background of the Single Window (VUCEM)

According to the Servicio de Administración Tributaria (SAT) – Mexico’s tax collection authority, cross border trade transactions potentially involve up to 30 participants that may include regulatory bodies, customs agents, freight carriers, exporters, importers, more than 165 proceedings and 40 documents for the passage of a single shipment of freight.<sup>22</sup> Sensitive products such as health or food may need special licenses from several federal agencies such as Defense, Environment, Energy, Health, Agriculture, or/and economy. According to the SAT, between 60 to 70% of documentation that Mexican authorities ask for processing shipments involves multiple submissions of the same information. The Single Window is expected to automate, standardize and simplify management processes, which will enhance the competitiveness of Mexico in international trade.

## How the Mexican Government is Enhancing VUCEM

Mexico is looking to enhance the capacity, efficiency, availability and management of information in addition to developing functionalities and tools. These will make consultation and analysis easier and enhance interoperability with the trade windows of other economies, organizations or government agencies. VUCEM is using international standards and best practices for electronic data exchange processes that include United Nations/Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT)<sup>23</sup> and the Cargo-XML IATA.<sup>24</sup>

The enhancements mean that the 2016 and 2018 relaunch of the VUCEM sought to implement the following:

1. Update and migration of infrastructure to scalable and compatible hardware
2. Cooperation and promotion with international bodies, agencies, trade actors, and Customs of other economies.
3. Reengineering of the processes of the Single Window to make it modular and more autonomous for easier adaptation
4. Use of higher volume information models and data processing technologies
5. Higher availability and security of services
6. Development of elastic capacity in cloud computation in line with the Digital Strategy
7. Migration and update of infrastructure to the compatible and scalable hardware
8. Reengineering of its processes in an autonomous and modular way for its simple adaptation

Using international standards, VUCEM has incorporated freight manifests used for pre-arrival submissions of cargo arriving in Mexico by rail or air to enhance customs systems. The Single Window has integrated maritime manifests and included control modules to enhance the efficiency of operations.

VUCEM is considering the inclusion of tools for tariff classification and trade tools.

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<sup>22</sup> SINGLE WINDOW PROJECT – MEXICAN CUSTOMS

<https://www.mzv.sk/documents/10182/13850/Inform%C3%A1cie+o+projekte+Ventanilla+%C3%A9Anica+%28SINGLE+WINDOW+PROJECT%29+v+anglickom+jazyku.pdf/f9950893-ce9f-406a-98f6-7d3574307393>

<sup>23</sup> 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-economy and multi-industry exchange of electronic business documents

<sup>24</sup> preferred standard for the electronic communication between airlines and other air cargo stakeholders such as shippers, freight forwarders, ground-handling agents, and regulators, as well as customs and security agencies



## VUCEM and Other International Organizations

The implementation of the Single Window in Mexico is a significant milestone that will enhance international trade through the digitalization of documents, procedures and information. With improved connectivity and automation, Mexico will be better placed to take advantage of Free Trade Agreements such as the Trans-Pacific Partnership (TPP) and NAFTA (USMCA).

## Going Forward

The Ventanilla Unica is simplifying the flow of import manifests between government agencies and stakeholders. Since it has had a successful implementation of import manifest processes through the Single Window, the economy is now looking to expand the same to export manifests.

Mexico intends to launch the export manifest Single Window implementation with air processes followed by marine before moving to other transportation modes. The Mexican Single Window will be using the updated Cargo Extensible Markup Language protocol in the transmission of export manifest submissions.

## Peru- Single Window of Foreign of Foreign Trade (VUCE)

The Single Window of Foreign Trade (in Spanish Ventanilla Unica de Comercio Exterior - VUCE) is led by the Ministry of Foreign Trade and Tourism (MINCETUR). VUCE is an integrated system enabling the management of required procedures to allow entry, exit and transit of goods through electronic means. The Peruvian VUCE is managed by a special committee conducted by the Ministry of Foreign Trade and Tourism (MINCETUR), along with 26 other entities. This includes six public sector agencies, nine foreign trade business associations and a port manager.

Some features of VUCE provide are the following:

1. Enhanced security
2. Improve transparency and integrity
3. Increased user satisfaction
4. Improve customs and other governmental agencies risk management
5. Greater efficiency and effectiveness in the use of resources

## Components of VUCE

There are three main components that Peru's VUCE has (OECD & WTO, 2015).<sup>25</sup>

1. **Restricted Goods** – fifteen public entities are involved in enabling exporters and importers to carry out certain procedures like applying for permits, certificates and authorizations for entry, exit and transit of restricted goods via the internet. Some of the goods included are vegetables, animals, medicine, toys and telecommunications.
2. **Port** – seven public entities are involved in the administrative management of procedures related to the reception, stay and dispatch of ships to ports in the economy, and to port services.
3. **Origin**– nineteen public and private entities are in charge of the issuance and management of qualified preferential origin certificates, the issuance of duplicates, and the replacement or cancellation of these certificates.

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<sup>25</sup> Single Foreign Trade Window <https://www.vuce.gob.pe/index2.html>

## The Objectives of the VUCE

- Improve and Integrate Processes through standardization and simplification of forms, procedures and standards that are required by the different regulatory authorities to facilitate trade.
- Enhance the legal force of electronic and paperless systems by providing the necessary legislation and laws to govern international freight services and foreign trade.
- Coordinate and facilitate the exchange of documents and information electronically by providing a platform that provides access to information about the procedures required for the trade.
- Channel information submitted to the regulatory authorities electronically to facilitate the export and import of goods in the jurisdiction.

## Key Success Factors for VUCE

The following are some key factors that will make the VUCE successful:

1. Incorporation and automation of standardized and optimized processes of the regulatory authorities into the VUCE.
2. Development and sharing of infrastructure and solutions
3. Integration of international-institutional and intra-institutional processes that will make the agencies interoperable with the VUCE.
4. Integration and coordination between the private sector and state entities and continuous improvements of services provided

## Port Services Component

The Port Single Window will facilitate efficient and integrated processes for obtaining authorizations, permits, certifications and licenses for port services. Servicing port administrators and maritime agents, it provides port services that ensure:

- **Compliance Prior to Arrival of Consignments** – Deals with aspects such as the declaration of dangerous goods, delivery of discharge manifests, submission of compliance with ISPS codes, general declarations, and arrival requests.
- **Compliance Prior to Departure of Vessel** – Includes cargo manifest delivery, departure manoeuvre requests, and departure dispatch among others.
- **Port** -manages procedures that allow for cargo tracking, information queries, and corresponding statistics which are provided to public entities, providers of port services, port administrators and maritime agents for decision-making purposes.<sup>26</sup>

## VUCE Stages of Development

### VUCE Stage I

The first version of VUCE will be aiming to bring electronic means to licensing, authorizations, certificates and permits for six government entities.<sup>27</sup> It will allow the user to send electronic applications in digital format. Once the documents are submitted, the portal automatically submits it to the relevant regulatory

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<sup>26</sup> Port Services Component [https://www.vuce.gob.pe/servicios\\_portuarios.html](https://www.vuce.gob.pe/servicios_portuarios.html)

<sup>27</sup> National Agricultural Health Service (SENASA), General Directorate of Environmental Health (DIGESA), General Directorate of Drugs, Supplies and Drugs (DIGEMID), Ministry of Transport and Communications (MTC), Technological Fisheries Institute (ITP) and Ministry of Production (PRODUCE).

authorities. The authorities will then evaluate the request, resolve and notify the user of the resolution taken electronically.

Beyond border clearance mechanisms and providing a more coordinated approach to incorporating trade processes, VUCE enables partner economies to also exchange harmonized phytosanitary and certificates of origin with other Pacific Alliance members (Chile, Colombia and Mexico).

The first stage of the VUCE components will also incorporate:

- **Authentication** – Users will be able to electronically sign their applications and be digitally identified.
- **Payment Gateway** – The system will inform users of the administrative fees to be paid and provides a code that makes it easy to pay through the electronic payment platform of SUNAT or through the banks of the private network.
- **Technical Consultations** – Allows users to consult regulatory agencies to confirm where products being shipped are restricted or not.
- **Track & Trace** – Allows shippers to track the progress of their files.

## VUCE II

Peru is working towards the improvement of its VUCE by expanding its scope to cover all operations in the commerce chain through the implementation of its next version of VUCE. VUCE's ongoing work to improve Foreign Trade Facilitation Services, known as "VUCE's Second Stage", involves the development of new components and the improvement of existing ones.

At the time of this study, plans for the next generation of VUCE features include, among others:

1. Port community system.
2. Platform to handle operations for Free Trade Zones.
3. Risk Management Platform.
4. Logistic Platform.
5. Trade information portal.
6. Platform to support small to medium companies manages trade operations.
7. Strengthening international interoperability.
8. Platform to integrate the regulation of foreign trade.
9. e-learning platform, to implement tools for Business Intelligence, big data, CRM (Customer Relationship Management) and open government.

The ecosystem of VUCE's Second Stage will include importers, exporters, government agencies, trade service providers, foreign government agencies and all stakeholders involved in the trade.

Furthermore, VUCE will focus to start international interoperability with other single windows or similar systems that APEC economies have implemented. The aim of VUCE interoperability is to strengthen the connectivity and trade facilitation.

## Chile Single Window - Integrated Foreign Trade System (SICEX)

While Chile sees itself as a model of economic stability and a business leader in South America, a World Bank Report found that Chile's procedures are cumbersome and time-consuming. It can take up to 21

days to export goods from Chile as compared to six days in the US OR 11 days in the OECD.<sup>28</sup> According to the World Bank, each day's delay increases costs by up to 806 million and reduces export by about a percentage point. This is the reason Chile decided to implement a Single Window system to simplify customs and international trade procedures.

### The Single Window System (SICEX)

SICEX (Sistema Integrado de Comercio Exterior)<sup>29</sup> is an acronym meaning an integrated system of foreign trade. It facilitates the processing of exports and imports by connecting traders with the Chilean Customs services and Other Government Agencies (OGAs).<sup>30</sup> Through the Single Window, users can enter the information requested by customs and OGAs at any place and at any time. As such, the window provides interoperability between customs and OGAs, thus facilitating trade as it improves access to information and processes of government agencies.<sup>31</sup>

The first phase of the Chilean Single Window was to focus on exports and imports, prioritizing the automation of documentary processes.

SICEX has increased its original scope, focusing on improving the current export & import processes, including B2B freight movement processes and focusing on integrating the single window with the national port community systems and e-ports.

Over time, the Single Window will also be developed and made interoperable with other Single Windows through the members of the Pacific Alliance and their respective Single Window environments (VUCE).<sup>32</sup>

### Main Objectives of SICEX

The SICEX is set up to achieve several objectives that include:

1. Facilitation of foreign trade
2. Enhance the efficiency of foreign trade operations
3. Optimize and reduce operational costs
4. Provide a portal where users can access services from OGAs from anywhere and at anytime
5. Enhance the management of participating government agencies
6. Be a reference for innovation and modernization on the international scene
7. Use technological advances to enhance transparency and efficiency of foreign trade operations

### Benefits of SICEX

- SICEX promotes international trade by using a system designed according to international standards and best practices. It is also designed to connect with foreign Single Windows.

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<sup>28</sup> A Single Window Customs Clearance System <https://www.amchamchile.cl/en/2012/07/sistema-de-ventanilla-unica-para-autorizacion-de-aduanas/>

<sup>29</sup> SICEX was created with Supreme Decree No. 1049/2010 establishing a Presidential Advisory Commission for the establishment of an Integrated Foreign Trade System (SICEX Chile).

<sup>30</sup> National Custom Service, Ministry of Health, Treasurer Office of the Republic, Agricultural and Livestock Service, Registry and Identification Office Service, Public Health Institute, National Fishing and Aquacultural Service, Internal Revenue Service, Chilean Cooper Commission.

<sup>31</sup> GENERAL CONTEXT <https://www.sicexchile.cl/portal/en/web/sicex/preguntas-frecuentes>

<sup>32</sup> XXIX Round of Technical Groups and in XLIII of the High Level Group (GAN) of the Pacific Alliance <https://www.sicexchile.cl/portal/web/sicex/noticias>

- It reduces costs and time thus expediting foreign trade. It does this by eliminating duplication of submission and enabling single submission through a portal that allows sharing and exchange of information and documentation between government agencies and traders.
- It enhances transparency and administrative efficiency of management through a single platform, where users can get document tracking, traceability, and monitoring.

Through the portal, traders can request certificates/permits needed to be presented to the regulatory authorities at the port of entry, request authorizations from the relevant government agencies, prepare export declarations, and perform a range of processing requirements such as legalizing, eliminating or modifying Custom declarations.<sup>33</sup>

### The Legal Context of SICEX

All information and documentation sent or received through the Single Window have legal force just as paper documentation does. SICEX is established based on Law N° 18.575 of the bases of Administration and by Law N° 19.880 of the bases of Administrative Procedure.<sup>34</sup> According to the law, government agencies have to collaborate to enhance the services for citizens.

### VUCE Technical Working Group & The Pacific Alliance

The VUCE technical group was established by the Pacific Alliance economies, which intended to integrate the Single Windows of Chile, Peru, Mexico and Colombia. The integration considers international standards, best practices and experiences to integrate the single window systems through interoperability. Currently, these single windows exchange the e-phytosanitary certificates and the e-certificate of origin between them. The next step is to electronically exchange data from Customs declarations, starting in 2020.

### New Zealand Trade Single Window

The Trade Single Window is a project of the New Zealand Customs Service (NZCS) and the Ministry of Primary Industries (MPI). Leveraging the WCO Model,<sup>35</sup> the Single Window is meant to facilitate compliance in trade and to enhance risk management practice in New Zealand.

The Single Window helps shipping lines, freight forwarders, exporters, importers and agents among other stakeholders to:

1. Act as a registration system for above users of the TSW (Trade Single Window) system
2. Submit online cargo reports (import & export) and vessel information
3. Submit lodgments (lodgments include; import declarations, export declarations & excise declarations)
4. Register to receive declarant codes which are required for most lodgments<sup>36</sup>

<sup>33</sup> <https://www.sicexchile.cl/portal/en/web/sicex/preguntas-frecuentes>

<sup>34</sup> SICEX is regulated by the Supreme Decree N°1049, D.O. 05/11/2010, of the Ministry of Finance which created an Advisory Commission for the President of the Republic in order to establish the Integrated System of Foreign Trade (SICEX)

<sup>35</sup> WCO Data Model <http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/data-model.aspx>

<sup>36</sup> What is Trade Single Window <https://www.customs.govt.nz/business/trade-single-window/getting-started/>

The platform has so far processed more than 5 million transactions through seamless clearance of cargo and vessels<sup>37</sup>

## Background to the New Zealand Single Window

With the NZCS processing close to \$80 billion<sup>38</sup> worth of import and exports, international risks in the forms of imported goods into New Zealand is very real. In this regard, The MPI and the NZCS worked on a Single Window as part of the Joint Border Management System for more than three years. The Single Window modernizes the operations of the MPI and the NZCS to make them better capable of sharing technology, data and processes. It thus provides a single portal where the logistics and international cargo industry can submit information and access responses from the various regulatory agencies.

## What the New Single Window Offers

### 1. A Smarter, Swifter Border System

The MPI and the NZCS will be able to work more collaboratively through shared technology, data and processes to give directions, approvals, collect revenue and manage biosecurity and food safety and biosecurity risks. The Single Window provides exporters, importers and their agents with a single portal where they can provide border agencies with required data. It also reduces the connections and duplication inherent in disparate systems.

### 2. New Message Formats

The New Zealand TSW (Trade Single Window) uses the WCO-3 Data message format<sup>39</sup> of cargo reporting and sending of clearance messages. The new system of sending messages is harmonized, making the sharing of information harmonized across the associated agencies involved in import and export. The new message system is currently used by port health officials, Maritime New Zealand, the MPI and the New Zealand Customs Services.

### 3. New Connection Options

The TSW makes available a range of connection options for exporters, importers and other stakeholders in the supply chain to submit messages cost-effectively. Clients can now connect directly to the Trade Single Window (TSW) without the need to use a messaging service provider. This reduces the costs of setting up legacy messaging systems for importers, exporters and regulators.

### 4. Self-managed Registration

The Single Window makes it possible for stakeholders to register for MPI and NZCS declarant codes from a single portal. Having a trade account enhances response times and overall efficiency.

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<sup>37</sup> Operation of the Single Window <https://www.tfadatabase.org/members/new-zealand/article-10-4-3/130>

<sup>38</sup> New Zealand Trade Statistics [https://globaledge.msu.edu/countries/new-zealand/tradestats#source\\_1](https://globaledge.msu.edu/countries/new-zealand/tradestats#source_1)

<sup>39</sup> WCO-3 Mandating Update <https://www.customs.govt.nz/business/trade-single-window/latest-news/wco3-mandating-update/>

## Factors for Success

One of the most important factors for the success of the New Zealand TSW has been the tremendous support from the cargo industry in the economy.<sup>40</sup> A critical component of this has been the involvement of freight and customs software providers, multi-express couriers, large freight forwarders, and TSW online users among other industry partners involved in the pilot. The involvement of the key industry stakeholders has made it possible to test in real-time the effectiveness of WDM3 messages and direct international connectivity before the TSW was made available to the entire logistics and supply chain industry in New Zealand.

## Benefits of the New Zealand TSW

Having both government departments systems connected (NZCS and MPI), has reduced the duplication of documents and data.

Clients will be able to submit more detailed information before the arrival of the vessel and cargo, which means regulatory agencies can provide prior confirmation thereby easing clearance and make planning easier.

Over time, as regulators build up detailed client profiles and clients take up WCO-3 messages, cargo will move more easily through the borders to enhance trade.

## The Wider Benefits of the TSW

The TSW will facilitate the sharing of information between industry stakeholders such as transporters, port regulators and customs to support logistics planning. Over the long term, the Single Window will be the bedrock that enables cross border data sharing, which is an objective of both the Asia Pacific Economic Cooperation (APEC) and the World Customs Organization (WCO).<sup>41</sup>

The Joint Border Management System (JBMS) that developed the TSW is critical to enhancing New Zealand's objective of Better Public Service by using Internet-based processes.<sup>42</sup> It provides cost-effectiveness by connecting different agencies and streamlining processes that enhance regulatory processes and promote trade.

The JBMS program is also a key contributor to the New Zealand Government's goal for 'Better Public Services'<sup>43</sup> through online services and will provide better value for money through multi-agency use of capital assets, and more efficient agency processes through joined-up systems.

## Australian Single Window

Australia has been innovating from as far back as 1972, establishing systems for processing of cargo-related documentation. In 1991, new electronic systems for import and export of cargo were

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<sup>40</sup> New Zealand Single Window opens for business [http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/new-zealand-sw-opens-for-business\\_-\\_wco-news-october-2013.pdf?la=en](http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/wto-atf/dev/new-zealand-sw-opens-for-business_-_wco-news-october-2013.pdf?la=en)

<sup>41</sup> WCO Data Model <http://tfig.unece.org/contents/wco-data-model.htm>

<sup>42</sup> Joint Border Management System <https://www.customs.govt.nz/about-us/border-sector/joint-border-management-system/>

<sup>43</sup> Better Public Services: Improving interaction with government <http://www.ssc.govt.nz/bps-improving-interaction-government>

implemented. In 2005, Australia's Integrated Cargo System (ICS), a Customs Single Window, was launched.

In 2017-18, more than 50 million air cargo consignments and 3 million sea cargo consignments were processed and more than AUD17,000 million in revenue collected for Australia through the ICS, Australia's Single Window.

### Current status of the Single Window

Australia operates a Customs Single Window, the ICS, and is working towards a future enhanced Single Window for trade. The World Bank<sup>44</sup> cited the ICS favourably as an Australian Single Window, although a KPMG report<sup>45</sup> assessed it as a level 1 Single Window that required more government integration.

In addition to supporting Australia's customs function, the ICS provides support to other Australian government departments. The Department of Agriculture, responsible for biosecurity and quarantine, is a key partner in the Single Window, directly using the ICS as well as having other systems integrated with the ICS. In addition to customs duties and fees, Goods and Services Tax and other indirect taxes are collected through the ICS, on behalf of the Australian Taxation Office. Australia's Single Window is underpinned by a robust legislative framework.

The ICS also serves as a source of trade data for government, with data used by the Australian Bureau of Statistics for trade statistics and the Australian Taxation Office for tax purposes. Other government departments also have access to ICS data for their areas of responsibility, including for post-border compliance investigations.

The ICS is well integrated with other systems for border risk assessment purposes. The ICS has sophisticated functionality for automated profile matching to enable operational teams to detect and disrupt the trade of illicit goods.

### Key Partners for Trade Modernization

The ABF (Australian Border Force) has been working towards a future enhanced Single Window for trade through its broader customs and border modernization agenda. To achieve its objectives, the ABF has established multi-agency committees at both the strategic and working levels with more than sixteen Australian government agencies. Its key government partners include the Department of Agriculture; the Department of Foreign Affairs and Trade; the Department of Industry, Innovation and Science; and the Digital Transformation Agency.

Australia undertakes comprehensive engagement with industry about the future enhanced Single Window through its National Committee on Trade Facilitation and various technical sub-committees, established in accordance with the World Trade Organization Trade Facilitation Agreement.

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<sup>44</sup> World Bank, (2016) Doing Business 2017: Equal Opportunity for All, p. 81, available at: [http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf](http://www.doingbusiness.org/~/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf).

<sup>45</sup> Australian Business Register Single Window Study [https://www.sbr.gov.au/sites/g/files/net5641/f/KPMG\\_ABR\\_Domestic-Single-Window-Study\\_Final-Report\\_Client-Copy\\_22-December-2016.pdf](https://www.sbr.gov.au/sites/g/files/net5641/f/KPMG_ABR_Domestic-Single-Window-Study_Final-Report_Client-Copy_22-December-2016.pdf).



## Potential Future Enhancements to Australia's Single Window

The Australian Border Force (ABF) is considering opportunities to connect industry-provided pipelines of supply chain data to the ICS. The ABF recognizes that effective border facilitation and enforcement requires partnership with industry. This will enhance profiling and targeting capability.

In 2019, Australia is reviewing its border permit framework, with a view to modernizing and digitizing. The outcomes of the review are expected to broaden the capability of Australia's Single Window and eliminate many paper-based processes.

Australia is also exploring opportunities to enable the verifiable digital exchange of trade documents to interface with the ICS and to inform real-time border risk assessment.

Australia is also expanding Australian Trusted Trader (ATT), its Authorized Economic Operator (AEO) program, with a view to increasing entity-based knowledge and rewarding compliant industry members with better facilitation. ATT benefits include streamlined reporting through Australia's Single Window.

As Australia invests in the ICS and enhances its functionality through a partnership with industry and better connectivity with relevant government agencies, it will shape into Australia's enhanced Single Window for international trade.

## Indonesian Single Window

The Indonesian Single Window (INSW) is Indonesia's single trade platform that facilitates the processing, and submission of documentation and data to stakeholders and industry regulators thus making clearance of goods more efficient.<sup>46</sup> It is an integrated system that can be accessed by traders online from anywhere on the web. It integrates information and processes between different agencies thus streamlining customs and clearance processes. The single portal allows the smooth and secure flow of data between airport/port, licensing, banking/financial entities, customs agencies, and traders which facilitates import and export activities.

### The Background of the INSW

The Indonesia Single Window has its roots in the Presidential Regulation Number 44 of 2018 on Indonesia Single Window.<sup>47</sup> The regulation was implemented in May 2018 and replaces the 2008 Presidential Regulation No.10 on the use of Electronic Systems on Indonesian Single Window and 2015's Presidential Regulation No. 76 as Manager of Indonesia Single Window Portal.

Indonesia ranked 53<sup>rd</sup> out of 160 according to a World Bank Logistics Performance Index of 2014<sup>48</sup>. The report showed that the inefficiencies of the Indonesian logistics system were as high as 24% of their GDP. Indonesia has more than 12,050 import licenses spread across eighteen institutions/agencies. This is quite significant and leads to a lot of complexity in the importation process. The complexities of the

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<sup>46</sup> Indonesia Single Window (INSW), Gateway to Paperless Cross Border Trade

<https://www.unescap.org/sites/default/files/26%20Apr%202017%20-%20Indonesia%20Experience.pdf>

<sup>47</sup> Indonesia Single Window <http://www.indonesiaforeigninvestmentlaw.com/business/indonesia-national-single-window/>

<sup>48</sup> Connecting to Compete: Trade Logistics in the Global Economy

<https://openknowledge.worldbank.org/bitstream/handle/10986/29971/LPI2018.pdf>

import/export process are what led to the development of a Single Window to improve efficiency, consistency and transparency to enhance competitiveness.

### The Two Pillar Systems of the INSW

The NSW follows a two-pillar system which is different than the ASW (ASEAN Single Window) Protocol Technical Guidance which uses a single-pillar. The two pillars used by INSW are the Port System and the Trade System.<sup>49</sup> The Trade System integrates the Licensing system with the Customs system to facilitate cargo release and customs clearance by accelerating the flow of import and export service documents. The Port System integrates the Airport/Port system with the Customs system to facilitate cargo release and customs clearance by accelerating the flow of imported and exported goods.



### Main Objectives of INSW Application

The Single Window exists to fulfil four objectives:

1. Enhance the import/export process by enhancing the efficiency of the movement of goods through the supply chain.
2. Encourage investment and improve competitiveness.
3. Enhance the accuracy and validity of data associated with import and export activity.
4. Reduce costs and time needed for the handling of import and export of goods particularly regarding clearance of cargo.

<sup>49</sup> Policy of two Pillars in INSW Systems in Indonesia <https://www.insw.go.id/index.php/home/menu/sw>

<sup>50</sup> <https://www.insw.go.id/img/sw/DuaPilar.png>

## Indonesia Trade Repository

The Indonesia Trade Repository (INTR) was developed to be an authoritative and dynamic single reference point that offers the most accurate and up to date information on non-tariff and tariff measures applied to imports and exports.<sup>51</sup> The INTR integrates with other trade repositories of other ASEAN economies to provide an ASEAN Trade Repository to enhance trade in the regional block.

The Trade Repository is a great feature of the Indonesian Single Window which has the following critical features/functions:

1. **HS Code Information** – Provides traders with information on export/import regulations, rules of origin, and tariffs.
2. **LARTAS Information** – Contains all regulations about export and import permits and licenses of the Indonesian government.
3. **Regulation Repository** – Traders get information on procedures to obtain licenses needed to fulfil export and import regulations.
4. **Rules of Origin** – Provides information on regulations that guide exports and imports between economies of the ASEAN region.
5. **List of Authorized Traders** – Provides access to a list of authorized economic operators compiled by the relevant ministries to facilitate trade.
6. **Trade Simulation** – A handy tool to simulate exchange rates, tariffs and regulations that apply to exports and imports.
7. **Exchange Rate** – Traders can get access to exchange rates as used in Indonesian Customs.

## Integration

Integration is one of the most important aspects of the Single Window as it provides a virtual repository where different stakeholders may interact with other stakeholders.<sup>52</sup> Each stakeholder can submit, declarations and receive updates and responses from other stakeholders and regulatory ministries. Through the portal, service users can fulfil all import and export requirements without needing to visit several agencies. The integration of information systems of the Indonesia Single Window includes the following aspects:

1. **Synchronization and Harmonization of Business Processes** – The INSW works with relevant ministries to craft procedures and systems that ensure that there is no conflict or overlap with other agencies.
2. **Business Process Simplification** – The INSW simplifies business processes and procedures that can be in the form of automation to fulfil the needs of service certainty.
3. **Standardization of Business Processes** – The Single Window has integrated 18 agencies and has processed more than 2 million licensing documents since 2011.
4. **Automation of Business Processes** – The NSW translates<sup>53</sup> all business SOPs/procedures and systems that are synchronized, harmonized, and simplified which will help to:
  - a) Support decision making

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<sup>51</sup> Indonesia Trade Depository <https://eservice.insw.go.id/>

<sup>52</sup> Indonesia Single Window <https://www.insw.go.id/index.php/home/menu/sw>

<sup>53</sup> INSW portal is made in bilingual version, Indonesian and English version  
<http://www.ksplaw.co.id/Publication/KSP-LEGAL-UPDATES/Indonesia-National-Single-Window.html>

- b) Encourage performance and speed in decision making'
- c) Facilitate control, monitoring, and evaluation
- d) Improve governance and transparency

## Papua New Guinea Single Window

The Papua New Guinea government is committed to becoming an important player in the international trading and economic arena. To achieve this objective, the government needs to minimize the costs of doing business to promote not only exports but also investment. The establishment of a Single Window seeks to simplify and harmonize Customs procedures. This will include the standardization of information, forms and documents from declaration processing through making the process of submission and entry electronic.

The Papua New Guinea Single Window seeks to expand to other trade-related agencies other than customs to reduce the time and costs used in processing imports and exports. Moreover, as a member of the Asia Pacific Economic Cooperation (APEC), it will also be looking to promote paperless trading and interoperability with other trading systems in the organization.<sup>54</sup>

### Justification for the Establishment of a Single Window

The Papua New Guinea trading system on the international and regional scene presents a lot of problems not only for government regulatory agencies but also for users.

As it currently stands, there are twenty-three regulatory agencies in Papua New Guinea all of which have different levels of automation for processing clearances, permits, and licenses. They also come with different formats for the submission of information and issuance of clearances, and declarations. There is also little to no interface between the different agencies, which makes validation and authentication difficult. In some instances, it may take up to 4 days or longer to get the necessary permissions. There is also little coordination as even Green Lane shipments may be inspected randomly.

For users, traders and brokers may be required to get permits from a range of agencies that regulate exports and imports. In most instances, traders must travel to the capital Port Moresby to get the required permits. There are also instances where getting permits or licenses from one agency requires approval from another agency.

The complexity in the regulatory and approval processes thus slows down and even hampers international trade.

### Benefits of the Single Window

Establishing and setting up a Single Window in Papua New Guinea will significantly enhance trade in the economy. The following are some of the features that the Single Window will have:

1. Automated application for issuance of clearances, permits, and licenses
2. Harmonized, simplified and rationalized processes, and forms
3. Automated validation/authentication of clearances, permits and licenses
4. Re-engineered end to end processing from the relevant ministries

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<sup>54</sup> The goal of the APEC Single Window Capacity Building Projects is to develop Single Window systems within each APEC member economy by 2020.

The Single Window will provide the following benefits for traders and governments:

1. Paperless offices since all processes, documentation and submission of information will be electronic
2. More transparency, predictability, and consistency in the data processing and submission processes
3. Fewer lines & traffic and fewer costs as there is no need to travel to the capital or have face to face interaction between regulators and traders
4. Formal agreements and procedures between agencies result in seamless inspection and processing of trade documents which saves businesses and the agencies time and money
5. Cashless processes through ePayments will reduce leakages and save money for the government

### A Fitting Single Window Prototype for Papua New Guinea

The Automated Information Transaction System Model is likely to be the most effective form of Single Window<sup>55</sup> in Papua New Guinea since it has worked well in other similar jurisdictions. The model creates a single application with an electronic data interchange where all licenses, permits and declarations are processed by the different regulatory and customs authorities.

The Papua New Guinea Single Window will provide a ubiquitous platform that will serve as a one-stop portal where brokers and traders can obtain clearances and submit their information and documents required by the different agencies electronically. It simplifies the complex processes as it is an online-based platform that can be accessed anywhere anytime if one has an Internet connection. It thus makes it unnecessary to physically visit the regulatory authorities. The Single Window platform will increase transparency, eliminate the complexities of manual processes and reduce the cost and time associated with customs clearance procedures.

The platform will provide a seamless and integrated portal where government regulatory agencies can offer all trade-related functions. The functions provided by the window will include:

1. Export and import licenses
2. Customs clearance
3. Authorizations and Permits
4. Declaration processing
5. Payments

### The Legislative Framework of the Single Window

Putting in place a legal framework is absolutely critical for the operation and ultimate replacement of paper-based systems.<sup>56</sup> As such, it is important to identify the legal issues associated with the operation

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<sup>55</sup> There are three types of Single Window: A Single Authority model, a Single Automated System model, and the Transaction System model.

[https://www.eiseverywhere.com/file\\_uploads/08743d97fd9f0f77c75dd66c1069713d\\_day207KACT2015DMBenefitsSingleWindowAspectslt.pdf](https://www.eiseverywhere.com/file_uploads/08743d97fd9f0f77c75dd66c1069713d_day207KACT2015DMBenefitsSingleWindowAspectslt.pdf)

<sup>56</sup> UN Single Window Legal Issues Guide: The necessity of creating an enabling legal infrastructure has emerged as a critical element for the success of a Single Window (SW) facility at the domestic level

[https://www.unescap.org/sites/default/files/0%20-%20Full%20Report\\_4.pdf](https://www.unescap.org/sites/default/files/0%20-%20Full%20Report_4.pdf)

and creation of a Single Window in Papua New Guinea, and what can be done to make them more conducive to the implementation process.

### E-commerce Legislation in Papua New Guinea

Papua New Guinea currently does not have an enabling law to facilitate the setting up of a Single Window. Most of the agencies in the economy have their own laws and there is no one overarching law governing paperless trading systems.

As such, the first activity in the establishment of the Single Window is the development of a suitable legal framework through an e-commerce law. The e-commerce law will help make guidelines for paperless trading and procedures such as electronic contracting, electronic signatures, data protection, data privacy, data quality, and electronic data interchange among others.

One of the best ways to kick start the process is to adopt the United Commission on International Trade Law (UNCITRAL) e-commerce template.<sup>57</sup> Many other economies have used the UNCITRAL templates with great success and Papua New Guinea should be able to replicate their success. The project stands a greater chance of success if the Papua New Guinea Customs or Trade Department takes the lead in shepherding the formulation and implementation of the e-commerce law.

### Key Success Factors for the Single Window

There are several factors that will make the implementation of Papua New Guinea a success. These include:

1. The willingness of government agencies to support facilitation through aspects such as supporting and shepherding the implementation of e-commerce laws.
2. The development of infrastructure including power, Internet and government technology infrastructure to support the Papua New Guinea Single Window.
3. The willingness of agencies or ministries to shift to a new Interface of the Single Window by developing the infrastructure, bandwidth and technical capabilities for linkages that support uniform procedures and submission of electronic documents and information.

### Brunei Darussalam National Single Window (BDNSW)

The development of an electronic customs system is driven by the Brunei Royal Customs and Excise Department (RCED). The Brunei Darussalam National Single Window (BDNSW) was launched in 2013. Since the implementation of BDNSW, it enables online submission for various trade documents that involve more than 20 regulatory authorities in Brunei Darussalam. This integrated process is aimed at simplifying trade-related processes and procedures among regulatory authorities which in turn expedite cargo clearance.

In essence, the establishment of an integrated system namely BDNSW is critical for facilitating the export and import of goods across borders for traders while making it easier for RCED and other related government agencies to collect revenues. It also makes it easier for related government agencies that require customs information to access and process information in a more streamlined and efficient manner. Brunei Darussalam is still improving the functionality of its Domestic Single Window though it

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<sup>57</sup> UNCITRAL Model Law on Electronic Commerce with Guide to Enactment 1996  
[https://www.uncitral.org/pdf/english/texts/electcom/05-89450\\_Ebook.pdf](https://www.uncitral.org/pdf/english/texts/electcom/05-89450_Ebook.pdf)

has made great strides in achieving full Single Window functionality. It is also working to make its systems interoperable with the ASEAN Single Window.<sup>58</sup>

### Importance of Cross Border Trading for Brunei Darussalam

Cross border trading is a critical component of the trade in a global world that is increasingly competitive. More economies are realizing the importance of participating in international business, which can be accomplished by eliminating complex procedures and enhancing the efficiency of customs.<sup>59</sup> Brunei Darussalam is not any different as it has been committed to enhancing business through the implementation of a Domestic Single Window.

### Current Status of the Brunei Darussalam National Single Window (BDNSW)

Since 2013, the BDNSW has been working on integrating and interfacing different government departments to facilitate the processing and exchange of licenses and import permits. The objective of the project is to offer a shared online platform where the public and traders may electronically submit and exchange trade documents and information to regulatory agencies.

Multiple trade declarations are consolidated into one declaration and are then automatically submitted electronically to a range of agencies to help with approvals and decision making. Several government agencies are using the platform to endorse and approve permits before the exportation or importation of goods. The platform also provides i-Banking services where the BDNSW system is connected to local banks allowing importers and traders to pay their duties online.<sup>60</sup> The submission and processing of electronic certificate of origin (e-COO) for ATIGA Form-D has also been implemented in the BDNSW system.

It also includes export and import permits submissions and processing services for 20 agencies that include Ports Clearance Certificates, online duty payment, Customs Declaration, and other activities regulating trading in goods. The integrated process expedites cargo clearance and releases through simplifying and unifying procedures and trade-related processes among the agencies.

With the BDNSW offering streamlined and open communication and processing standards, the trading community in the jurisdiction will be able to exchange data in a reliable and secure manner. Since the domestic single window is made to be interoperable with other Domestic Single Windows and those of other organizations such as the ASEAN Single Window, it will ease and facilitate trade links between Brunei Darussalam and its partners in the Asia Pacific.

### ASEAN Integration

In an effort to fulfil commitments to the ASEAN Single Window and to implement interoperability<sup>61</sup> with the ASEAN Single Window (ASW), Brunei Darussalam has set up four dedicated virtual servers that came online in 2017.<sup>62</sup> The government through the Brunei Government Cloud collaborated with contractors of

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<sup>58</sup> The ASEAN Single Window (ASW) is a regional initiative that connects and integrates Domestic Single Window (NSW) of ASEAN Member States <http://asw.asean.org/>

<sup>59</sup> Five steps to trading across Brunei's borders <https://www.bizbrunei.com/2017/07/five-steps-trading-across-bruneis-borders/>

<sup>60</sup> Cross-border E-Trade: The ASEAN Single Window [https://www.unescap.org/sites/default/files/swp0312\\_0.pdf](https://www.unescap.org/sites/default/files/swp0312_0.pdf)

<sup>61</sup> The ASW's objective is to expedite cargo clearance and promote ASEAN economic integration by enabling the electronic exchange of border documents among ASEAN Member States. <http://asw.asean.org/>

<sup>62</sup> Brunei Darussalam General Information <http://asw.asean.org/index.php/nsw/brunei-darussalam/brunei-general-information>

the ASW and successfully installed the necessary software to make the Brunei Single Window compatible with ASW. The integration has made it possible to integrate the BDNSW with the ASW platform, which means that Brunei Darussalam now has a path to the rest of the member nations of ASEAN. As of today, Brunei Darussalam has started the e-COO exchange for ATIGA with ready ASEAN Member States namely Indonesia, Malaysia, Singapore, Thailand and Viet Nam.

### Enhancements to the Single Window

Brunei Darussalam through the RCED has put in place enhancements to improve the efficiency of Customs declarations, duty payments and risk profiling. The Single Window is also looking to enhance the processing of e-Permits for the importation of Bio-Security goods and Agriculture.

### Going Forward

The BDNSW was designed to facilitate information sharing between the different members of ASEAN through integration with the ASEAN Single Window. It makes it possible to exchange documents such as Customs Declaration, Permits and Certificates of Origin among many other documents between member economies to facilitate trade. Taking into account the needs of the business community, the public and regulatory agencies, it eases the submission and processing of Port Clearance Certificates, Export and Import permits, and many other documents. However, the Window is still being enhanced to make it more efficient in risk management and document preparation. This will centralize and integrate document and data processing, which will make clearance processes faster.

## The Philippines' Single Window

The Philippines' Single Window sometimes abbreviated as PNSW or simply as the NSW is an electronic online platform that facilitates the lodging of documents and information into a single portal, for the fulfilment of export, import and transit-related regulatory requirements.<sup>63</sup>

As it stands, there are more than 40 government agencies that provide clearance, permits, and export and import licenses registered on the Single Window.<sup>64</sup> This has resulted in a lot of inefficiencies as traders have to visit several agencies to get the necessary permits and licenses to import and export goods into the Philippines. The Single Window provides a single interface where traders may connect with all 40 agencies.

The PNSW has close to 20,000 registered users and over 1.2 million processed transactions.

### Factors for Success

#### **Leadership and Commitment**

There is demonstrated commitment and leadership from heads of departments, secretaries, and cabinet members, which will be critical for the success of the NSW. One of the best things to happen to the project is the support from the highest levels of government – from none other than the president of the Philippines.

#### **Project Implementation Team**

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<sup>63</sup> Single Window <https://www.nsw.gov.ph/about>

<sup>64</sup> What is the Philippine National Single Window? <https://www.nsw.gov.ph/>



The project is led by an experienced project implementation team who have the know-how on streamlining and upgrading capabilities of business processes and fostering sustainability through knowledge transfer.<sup>65</sup>

### Trade Benefits of the Single Window

The Single Window of the Philippines is useful in facilitating the elimination of inefficiencies in the authorization and customs processes.<sup>66</sup> Providing accelerated processing and single submission of permits, licenses and other documents. The following are some of the benefits that will accrue to businesses:

1. Lower costs of doing business
2. Online transactions with government and regulatory authorities at any time and from anywhere
3. Faster trade release and documentation processes
4. Increase predictability and transparency of government processes
5. More efficient and effective deployment of resources
6. Easier compliance with trade regulations

### Services Provided

The Single Window's main aim is to process the applications for clearances, licenses and permits for exports and imports.<sup>67</sup> The results of the applications are then linked to the integrated customs systems for verification and validation. Important services provided include:

1. Electronic submission of application forms
2. Executive management and dashboard reports
3. Viewable status in the system dashboard
4. Digital signing of documents
5. Email notifications of application status
6. Electronic and mobile payment
7. Electronic submission of supporting documents

### The Legal Framework

The project gets its legal status from Executive Order 482 of 2005 that created the Single Window Task Force for Cargo Clearance.<sup>68</sup> In recognition of the need to operate and implement the Single Window, the 40 regulatory agencies of the Philippines signed a Memorandum of Agreement in 2012. Through the Single Window, they commit to strengthening their shared commitment to strengthen trade by supporting the implementation of the Single Window.

### Towards the ASEAN Single Window

In accordance with the agreements and commitments of the ASEAN Member economies to set up and implement an ASEAN Economic Community and ASEAN Single Window integration, the Philippines wrote a

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<sup>65</sup> <https://www.nsw.gov.ph/>

<sup>66</sup> NSW Benefits from Trade Perspective <https://www.nsw.gov.ph/about>

<sup>67</sup> Philippine General Information <http://asw.asean.org/index.php/nsw/philippines/philippines-general-information>

<sup>68</sup> Executive Order No. 482, s. 2005: CREATING THE NATIONAL SINGLE WINDOW TASK FORCE FOR CARGO CLEARANCE <https://www.officialgazette.gov.ph/2005/12/27/executive-order-no-482-s-2005/>

Letter of Intent. The Philippines will be participating in the ASEAN Single Window project to enhance and facilitate the integration of economies in the Asia Pacific.

As it stands, the Philippines is analyzing the readiness of its systems for interfacing with the ASEAN Single Window.<sup>69</sup> It needs to have the infrastructure in place to ensure predictable trade transactions, predictable and equitable border regulations, an integrated and efficient trade ecosystem. Once the analysis is done, the NSW will begin the technical due diligence of integrating with the ASW platform to make their NSW platform interoperable with the operations of the ASW.

### Going Forward

In 2019, the Philippines will be conducting testing to eliminate any issues with their Single Window system. It will also be conducting end to end testing of its integration with the ASEAN Single Window.<sup>70</sup> In addition, the Philippines will be intensifying the integration of the NSW with the Food and Drug Administration, the Bureau of Animal Industries, the Bureau of Plant Industries, and the Bureau of Customs. It will be looking to develop and test the implementation of paperless cross border documentation including phytosanitary certificates, and the ASEAN Customs Declaration Document.

### Hong Kong, China's Trade Single Window

Hong Kong, China's Trade Single Window is a one-stop electronic platform designed to be an online portal where registered users can submit import and export trade documents to the government of Hong Kong, China for customs clearance and trade declarations.<sup>71</sup>

To maintain Hong Kong, China's competitiveness as a trading and logistics hub, the Commerce and Economic Development Bureau, in collaboration with the Customs and Excise Department and other participating government agencies, have been pressing ahead with the development of a Trade Single Window.<sup>72</sup>

The Trade Single Window is being implemented in three phases:

1. **Phase 1** – is being progressively rolled out with traders allowed to voluntarily opt to submit 13 types of trade documents electronically.<sup>73</sup>
2. **Phase 2** – is expected to be launched in 2022 the earliest which covers another 28 types of trade documents in addition to those covered under Phase 1.<sup>74</sup>

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<sup>69</sup> Technical Development <http://asw.asean.org/index.php/nsw/philippines/philippines-general-information>

<sup>70</sup> The current updates of Philippines Single Window <http://asw.asean.org/index.php/nsw/philippines/philippines-general-information>

<sup>71</sup> Welcome to the Homepage of Hong Kong, China's Trade Single Window.  
<http://www.tradesinglewindow.hk>

<sup>72</sup> [https://www2.tradesinglewindow.hk/portal/en/about\\_tsw/index.html](https://www2.tradesinglewindow.hk/portal/en/about_tsw/index.html).

<sup>73</sup> The trade documents covered under Phase 1 can be found in [https://www2.tradesinglewindow.hk/portal/en/useful\\_information/annex\\_g.html](https://www2.tradesinglewindow.hk/portal/en/useful_information/annex_g.html). As at June 2019, e-services for 10 types of import and export trade documents are available.

<sup>74</sup> Phase 2 will cover some 28 additional types of trade document.  
[https://www.news.gov.hk/eng/2018/12/20181228/20181228\\_131038\\_424.html](https://www.news.gov.hk/eng/2018/12/20181228/20181228_131038_424.html).

3. **Phase 3** – is expected to be launched in 2023 the earliest and will cover trade documents required or proposed to be required for all cargoes, for example, Import and Export Declarations and Cargo Reports.

### Current Situation in Hong Kong, China

There are currently some 50 business-to-government (B2G) submissions and trade documents required to be submitted to the government of Hong Kong, China for the trading of goods into, out of and through Hong Kong, China. These documents are required for public policy reasons such as statistics, levies and duties, anti-smuggling, public safety and health, and security purposes. They can be classified into three broad categories.

1. Import and Export Declarations (TDEC) and Statement Two Cargo Manifests will need to be submitted after the arrival or departure of goods.<sup>75</sup>
2. Advance Cargo Information (ACI) and Statement One Cargo Manifests are generally required before the arrival or departure of goods.
3. Permits, licences and other documents needed for goods subject to certain schemes or specific control on or before the arrival or departure of goods.<sup>76</sup>

### Trade Facilitation

There have been several initiatives put in place to help facilitate trade and ease the burdens of carriers, agents, freight forwarders, shippers, and traders and to make customs clearance easier and faster. A notable example is the Government Electronic Trading Services (GETS) that was introduced in 1997. GETS is a front-end electronic service for the trading community to submit commonly used trade documents to government agencies via private sector Service Providers.<sup>77</sup>

Of the more than 50 B2G documentation to be handled by the Trade Single Window, four are currently submitted through GETS. The Trade Single Window is expected to take over from GETS upon its full implementation but until then, GETS will continue under the existing model.<sup>78</sup>

### The Need for a Trade Single Window in Hong Kong, China

Only a fraction<sup>79</sup> of the B2G documentation and data requirements are currently fulfilled using traditional paper processes. Hong Kong, China's GETS was a pioneering initiative when it was first launched in 1997 and provides the foundation for the development of the Single Window and various electronic value-added services locally. The lack of a full-fledged Trade Single Window in Hong Kong, China means that import and export processes are not as smooth or as streamlined as they could be.

Given that several economies across the world and in the ASEAN region have been successful with a Single Window, Hong Kong, China too could do better with a single-window initiative. It would improve the

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<sup>75</sup> Under Regulations 4 and 5 of the Import and Export (Registration) Regulations (Cap. 60E), TDEC is required to be lodged within 14 days by every person who imports, exports or re-exports after the import, export or re-export of goods.

<sup>76</sup> At present, some 40 import and export licences, permits and other documents are required by law.

<sup>77</sup> [https://www.cedb.gov.hk/citb/en/Policy\\_Responsibilities/gets.html](https://www.cedb.gov.hk/citb/en/Policy_Responsibilities/gets.html)

<sup>78</sup> Extension of the Government Electronic Trading Services ("GETS")  
[https://www.cedb.gov.hk/citb/doc/en/trade\\_single\\_window\\_panel\\_paper\\_e\\_3.pdf](https://www.cedb.gov.hk/citb/doc/en/trade_single_window_panel_paper_e_3.pdf)

<sup>79</sup> The proportion of trade documents submitted in paper mode was less than 5% in terms of transaction volume.

exchange and flow of information between the regulatory authorities and traders and reduce the costs of cross border trade.

The Trade Single Window will be a one-stop-shop for more than 50 submissions and trade documents required for customs clearance and trade declarations. It will be interconnected with a range of government systems and will have the technical capacity to interconnect with systems or platforms operated by the private sector. Considering International best practice<sup>80</sup> and the views of industry stakeholders<sup>81</sup>, the Trade Single Window will have the following features:

### **1. One-stop Portal for Trade-Related Activity**

The Trade Single Window should be a one-stop portal for all documentation traders need for the import and export of goods into and out of Hong Kong, China. It will also be the platform on which traders can make related payments. Through the portal, each agency will process submissions and inform users if they have met the necessary regulatory requirements.

### **2. Information Sharing Platform**

The Trade Single Window will reduce duplication and errors in data input as consignment information will be reusable once users have determined that it is accurate and true. The Trade Single Window will enhance consistency, data integrity, efficiency and result in savings in administrative costs. It will also provide better information security and data confidentiality, as information may be made shareable only with stakeholders on a need to know basis. This could be for statistical purposes, enforcement, clearance or processing.

### **3. Provide External Connections**

The full-fledged Trade Single Window in Phase 3 will have the technical capacity to communicate with Single Windows operated by other economies as well as connecting with other business to business platforms.

## **Benefits and Savings**

The establishment of the Trade Single Window will not only ensure that Hong Kong, China is up to date with international trade developments, but that it can also take advantage of linkage opportunities with other Single Windows such as the ASEAN Single Window or link up with the Belt and Road Initiative.

## **Benefits for Trade**

1. Traders will be able to submit B2G documents and data 24/7 from anywhere online, at any time and on any device. They can also track the status of their submissions and applications easily.
2. The centralized paperless platforms mean traders do not have to move from one agency to another as all information is found on one portal.
3. The Trade Single Window supports the provision of clear details and an explanation of regulatory requirements.

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<sup>80</sup> Recommendation and Guidelines on Establishing a Single Window” by the United Nations Centre for Trade Facilitation and Electronic Business in 2005, WCO Compendium “How to Build a Single Window Environment” Volume 1: Executive Guide (2011).

<sup>81</sup> Collected through a series of engagement sessions in summer 2015.

4. Harmonization in the submission and processing of trade documents means data can be reused thereby reducing the incidence of manual errors of entry and inefficient resubmissions.
5. Users can share and exchange shipment data securely and can be sure of the consistency and integrity of data, which promotes transparency thereby fostering trade.
6. Paperless trading will reduce potential delays in processing procedures of documentation and will also reduce the need for manpower.<sup>82</sup>

### Benefits for the Government

1. There will be more efficient facilitation and trade control through the sharing of information between the different agencies. For instance, traders and the Customs and Excise Department will gain access to permits and licenses after they are issued
2. The Trade Single Window has up to date and detailed information on trader compliance with procedural and legal requirements.
3. The Trade Single Window is expected to create opportunities for partner government agencies to streamline business processes, promote online services and integrate computer systems.<sup>83</sup>
4. There will be better connectivity and cooperation on the government to government level on customs, which will, in turn, improve trade efficiency and expedite the clearance of cargo.<sup>84</sup>
5. The Trade Single Window will unify the business to government interfaces which will be foundational to wider e-commerce initiatives, such as connection with the ASEAN Single Window or the Belt and Road Initiative.<sup>85</sup>

### Conclusion

The Trade Single Window will help Hong Kong, China achieve greater efficiency in import and export trade activity which will result in significant savings. It will help the government of Hong Kong, China to modernize its systems of collaboration and exchange of information with other jurisdictions and economies. Critically it will speed up the cargo clearance process and improve trade relations that will be beneficial for both the private and public sectors. It will revolutionize government to government, business to business, and business to government interfaces. By doing so, it will be the foundation on which various initiatives among logistics providers, traders and regulatory authorities may be implemented. Over time, the Trade Single Window will help Hong Kong, China maintains its status as one of the most important trading and logistics hubs in Asia and in the world.

### Chinese Taipei CPT Single Window

Chinese Taipei has always been deemed one of the most important and strategic locations in the Asia Pacific region for International trade and logistics. The Chinese Taipei government has always been

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<sup>82</sup> The trading community is estimated to save up to around \$860 million to \$1,500 million per annum (at today's prices) in administrative costs after the Trade Single Window is fully implemented. Benefits and Savings [https://www.cedb.gov.hk/citb/doc/en/trade\\_single\\_window\\_consultation\\_paper\\_e.pdf](https://www.cedb.gov.hk/citb/doc/en/trade_single_window_consultation_paper_e.pdf).

<sup>83</sup> Integration of computer systems of TDEC and electronic manifests is estimated to reduce maintenance cost by up to around \$32 million per annum.

<sup>84</sup> Importing and exporting economies can compare the information about the same cargo for comparative risk analysis.

<sup>85</sup> The Single Window will improve coordination among agents, logistics operators and traders to make the supply chain more efficient.

actively working through its various agencies to facilitate cross border trade with important partners such as Singapore, People's Republic of China Hong Kong, China and other ASEAN economies

Nonetheless, Chinese Taipei has a better regulatory environment than most due to its constant improvements in regulations over the years. However, the system is not perfect and there is a lot that can be done to enhance logistics and transport in the jurisdiction to make it more stable, transparent and predictable.

### The Conceptual Framework for Establishing a Single Window

Chinese Taipei Customs has always been interested in coming up with solutions intended to accelerate customs clearance processes and enhance cross border trade. However, there have been obstacles regarding the efficiency of the processes that have been put in place to achieve these objectives.

In this regard, Chinese Taipei has adopted several frameworks intended to facilitate data integrity, enhance transparency, improve customs clearance and facilitate trade. Some of the frameworks adopted include the WCO SAFE Framework of Standards<sup>86</sup> by the World Customs Organization (WCO). Another important framework adopted as the UN/CEFACT recommendation 33- "Recommendation and Guidelines on establishing a Single Window".<sup>87</sup> The CPT Single Window of Chinese Taipei was launched in 2013 based on Recommendation No 33.

### CPT Single Window Standards

To standardize and simplify cross border trade and customs procedures, the Taipei Customs organization set up two standards.<sup>88</sup> The first standard was the WCO Data Model derived Customs Port Trade Data Elements Set. Once this was established it was followed by the development of relevant standards, the most important of which was the CPT XML Message Implementation Guideline. Through the XML messages, users can easily and conveniently exchange data from a single portal.

The trading community uses these two standards to submit data and documents for exports and imports. The standards are also used to send in-transit cargo through the CPT Single Window or associated Ministries. For instance, traders can lodge export or import applications, customs declarations or transit-related documentation electronically. Online services will include online information queries, container cargo status tracking, online applications and services.<sup>89</sup>

### Origin of the CPT Single Window

The Customs Port Trade Single Window of Chinese Taipei has its roots in the need to meet the trends towards integration and digitization of customs clearance processes and international trade activity.<sup>90</sup> Through integration and digitization, Chinese Taipei can facilitate economic development and trade, reduce the costs of trade, and accelerate the movement of goods, all of which will enhance the competitiveness of Chinese Taipei in the Asia Pacific region. According to Yuan, the Executive of the

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<sup>86</sup> WCO SAFE Package: WCO tools to secure and facilitate global trade  
[http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/frameworks-of-standards/safe\\_package.aspx](http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/frameworks-of-standards/safe_package.aspx)

<sup>87</sup> Recommendation and Guidelines on establishing a Single Window  
[https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33\\_trd352e.pdf](https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf)

<sup>88</sup> CPT Single Window <https://eweb.customs.gov.tw/cp.aspx?n=0A8480B616A50088&s=74DFCBB44FEC1861>

<sup>89</sup> Services Introduction <https://portal.sw.nat.gov.tw/PPL/eng?loadUrl=/PPL/indexEng>

<sup>90</sup> Origin <https://portal.sw.nat.gov.tw/PPL/eng?loadUrl=/PPL/indexEng>

Council for Economic Planning and Development (CEPD)<sup>91</sup>, safety and convenience are what is needed to make an optimal economic and trade environment in Chinese Taipei.

The CPT Single Window was born of the “Wisdom Environment” which is part of the Ministry of Finance’s Economy and Trade Network Plan. The project is designed to combine the strengths and professional experience from current automation services in customs clearance, the expertise of private traders, port affairs related authorities and certification/examination professionals. It aims to construct and promote export and import operating environment with cargo and convenient supply chains that have international-standard trade and economic environments. Such environments will enhance efficiency in exports and imports and enhance Chinese Taipei’s overall trade and economic competitiveness.

### Objectives of the Chinese Taipei CPT Single Window

The project is designed to enhance trade security, speed up customs clearance, and strengthen Chinese Taipei’s international trade connection. The CPT Single Window intends to integrate the needs of the export and import information systems and management authorities and will apply civil resources to promote the CPT Single Window Service.

The goals of the project include:

1. The establishment of an Advanced Single Window
2. Promotion of an international Connectivity Plan
3. Three Main System Integration
4. Build Goods Data Warehouse
5. Provision of International Integrated Service with other SW Systems
6. Trade Data Reconciliation

### CPT Single Window Service Position

The Service position of the CPT Single Window is founded on four pillars:

**Data Exchange Infrastructure and Establishment** – It establishes a window with the authority or liability to exchange electronic documentation and data with the official departments of other economies or organizations and the Chinese Taipei agencies. This leads to the realization of gapless electronic services for cross border trade.

**Integration of Licenses and Permits** – It is a service window that integrates customs declarations, trade licensing and port applications thus making it possible for traders, value-added service providers and the public to submit applications, and get access to responses and information from the CPT Single Window.

**Provide a Single Total Solution** – It integrates the data transmission of trade governing agencies, Port, and Customs facilitating the interconnection between different government agencies and offering customs brokers a single-entry platform.

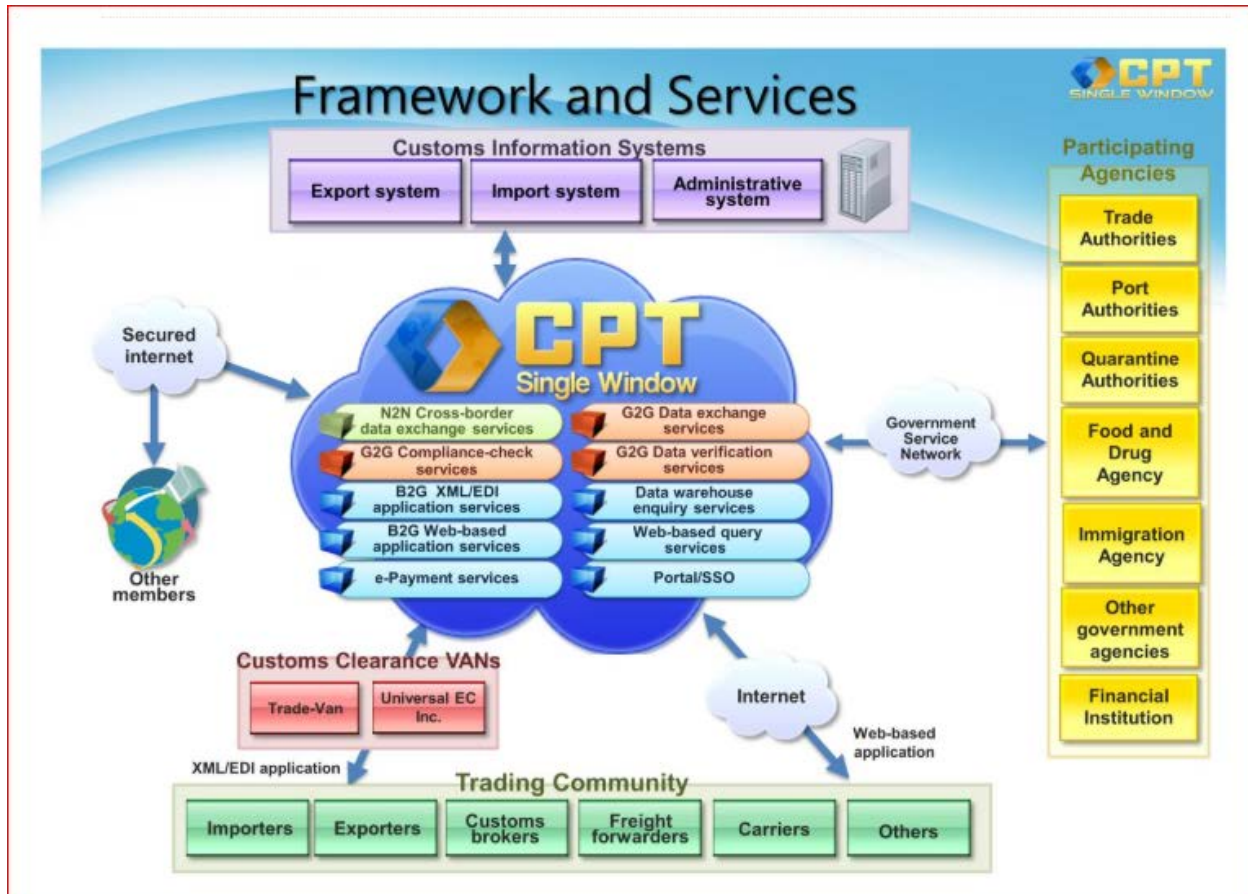
**Integrates Information** – It is a database of information on regulatory requirements where government agencies, traders, brokers and the public can share and exchange important information.

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<sup>91</sup> <https://edirc.repec.org/data/cepgvtw.html>

## CPT Services and Architecture

By the end of 2016, the CPT Single Window had twenty-eight agencies that included quarantine authorities, port authorities, trade authorities, and Customs among many others that have electronic linkages to the CPT Single Window. The CPT is used mainly by carriers, freight forwarders, customs brokers, exporters and importers among other trading stakeholders. As it stands, there are more than five thousand accounts of the various stakeholders that have registered on the Single Window portal.<sup>92</sup>



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There are two interfaces that the trading community can use to submit and access the CPT portal:

**XML/EDI Interface** – Clients and users of the platform can use XML standards to submit data and documentation electronically to CPT through Value Added Networks (VAN's i.e. Trade-Van) for Customs Clearance.

**Web-Based Interface** – Great option for users that log into the website just to fill required regulatory forms.

Moreover, the CPT Single Window is compatible with other Single Window systems and hence is perfect for conducting cross border exchange of documentation and data. Since 2014, China Customs and the

<sup>92</sup> CPT framework and its services

<https://eweb.customs.gov.tw/cp.aspx?n=0A8480B616A50088&s=DA1D64E4C3EDED47>

<sup>93</sup> <https://eweb.customs.gov.tw/cp.aspx?n=0A8480B616A50088&s=DA1D64E4C3EDED47>



Customs administration in Chinese Taipei have been exchanging electronic certificates of origin (eCO) via their Single Window systems. The International connection between the two Single Windows has facilitated the clearance of cargo and deepened bilateral customs collaboration.<sup>94</sup>

#### ePayment

In addition to providing a portal for submission of trade documents, the CPT also provides a range of convenient services for traders seeking streamlined clearance. For instance, through e-Payment services, customs can electronically deduct fees and taxes from the accounts of the traders.

#### G2G (Government to Government) Exchange

The CPT Single Window offers a range of information-sharing services that makes the operations of Customs and participating agencies more efficient. For instance, it provides government to government compliance check services, which provide automatic cross-checks of export and import licenses and customs declarations that are issued by line ministries and agencies.

#### Nation to Nation (N2N) Data Exchange Services

The Single Window is designed to be interoperable with the Single Windows of other economies and those of other organizations such as the ASEAN Single Window. This makes the nation to nation cross border trade and exchange operations easier as regulatory authorities of partner nations can exchange their licenses, electronic certificates of origin and customs declarations in a more convenient and efficient manner.

#### Innovative One-Stop Service

The CPT Single Window is a one-stop platform for declaration and permit integration which is aimed at improving the quality of service following international best practices and standards. Through the CPT Chinese Taipei will streamline trading procedures for application for licenses, permits and declarations. It makes all important Customs and participating agencies procedures and requirements available in an easily accessible and easy to use platform. Since 2015, the Single Window has been using the Permit and Declaration Integration initiative, which has significantly improved trade.<sup>95</sup> This service allows traders to apply for permits and include this permit in the customs declaration submission. Prior to the initiative, the trading community had to make submissions in advance to the participating agency before lodging declarations with Customs authorities. The initiative now makes it easier to make those applications, thus saving on costs and time.

#### Benefits of Implementation of the CPT Single Window

Chang Seng-ford, the Chinese Taipei Finance Minister asserts that the simplification through the CPT Single Window is intended to modernize and make Chinese Taipei conform to international standards. With the implementation of a Single Window, businesses will be able to find convenient service for anything from inspection, export and import licensing, quarantine, customs and vessel management through the CPT.

Apart from the integration of licensing, customs clearance and port information systems, the CPT will also provide a database where all information about traders and from government agencies about export and

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<sup>94</sup> <https://eweb.customs.gov.tw/cp.aspx?n=0A8480B616A50088&s=DA1D64E4C3EDED47>

<sup>95</sup> The innovative one-stop service – Permit and Declaration Integration  
<https://eweb.customs.gov.tw/cp.aspx?n=0A8480B616A50088&s=91F62BB1A0FCA464>

import could be accessed by users. Moreover, the Chinese Taipei government through the Ministry of Finance is negotiating with other partners to expand the Single Window into an e-commerce platform for international logistics and trade.

According to the Ministry of Finance, the CPT is expected to save businesses NT\$850 million and the government an estimated NT\$720 million every year.<sup>96</sup> Moreover, the integration of export and import information with trade statistics on transshipments should help business and regulatory agencies get a real-time understanding of the happenings in trade and make it possible to respond in a timely fashion.

## Japan- NACCS (Nippon Automated Cargo and Port Consolidated System)

### Overview of the NACCS

NACCS in full is the Nippon Automated Cargo and Port Consolidated System. It is a system for online processing of procedures taken with customs and other relevant administrative authorities and related private sector services for departing or arriving aircraft & ships and export/import cargoes.<sup>97</sup>

NACCS used to operate as two systems, the Air NACCS for air cargo and the Sea NACCS for marine cargo. These had operated independently of each other until 2010 when the two systems integrated. Other related ministry/agency systems such as the Port EDI System are also integrated into NACCS.

Since its inception<sup>98</sup>, NACCS has expanded its functions to meet the needs of modern information communication technology systems and international logistics. It serves a range of stakeholders such as shipping companies, exporters and importers, customhouse brokers and so on. It provides a single-window system for these stakeholders to submit procedures to multiple administrative authorities with one input transaction and transmission.

It has been developed under a public-private partnership between the government of Japan and a private company named Nippon Automated Cargo and Port Consolidated System Inc., (NACCS Center). The predecessor to NACCS Center was established in 1977, as a semi-government organization jointly funded by the public and private sectors, before being transformed into an independent administrative agency in 2003. Later, in 2007, it was decided to be privatized as a “special entity” to strengthen the international competitiveness of Japan’s airports and ports and increase the efficiency of international logistics by providing better services to traders and improving corporate management. The operations of the company were legally privatized in 2008<sup>99</sup> to enhance corporate management efficiency. Since privatization, the organization has become more flexible and enhanced the quality of service. This has made it more aligned with its objective of facilitating international logistics and trade.

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<sup>96</sup> Chinese Taipei – Single Window to simplify Customs, port and trade procedures

<https://www.internationaltradecomplianceupdate.com/2013/09/09/taiwan-single-window-to-simplify-customs-port-and-trade-procedures/>

<sup>97</sup> Overview of NACCS <https://www.naccs.jp/e/aboutnaccs/aboutnaccs.html>

<sup>98</sup> NACCS started its operation in 1978 as the Air-NACCS at Narita International Airport. Sea-NACCS was introduced in 1991 in the Tokyo-Yokohama port area

<sup>99</sup> Act for partial Revision of the Act on Special Provisions for Customs Procedure by Means of Electronic Data Processing System” (Act No. 46 of 2008) <https://www.naccs.jp/e/aboutcenter/summary.html>

## The Evolution of NACCS to the Single Window Environment

Over the years, the NACCS system has evolved as follows;

In July 2003, the Single Window service, which enables users to complete all requirements with a single-entry form, started for port and import procedures. But there were still the NACCS and Port EDI as hub systems for port-related procedures. Users can submit documents through either NACCS or Port EDI, and then data are duplicated and sent to other systems.

Since October 2008, the Common Portal, a new Single Window with unified application (data entry) windows and user codes for different procedures, has been in operation. A user is merely required to obtain and manage one ID and password issued by NACCS, and to consult with NACCS's single help desk. The number of procedures and documents required was also reduced.

The new single-window system will be continuously updated through cooperation between the government and the private sector. In February 2010, airplane arrival/departure notification procedures were added. In the same year, the Japan Electronic open network TRAdE control System (JETRAS) of the Ministry of Economy, Trade and Industry which processes applications for import and export licenses was integrated into NACCS. Subsequently, the Food Automated Import Notification and Inspection System (FAINS) of the Ministry of Health, Labour and Welfare, and Plant Quarantine NETWORK System (PQ-NETWORK) and Animal Quarantine Inspection Procedure Automated System (ANIPAS), systems of the Ministry of Agriculture, Forestry and Fisheries, were also integrated into NACCS in October 2013. Since November 2014 NACCS has also been operated as a system processing the medicines import/export procedures of the Ministry of Health, Labor and Welfare. NACCS continues to be a core system to process import/export procedures and port clearance procedures beyond the boundaries between the private and public sectors and among different ministries.

## Characteristics and Benefits of Japan's Single Window

NACCS has multiple benefits and characteristics. Some examples are as follows:

### 1. Administrative Procedure System

NACCS has functions which quickly and accurately perform online processing of administrative procedures such as ship and aircraft arrival/departure procedures, import/export declarations, and various procedures. With this system, it is becoming possible to electronically (paperless) process the various declarations and applications without having to go to the administrative agencies and thereby the efficiency of business processing is attained in the administrative agencies too. NACCS has been electronically processing administrative procedures since 1978 and hence NACCS is evaluated as pioneering electronic administrative procedures in Japan.

### 2. A system that speeds up procedures

NACCS performs various procedures such as arrival/departure and import/export declarations electronically. For instance, in customs clearance procedures, information sharing is attained among the users and by utilizing the information recorded in the preceding operations, the burden to input the data in subsequent works is reduced and the processing time in subsequent works is shortened. Further, in case of the import declaration, NACCS has a convenient function such as automatic payment of taxes like customs duties and so forth from bank accounts in addition to automatic conversion of the exchange rate, calculation of tax amounts. Therefore, by using NACCS, the time required for customs clearance etc. has been greatly shortened in comparison with the procedures without NACCS.

### **3. Communication system**

NACCS has a function as an information transmission system that allows users to exchange various information among all users. Thus, there is no need to keep in touch with each other for confirmation among multiple users and the information can be checked with NACCS.

### **4. Database system manages cargo information**

NACCS manages the status of cargo in a database by processing it in a centralized manner.

#### [Some of the Key Success Factors for NACCS](#)

NACCS provides a lot of benefits not only for traders but also for regulators and private sector participants. Just like with any other similar systems operated across the globe, there have been important success factors for NACCS, some of which are as follows;

1. Effective Policy Making by the Government
2. Coordination among Relevant Ministries
3. Private Sector Participation

The establishment and upgrade of NACCS was an integral part of Japan's government policy. It was a top priority issue for several ministries, which worked together to facilitate the computerization of logistics and administrative procedures and consequently contributed further to trade facilitation. Achievement of the Single Window at an early stage shows that there had been better coordination among the relevant ministries, which is also one of the critical factors for NACCS. The private sector also played a critical role in the success of the establishment of a Single Window in Japan. The private sector which comprises most of the users of the platform provided suggestions to give the platform more utility and make it more user-friendly. The government has also worked closely with the private sector to determine their needs to make NACCS beneficial for users. This has been done through conferences where government and private sector participants give their views for joint consideration. The NACCS Center and associated ministries involved in trade also take in requests and suggestions for the introduction of modifications of features or functions of the Single Window from the private sector.

#### [Going Forward and Future Tasks for the NACCS Single Window](#)

The NACCS Single Window is always in a process of improvement to enhance performance, quality and scope of function. Working with the private sector and related government ministries, NACCS, as the Comprehensive Logistics Information Platform, will try to optimize business processes. It also considers it's possible to connect its system with other relevant systems domestically and internationally.<sup>100</sup> This will further enhance international logistics and trade and cement the economy's competitive position in the Asia Pacific and across the globe.

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<sup>100</sup> NACCS officially joined the Pan Asian e-Commerce Alliance in April 2008 to promote international data exchange

## Republic of Korea Single Window (uTradeHub)

Korea's uTradeHub is a joint project of the Korea International Trade Association (KITA) and the Ministry of Knowledge Economy that was formed in 2003.<sup>101</sup> The uTradeHub is part of the wider objective of build and develop paperless trade systems and platforms. The uTradeHub provides seamless processing of trade transactions ranging from settlement to marketing through interlinking networks of related industry stakeholders. These industry partners may include logistics companies, banks, the Korea Customs Service, foreign banks, and the Korea Financial Telecommunications and Clearings Institute, among many others that review market conditions and serve as marketplaces.

Through the Single Window platform, traders have access to a wide variety of processes that include anything from marketing, negotiations, market research, banking, logistics and customs clearance services and resources. The uTradeHub has eased trade in Korea by making it possible to get services online so that traders do not have to visit regulatory authorities or financial institutions, which added unnecessary layers of complexity.

The Korea Trade Network (KTNET) is the designated operator of the uTradeHub systems and services as set out in the e-Trade Promotions law.<sup>102</sup>

### Background of the uTradeHub

Since the implementation of the Trade Automation Act 1991, the Korea International Trade Association (KITA) and the Ministry of Knowledge Economy have been actively involved in a project for automating the import-export affairs that include logistics, customs clearance and letters of credit conditions.<sup>103</sup> Since then the customs clearance services have been transformed from paper to 100% electronic systems, which has been successful in cutting overhead costs, reducing documentation and automating office work.

However, the VAN/EDI automated trade networks which marked the growth phase of the paperless stage were limited in providing seamless connectivity and bringing innovation in trade processes and transactions.<sup>104</sup> Moreover, Korea has needed to strengthen the competitiveness of its exports and reduce business process complexity as its trade volume surged from 500 million dollars to 700 billion in 50 years.

Similarly, Korea decided to set up an electronic-based service to revamp its existing trade automation network. Even though the existing EDI/VAN-based trade automation platforms offered one on one connectivity, these were scattered services. The new e-Trade services integrate these services online to seamlessly provide a variety of services. Some of these services include receipt, dispatch, and storage of documents. The new service eliminates repetitive tasks and streamlines the entire business process.

### Benefits from Paperless Trade under the uTradeHub

There are several benefits provided by the uTradeHub as a paperless trade system. Some of these include:

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<sup>101</sup> [https://www.utradehub.or.kr/porgw/english/html/eng\\_about\\_01.html](https://www.utradehub.or.kr/porgw/english/html/eng_about_01.html)

<sup>102</sup> Enacted Trade Automation Act (1991) and revised the Act into 'e-Trade Facilitation Act (2005)  
<https://unnex.unescap.org/sites/default/files/switajik-rama.pdf>

<sup>103</sup> [https://www.utradehub.or.kr/porgw/english/html/eng\\_about\\_02.html](https://www.utradehub.or.kr/porgw/english/html/eng_about_02.html)

<sup>104</sup> Progress in Paperless Trade in Korea

[https://www.uncitral.org/pdf/english/colloquia/EC/SHIM\\_Sang\\_Bee\\_brief3Korean\\_case.pdf](https://www.uncitral.org/pdf/english/colloquia/EC/SHIM_Sang_Bee_brief3Korean_case.pdf)

1. Reduction in costs and time required to complete import and export services due to integration and one-time submission of documents and information on a single portal. This means information in the portal can be stored and reused many times over.
2. Traders are assured of better security for their electronic documents on uTradeHub, which provides a document depository that only allows authorized users to use or access the documents and information.
3. The portal makes the handling of documents more transparent since it is integrated with logistics, finance and other associated organizations which makes it possible to access real-time reports and updates to prevent forgery of documents or fraud.
4. Korea's uTradeHub provides a one-stop-shop where traders can find support for all business-related activities including relevant tasks for import and export, and procedures on how to conduct business in the jurisdiction.
5. Submission and distribution of documents are easy given that regulators, logistics companies, banks among many other third parties are on the platform. All it takes is one click to submit documents to any third party they have business with.
6. While the portal comes with a diverse user interface, it can be customized for each user. Traders can customize their access to various services by selecting what web services, web portal or solutions they need according to their IT environments.

Overall, uTradeHub is expected to have economic benefits to Korea amounting to \$3 billion.<sup>105</sup> The savings are expected to come from the reductions in costs in different sectors associated with the supply chain. The reduction in the cost of circulating and issuing documents combines with reductions in costs of labour should save approximately 550 million in the import/export process. The biggest savings will come from the reductions in inventory and warehousing costs, which are expected to go down by up to \$2.9 billion. There will also be reductions in costs of up to \$320 million in redundant investments in Information Technology.

### Key Elements of Success of the uTradeHub

There are several reasons why Paperless Trade under the uTradeHub has been so successful. Some of these reasons include:

#### **1. Strong Government Policies**

The Ministry of Knowledge and Economy has been instrumental in the success of the platform particularly in partnership with the e-Trade Facilitation Committee. The collaboration has made possible seamless integration and implementation of trade-related policies. Consistent collaboration with many associated government bodies has been important in the development of interfaces with critical integrations. The portal is now integrated with systems such as Korea's Customs Service customs clearance system, the UNIPASS and the Ministry of Land, Transport, and Maritime Affairs information system of logistics.

#### **2. Legal Framework**

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<sup>105</sup> Benefits from Paperless Trade

[https://www.uncitral.org/pdf/english/colloquia/EC/SHIM\\_Sang\\_Bee\\_brief3Korean\\_case.pdf](https://www.uncitral.org/pdf/english/colloquia/EC/SHIM_Sang_Bee_brief3Korean_case.pdf)

There has been a strong legal framework put in place with several acts implemented towards fostering paperless trade.<sup>106</sup> This has made the setting up of foundational policies to control and regulate electronic trade easier. A legal framework also gives legal effect to digital signatures and electronic documents.

### **3. Active Partnerships with the Private Sector**

The Korea Paperless Trade collects opinions from a wide range of stakeholders in the private sector to help in the setting up of implementation of cooperation mechanisms.<sup>107</sup> Important partnerships are with shipping lines, banks and trading firms all of which have helped in making the implementation of paperless trading in the B2B sector a success.

### **4. Highly Developed Informational Technology Infrastructure**

Korea has one of the most competitive and innovative IT sectors with high tech cellular, semiconductor and Internet companies. The existence of excellent IT infrastructure in the private and public sectors make for good conditions for the successful implementation of electronic trading. Moreover, with a lot of highly qualified human resource personnel in the economy, it was easy to develop integrated systems.

#### **Services Provide by the uTradeHub**

uTrade – Through the portal, traders have an integrated workspace where they can seamlessly and effectively perform trade-related tasks from payment and logistics, marketing, customs clearance, and foreign exchange. The following are some of the ways uTrade enhances trade:

1. The portal facilitates trade by streamlining transaction procedures through integrated electronic workspaces, which provide more efficiency.
2. The e-Trade portal provides the framework for the development of electronic trading as it provides electronic bills of lading and electronic negotiations services.
3. It allows for the one-time submission of documents which saves users manpower and simplifies distribution thus saving businesses the cost of manual documentation processes.

uLogis – uLogis is a service of uTradeHub that is made to serve forwarders, airlines, and shipping lines by offering convenient and fast processing of cargo.<sup>108</sup> The service provides consolidated service for the import and export of cargo, including conducting operations on bonded goods. The operations are conducted anywhere as the portal connects logistics companies with businesses. This enhances efficiency and improves work processes of businesses.

uBankers – The electronic bill of lading service makes it possible to receive shipping instructions from trading companies and to issue the electronic bill of lading online. Forwarders and shipping lines can log into uTradeHub from anywhere in the world and use the uBankers service to issues instructions and the electronic bill of lading.

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<sup>106</sup> Legal Framework for Paperless Trade

[https://www.uncitral.org/pdf/english/colloquia/EC/SHIM\\_Sang\\_Bee\\_brief3Korean\\_case.pdf](https://www.uncitral.org/pdf/english/colloquia/EC/SHIM_Sang_Bee_brief3Korean_case.pdf)

<sup>107</sup> The Korea Paperless Trade Office of KITA has devoted to consolidating opinions for setting up and implementing policies but also configuring practical cooperating mechanism among industry stakeholders

<sup>108</sup> [https://www.utradehub.or.kr/porgw/english/html/eng\\_services\\_06.html](https://www.utradehub.or.kr/porgw/english/html/eng_services_06.html)

uTradeSearch – Through the uTradeSearch system, traders can perform in-depth searches for marketing and trade service information. The portal also provides a database of information on trade networks and detailed information provided by experts that can be accessed by any user at any time.

uCustoms – This is an electronic import and export clearance service provided by the Korea Customs Brokers Association and KNET. uCustoms facilitates clearance using the Internet as well as the current ED/IVAN system to lay the foundation for an integrated platform for logistics, clearance and trade.

## The Architecture

The uTradeHub comes with interfaces to link the Title Registry, e-Trade Document Repository, and the e-Trade Relay System.

1. The Portal – This can be accessed by medium-sized and small companies and comes with a website where traders can conduct a range of trade operations from payment to marketing.
2. User Solution – The e-Trade User Solution is designed to provide integration for in-house systems of large and medium-sized businesses.
3. e-Trade Document Repository – Makes it possible to safely and reliably store a range of electronic documents in addition to certifying originality.<sup>109</sup> Important documents stored include the likes of import and export licenses, insurance policies, delivery orders, and certificates of origin. Trading companies may circulate the e-documents electronically which will be deemed an original copy by other stakeholders.
4. Security Authentication – Security is a top priority for the uTradeHub, which was the winner of the Ministry of Information and Communication Information Security Award and of the ISO27001 certification for its security systems.<sup>110</sup> It also provides security through physical systems, administrative safeguards, physical safeguards, and authentication through certificates.

## Global Initiatives

The Korean government in collaboration with the trade industry has been working with international organizations, governments, trade-related institutions and overseas trading industries to provide seamless international connectivity and paperless trading through integration and partnership with the uTradeHub. Its global initiatives include:

1. e-Trade PR and Consulting Services
2. e-Trade Standards Development and Compliance
3. International Cooperation for e-Trade Promotion
4. The Project to Build a Global e-Trade Network

## Russian Federal Customs Service- Single Window

The Russian government has put in place some advanced measures to facilitate trade following the lead of other Single Window systems. However, the economy still has problems in lack of legislation, lack of clarity on processes and regulations, deficiency of political will and little to no coordination between

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<sup>109</sup> The "e-Trade Facilitation Act" stipulates that e-documents are accepted as original copies and allowed for electronic circulation.

<sup>110</sup> Security Authentication [https://www.utradehub.or.kr/porgw/english/html/eng\\_architecture\\_04.html](https://www.utradehub.or.kr/porgw/english/html/eng_architecture_04.html)



government agencies.<sup>111</sup> Russia currently has a Single Window environment though it is moving towards the implementation of full electronic systems from a largely paper-based system.

The Russian Federal Customs Service (FCS) oversees operating and implementing the Single Window, which is expected to accelerate customs clearance to facilitate trade. Aside from the easing of the customs clearance processes, Russia hopes to reduce corruption and complexities in processing, licensing and approval procedures. The FCS also hopes that the Single Window will eliminate misclassification of cargo and customs tax evasion, which will improve the movement of goods through the Eurasian Economic Union.<sup>112</sup> To tackle these issues the government has set out a roadmap to achieve the Single Window and has so far been relatively successful.

### Features of the Single Window of the FCS

The Russian Window follows Single Window Principles in addition to the Single Window mechanisms as set out by the Eurasian Economic Union<sup>113</sup> as a framework for international trade regulation.<sup>114</sup> The following are the features of The Russia Single Window:

#### **1. Interagency electronic information exchange/The Single Window**

The system of interagency electronic exchange is the Single Window System operated by the FCS. It includes 32 agencies, databases, hardware and software equipment and standardized processes and procedures to facilitate information exchange between economic operators, customs and government bodies.

#### **2. Portal/Seaport**

It serves traders importing and exporting goods into Russia. On one side it includes declarants and carriers and on the other regulatory agencies such as port administration, border service, phytosanitary regulators, and customs among others. Carriers and declarants are issued with Unique Identification numbers that they use for pre-arrival submissions and declarations.

#### **3. Single mechanism of administering customs and tax revenues**

A unified system that includes the Federal Customs Service of Russia and the Federal Tax Service of Russia. Traders benefit as they only must submit declarations to the Federal Customs Service, which the Federal Tax Service can then access without needing the trader to resubmit.

### Information Exchange Scheme of the Single Window

It works under the framework of the Eurasian Economic Union customs regulation procedures. It has two arms that are the Integrated Informational System (IIS) of the EEU and the Russian segment of the Integrated Informational System of the EEU. The IIS includes the windows of the members of the Eurasian Economic Union with which the Russian Single Window interfaces.

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<sup>111</sup> Trade facilitation and the regulatory environment in Russia  
<https://journals.sagepub.com/doi/abs/10.1177/2233865914562255>

<sup>112</sup> Trade Facilitation Changes in Russia <http://www.allynintl.com/en/news-publications/entry/trade-facilitation-changes-in-russia>

<sup>113</sup> Eurasian Economic Union members include Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia

<sup>114</sup> [https://www.unescap.org/sites/default/files/Session%202-4a.%20Ilya%20Kuznetsov\\_FCS%20Russia.pdf](https://www.unescap.org/sites/default/files/Session%202-4a.%20Ilya%20Kuznetsov_FCS%20Russia.pdf)

The Russian Single Window includes data from government agencies such as customs brokers and carriers, and data about procedural processes such as inspection of goods, and transit control among others. These are collated into the Single Window where traders can easily submit their data and gain access to trade procedures, they need to follow to fulfil trade requirements.<sup>115</sup>

### Challenges in Implementing the Single Window

There have been several challenges in the implementation of a Single Window in Russia that include:<sup>116</sup>

1. Insufficient involvement of authorized agencies and government bodies in the project
2. Ignoring international standards in business process description and data modelling
3. Unwillingness or slow uptake of electronic methods of interacting with government agencies
4. Lack of a Single Window Mechanism portal where traders can get all information on the procedures and rules for conducting foreign trade
5. Lack of coordination among the different government agencies towards developing the integrated services interface and framework

### Recommendations

1. The Single Window needs to be elevated to the status of a Russian National project
2. There needs to be a collaboration with international experts to strengthen the working group charged with the implementation of the Single Window
3. Implement international best practices by adopting UNECE Recommendations 33<sup>117</sup> and the WCO instruments for interagency cooperation.
4. Harmonize and simplify information flow, data elements, and documents using Business Process Analysis and international standards such as the WCO Data Model<sup>118</sup> and UNTDED<sup>119</sup>.
5. Invite experts to provide guidance on the alignment of codes and documents to international standards and to offer expertise and guidance in the implementation
6. Make legislation to facilitate paperless trading by creating regulation to govern electronic signatures, the legality of electronic documents, archiving, document protection, and database protection among others.
7. Foster political will to develop integrated information systems and amend existing systems to make them more conducive to paperless trading.<sup>120</sup>

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<sup>115</sup> Information exchange scheme under common customs regulation procedures in the framework of the Eurasian Economic Union [https://www.unescap.org/sites/default/files/Session%202-4a.%20Ilya%20Kuznetsov\\_FCS%20Russia.pdf](https://www.unescap.org/sites/default/files/Session%202-4a.%20Ilya%20Kuznetsov_FCS%20Russia.pdf)

<sup>116</sup> DEVELOPMENT STATUS OF THE SINGLE WINDOW MECHANISM: in the System of Regulation of Foreign Economic Activity in the Member States of the Eurasian Economic Union [http://www.eurasiancommission.org/ru/act/tam\\_sotr/edinoe\\_okno/Documents/9281012-en.pdf](http://www.eurasiancommission.org/ru/act/tam_sotr/edinoe_okno/Documents/9281012-en.pdf)

<sup>117</sup> Recommendation and Guidelines on establishing a Single Window [https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33\\_trd352e.pdf](https://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf)

<sup>118</sup> CROSS-BORDER TRANSACTIONS ON THE FAST TRACK: Introduction to the WCO Data Model <https://www.unescap.org/sites/default/files/26%20Apr%202017%20-%20Introduction%20to%20WCO%20DM.pdf>

<sup>119</sup> UNTDED <http://tfig.unece.org/contents/untded.htm>

<sup>120</sup> UNECE's work on trade facilitation and the Single Window in Central Asia and EurAsEC <https://www.carecprogram.org/uploads/07-UNECEs-Work-on-Trade-Facilitation-and-the-Single-Window-in-Central-Asia-and-EurAsEC.pdf>

## Benefits of the Single Window

1. The establishment of the Single Window for processing and submission of customs declaration should reduce corruption and ease cargo clearance.<sup>121</sup>
2. Electronic declarations should reduce or eliminate tax evasion by reducing misclassification and falsification of cargo.
3. Since the Single Window is integrated with the Eurasian Economic Union, tracking cargo is easier making it possible to identify any companies violating customs and tax regulations.
4. The Single Window system will provide a system for classifying shippers by risk of customs violation. As such, there will be a faster clearance of cargo as less risky shippers will have their vessels cleared in minutes as opposed to hours.

## FCS Cooperation with International Organizations

At present the FCS is working with numerous international organizations to facilitate trade. These organizations include the World Customs Organization, BRICS, the European Union, the Asia-Pacific Economic Cooperation, and the Black Sea Economic Cooperation.

### The World Customs Organization (WCO)

The WCO consists of 180 members and is an organization that exists to expedite and simplify trade. The Russian FCS is working with the WCO to develop supply chain security protection and promote world trade. The Russian FCS is also looking to implement WCO recommendations on law enforcement, classification of goods, customs procedures and trade facilitation. Russia has also acceded to several WCO international conventions on trade.

### BRICS

Russia is a member of the BRICS comprised of Brazil, Russia, India, China and South Africa. The five economies have a cooperation agreement signed in 2012 known as the BRICS Customs Cooperation Committee. Its objective is to develop coordination procedures in the group to facilitate trade.

### European Union (EU)

The Russian FCS works with the EU on aspects of simplification of anti-fraud measures, risk management, customs procedures, and interconnection of EU and EAEC (Eurasian Economic Community) transit systems. The objectives are achieved through several committees and working groups established by the EU and Russia. The committees set up include:

- Subcommittee on cross border and customs cooperation
- Expert advice on transit issues
- Working group on customs border issues
- Expert subgroup on the approximation of legislation
- Expert subgroup on management risk analysis and operation of authorized economic operators

### Asia-Pacific Economic Cooperation (APEC)

As a member of APEC, Russia cooperates with the organization to develop a single customs information space in the region and to develop information technologies to facilitate trade. As chair of the Forum, the

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<sup>121</sup> the FCS hopes that 95 percent of customs declarations take place via electronic systems by 2019, compared with 18 percent at present

Russian FCS took the lead in an initiative to establish a single information space for the electronic exchange of information between the members of APEC to prevent false declarations and understatement of invoice values.

### The Black Sea Economic Cooperation (BSEC)

Russia is a member of the BSEC which has a working group on the promotion of finance, banking, education, tourism, agriculture, environment, technology, science, energy, communications, transport, statistics, combating organized crime, emergency, and trade and economic development.

The BSEC provides cooperation in:

1. Facilitation of the movement of people and goods across borders and harmonize border and customs procedures among member economies.
2. Collaboration between the regulatory authorities of members of the BSEC following the recommendations of the World Customs Organization.
3. Exchange of preliminary information about vehicles and goods moving between the borders of the member states of the BSEC.

### The China Single Window

Since China decided to change its economic policy to adopt a more liberalized and open economy in the 1970s, the economy has experienced rapid economic growth. Much of the growth came from a development strategy hinged on exports to a global world. To achieve the objectives of seamless control and effective facilitation of trade, China developed a framework for a Single Window (China E-Port) that works as its Single Window trading environment. China Customs harnesses information communication technology to modernize and transform its customs system into a single information platform that enhances enforcement and clearance management.

### The Evolution of the Single Window in China

Since 1978 when China adopted a Reform & Opening Up policy, China has experienced significant increases in international trade and economic growth. This called for modernization and reform of Customs and the development of a Single Window trading environment. The General Administration of Customs (GAC) is responsible for controlling and supervising export and import processes. According to the UNDP(United Nations Development Program)<sup>122</sup>, the GAC has achieved its objective in three phases. The first phase was the preliminary work on a regulatory and legal framework for the Customs organization: the second phase was the improvement of accountability, transparency and legislation for greater efficiency in trade: and the third phase was more regulatory reform and legislation as China sought to meet the requirements of the WTO which it joined in 2001.<sup>123</sup>

Within the several initiatives spearheaded by the Chinese government, ICT has been critical in the modernization of Customs to reduce complexities in cost and time of international trade. The Customs system is characterized by the E-Port (Single Window) that enables the transfer of data and information

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<sup>122</sup> UNDP (2006). China Customs Modernization for Trade Facilitation and Equitable Development.

[https://info.undp.org/docs/pdc/Documents/CHN/00043936\\_PRODDOC.pdf](https://info.undp.org/docs/pdc/Documents/CHN/00043936_PRODDOC.pdf)

<sup>123</sup> China's WTO accession commitments faithfully fulfilled: white paper [http://www.xinhuanet.com/english/2018-06/28/c\\_137286994.htm](http://www.xinhuanet.com/english/2018-06/28/c_137286994.htm)

between traders and regulatory agencies, the E-Customs system that is an integrated clearance management system for trade procedures.<sup>124</sup>

### E-Port as a Single Window

The E-Port became functional in 1998 and since then has continuously enhanced to become one of the most highly integrated logistics and trade information management portals linking traders, banks, government sectors, and multiple government agencies with other stakeholders. It represents a fully functioning and highly modernized Single Window system, which is more than capable of handling China's needs for trading on the international scene.

### The Legal Framework for the Single Window

The establishment of the Single Window is backed by several regulations and laws. The most important is the People's Congress amended "Customs Law" amended in 2000<sup>125</sup> and the E Signature Law of 2004, which governs the rules of identity authentication in electronic trading.<sup>126</sup>

### Launch of the Single Window across China

In 2017, the Single Window system was launched across mainland China.<sup>127</sup> It is meant to provide a single submission portal for declaration of taxes and cargo, which will reduce costs and enhance efficiency. Using the platform, duplication of entry work will be significantly reduced while port authorities will also benefit from the shift to parallel enforcement from the current parallel tandem enforcement.

According to the GAC, the Single Window processes more than 100,000 declarations every day for 35,000 registered users in all trade ports in China. The window has nine functions that include payment of fees and taxes, transportation and declaration of cargo among many others. Up to 11 agencies will be able to share credit standings, logistical control information and declaration data. This will help companies save about 10% of the time spent on clearance and about 10% in cost savings. According to Xinhua, a pilot in Shandong Province showed that there was an increase of 30% efficiency in the cargo clearance process.<sup>128</sup>

### Application at Central and Local Government Levels

The architecture of the Single Window is operated at both the local and central government levels. It is a public platform with Integrated Customs Clearance that has electronic submission facilities at the local and government levels. The GAC in an effort to make the E-Port's operations more streamlined set up the China E-Port Data Centre. Local governments must set up their branch of the data centre, in effect making a two-tier E-Port system.

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<sup>124</sup> The Implication of Customs Modernization on Export Competitiveness in China

<https://core.ac.uk/download/pdf/6423803.pdf>

<sup>125</sup> <http://english.mofcom.gov.cn/aarticle/policyrelease/internationalpolicy/200705/20070504715848.html>

<sup>126</sup> E-Port can apply for the Certificate Authority license to exchange e-document with authenticated signatures, which is the legal base for electronic transactions. <https://www.chinalawinsight.com/2019/01/articles/intellectual-property/a-comprehensive-guide-to-electronic-signature-from-a-legal-perspective/>

<sup>127</sup> Import Declarations and Taxes now on One Platform <https://www.scarbrough-intl.com/china-operates-on-single-window/>

<sup>128</sup> China rolls out Single Window customs clearance [https://www.just-style.com/news/china-rolls-out-single-window-customs-clearance\\_id132326.aspx](https://www.just-style.com/news/china-rolls-out-single-window-customs-clearance_id132326.aspx)

## The One-Stop Service from an Integrated Platform

Since 2006, the policy of the State Council has been to strengthen E-Port coordination across the economy. The objective was to create a one-stop service platform, an authentication centre and gateway network. The Single Window is made to be an integrated information portal for logistics and commercial services, institutions and local government agencies. The window is currently connected to more than 14 agencies, which makes one stop clearance at ports of entry all over China possible. As of 2017, the E-Port is available in 99 percent of the economy's municipalities and provincial capitals according to the State Council of PRC. Internationally and nationally, the Single Window connects the Customs Union, the European Union Directorate-General for Taxation, the Macao Economic Services, the Hong Kong, China Trade and Industry Department, 15 commercial banks, and 13 main ports.<sup>129</sup>

## Benefits of the China E-Port

The Single Window has enabled an open and just enforcement environment and has also improved the transparency of trade regulation and administration in China. It provides a one-stop government to business service when traders can access information if they have access to the Internet. Through the portal, they can have access to information on quarantine and inspection procedures, banking, taxation, foreign exchange, foreign trade and other related government agencies that process import and export procedures. Similarly, it has streamlined administrative processes between export and import departments, improved trade efficiency and lowered transaction costs.

### **The features of the Single Window provide the following benefits:**

**Data Exchange Platform** – Promotes Data sharing and exchange between port management agencies, government departments and enterprises doing trade activities in the jurisdiction

**Transaction Processing Platform** – Provides online payment of fees and taxes and an online declaration from a Single Window

**Auxiliary Support Platform** – Provides technical support for maintenance and daily operations and monitoring and statistics for enterprises and agencies.

## Key Success Factors for the Single Window

A review of the development and evolution of the Single Window comprised of the E-Port and the E-Customs systems shows that there have been several factors that made it successful. The following are some of the most important of these factors:

### **Strong Political Commitment**

The top Chinese government leadership has been very much committed to making the Single Window a success. They have provided the influence and financial support to custom reforms at both the local and central government levels, which ultimately guaranteed effective and fast reforms in implementation.

### **An Efficient Coordination Mechanism**

There has been efficient coordination and active participation by associated government agencies in the implementation of E-Port procedures. Committees and agencies such as the State Council's General

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<sup>129</sup> China E-Port Towards a Single Window Trading Environment  
<https://www.unescap.org/sites/default/files/brief14.pdf>

Office, a key organ of the government in Beijing have been instrumental in coordinating the implementation of the window.

#### A Competent Lead Project Agency

The Chinese Customs authorities had the technical capacity to implement the Single Window project. The GAC had the autonomy and influence in that it reported directly to high levels of power in Beijing like a ministerial-level department. This made it possible to get high-quality human resources for development, research, maintenance, and competent executive leadership of the project.

#### Well-developed ICT Infrastructure

The Information Communication Technology infrastructure in China played a huge role in transforming the traditional trade institutions in the economy. It also built on existing technology that GAC had previously developed including management information systems built from as early as 1998 to build platforms to transition to an interlinked electronic government platform.

#### Lessons Learnt

Just like there have been a lot of key success factors, there are a lot of lessons learnt from the establishment of the Single Window. The following are the most important lessons learnt.

It is Important to have Unified Data Model to Promote International-agency and Cross-border Paperless Trade

At the start, the project faced difficulty due to differences in technical requirements among the different information systems of the government agencies in addition to a lack of unified data standards. The electronic platform was, therefore, a breath of fresh air in providing the unified standard that brought all the agencies together. Going forward, it is critical to implement international standards including the WCO Data model<sup>130</sup> to further develop interconnectivity between stakeholders and Customs.

Importance of a Legal Structure to Consolidate the Foundation of the Electronic Single Window

In China, Information Communication Technology (ICT) related regulation and laws are still a work in progress. New legislation needs to be made to govern how businesses and governments conduct international trade with China. It is critically important to develop the Single Window to make it up to date with emergent technologies.

#### Viet Nam Single Window

Launched in 2014, the Viet Nam Single Window (VNSW) is an integrated system that is the work of nine government ministries including the Ministry of Finance under which is the Customs Administration.<sup>131</sup>

The VNSW was designed to help Vietnamese traders reach the international community with an initial focus on ASEAN by reducing time and costs by simplifying procedures.

The VNSW has several functions that include:

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<sup>130</sup> WCO Data Model <http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/data-model.aspx>

<sup>131</sup> <http://asw.asean.org/index.php/nsw/viet-nam/vietnam-general-information>

Providing a portal from where stakeholders in international trade can send/submit standardized documentation and data from a single point.

Helping government regulatory agencies process information and data from unified and consistent processes.

Providing a platform for agencies such as customs and ministries to issue decisions, which can then be communicated to and accessed by the relevant stakeholders on the platform.

### Key Successes in Implementing the ASEAN Single Window (ASW) and the VNSW

Viet Nam has always been looking to boost foreign trade and fulfil its international commitments by implementing the Single Window and integrating it with the ASEAN Single Window. The major player in this is the Ministry of Finance, which works with various ministries to implement aspects that facilitate the development of paperless trade.

The implementation of the Single Window alongside the ASEAN Single Window has been instrumental in improving the competitiveness of the Viet Nam economy on the international market.<sup>132</sup>

As of April 2018, the Single Window was integrated with 11 ministries that had a total of 47 procedures operational on the VNSW. It has also processed in excess of 1.1 million trade documents submitted by more than 21,000 trade organizations.

At the start of 2018, Viet Nam was one of the five nations in the ASEAN region to have applied to join the ASEAN Single Window. By April, Viet Nam had processed in excess of 22,000 certificates of origin from Thailand, Singapore, Malaysia and Indonesia. Conversely, it had sent in excess of 11,000 certificates of origin in the opposite direction.

In June 2019 the VNSW was planning to connect to the ASEAN Single Window to exchange plant quarantine certificates with Indonesia by 2020.<sup>133</sup>

With regard to verification and checking of export and imported goods, the Ministry of Finance has been working with agencies and ministries to supplement or revise 79 legal documents which are approximately 91% of all documents that had to be revised to meet the standards of the NSW and ASW.

### The Conceptual Model for the Single Window and ASW

There are six major components that are linked by the conceptual model of the ASEAN Single Window Environment and the Single Window system. The components and their linkages include:

1. Customs as the body responsible for clearing and releasing exports and imports in addition to easing the movement of conveyances and goods.
2. ASEAN member states and other global trading partners
3. Regulatory government bodies that control international transport and trade in and out of Viet Nam
4. The entire business community that participates in international trade
5. Insurance companies, financial institutions and banks

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<sup>132</sup> Breakthrough created in implementing Single Window <https://vietnamnews.vn/opinion/450360/breakthrough-created-in-implementing-national-single-window.html#PG2FgScGL0jd5G2y.97>

<sup>133</sup> <https://vns.gov.vn/>



## 6. Forwarding and transport community

As of February 2019, the VNSW had implemented 173 administrative procedures from the integration of 13 governmental agencies. Since the Single Window launch, Viet Nam is poised to grow its efficiency and competitiveness over the long term as it eliminates redundancies and inefficiencies in regional and international trade.

### Thailand Single Window

Up to 1998, most cargo clearance and release procedures in Thailand were made on paper documentation, though statistics were captured on computer systems. In 1998, Thailand implemented an Electronic Data Interchange (EDI) for customs clearance. By the year 2000, the system had been implemented all over the economy.<sup>134</sup> The system made it possible for the trading community and the Customs Administration to exchange information and documents.

Between 1998 and 2006 Thailand adopted XML and UN/EDIFACT standards<sup>135</sup> to implement a cargo clearance and release system using EDI. Using EDI, traders could lodge a set of documents electronically. However, the trader still had to submit supporting paper documentation for clearing shipments including declarations and permits. Since 2006, Thailand has moved from the EDI system to the e-customs paperless system. This did include provisions for digital signatures and the introduction of Public Key Infrastructure and ebXML standards. The e-Customs paperless service that made paperless clearance possible went fully operational in 2008.

### Transition to the Thailand Single Window (THAI-NSW)

The Thailand Single Window was implemented to fulfil the economy's obligations to the Association of South-East Asian Nations (ASEAN).<sup>136</sup> The ten-member economies of ASEAN agreed to implement a Single Window that would make it possible to integrate all of their Single Windows into a common ASEAN Single Window (ASW). In 2005, the Thailand government charged the Customs Department of the Ministry of Finance with establishing the Single Window in collaboration with other government agencies.

The government also established the Thailand Logistics Committee to facilitate the development of the Single Window. The committee drew its members from business communities and relevant government ministries and agencies involved in Logistics, exports and imports. The e-Customs system that had then become the Thailand Single Window E-Logistics was converted into the Thailand Single Window in 2008. The Single Window was charged with facilitating integration between business sectors and government agencies and mobilizing resources for the implementation of the ASEAN Single Window and the Single Window.

### The Implementation of the Thailand Single Window

The e-Customs Paperless Service which is currently called the Thai Customs Electronic System (TCES) established in 2007 was one of the most significant aspects that pioneered the development of the

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<sup>134</sup> Background <http://www.thainsw.net/INSW/index.jsp?nswLang=E>

<sup>135</sup> Introducing UN/EDIFACT <https://www.unece.org/cefact/edifact/welcome.html>

<sup>136</sup> Agreement to Establish and Implement the ASEAN Single Window Kuala Lumpur, 9 December 2005 [https://asean.org/?static\\_post=agreement-to-establish-and-implement-the-asean-single-window-kuala-lumpur-9-december-2005-2](https://asean.org/?static_post=agreement-to-establish-and-implement-the-asean-single-window-kuala-lumpur-9-december-2005-2)

Single Window in Thailand. It made possible the automated clearance and release of cargo all over the economy by 2008. By 2011, the paperless service environment of the e-Customs service was serving up to 36 government agencies, 100,000 traders and had more than 8,000 stakeholders clearing exports and imports. The biggest leap between the former EDI and the e-Customs system was the introduction of public key infrastructure, ebXML standards, and digital signatures, which enhances transparency and security of the Single Window.

### Legal Framework to Enhance Electronic Transaction

The most important regulation that governs the operation and implementation of the Thailand Single Window is the Electronic Transactions Act (ETA) of 2001.<sup>137</sup> The law made a paperless environment possible in 2002, as it legally gave force to the exchange and use of electronic documents in Thailand. The economy has continually improved the legal framework to enhance electronic transactions. The ETA was amended in 2008 to make it so that scanned documents can now be accepted and be as good as the original. The Thailand Electronic Transactions Department is currently looking to amend the ETA to enhance electronic transactions in the jurisdiction even further. It intends to revise specific regulations and laws of the different government regulatory agencies that participate in the Single Window to make information sharing with traders more efficient.

### Key Functions of Thailand Single Window

The Thailand Single Window was set up in line with international best practices, standards and recommendations of multilateral agencies such as the Organization for the Advancement of Structured Information Standards (OASIS), International Organization for Standardizations (ISO), United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), and the World Customs Organization (WCO) among several others.

The major functions of the Single Window include:

- Serving as the portal for a regulated and standardized environment that provides a streamlined and seamless exchange of logistics, export and import information and data among the business community and government agencies.
- Acting as a functional host and integrator of shared applications, streamlining, harmonizing and standardizing processes related to international trade and facilitating commercial and regulatory functions. This includes acting as a host for the Single Window components such as the Track and Trace System, Payment System, Customs Declaration Application System, and the Permit Application System.
- Provision of an electronic file repository that makes it possible to share study reports, implementation guidelines, international standard code lists, standard data set, laws, reference files, regulations, training materials, Memorandum of Understandings and agreements among others.

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<sup>137</sup> Electronic Transactions Act of 2001

[https://www.bot.or.th/English/PaymentSystems/OversightOfEmoney/RelatedLaw/Documents/et\\_act\\_2544\\_Eng.pdf](https://www.bot.or.th/English/PaymentSystems/OversightOfEmoney/RelatedLaw/Documents/et_act_2544_Eng.pdf)

Provision of a single point of access that is a gateway that interconnects with other systems nationwide and the ASEAN Single Window.

### Expected Outcomes of the Single Window Implementation

The Thailand Single Window is expected to reduce duplication in the submission of data as it enables single submission of documents and information. It also makes possible the reuse of such information and documents through the shared Single Window that can be accessed by stakeholders in the business sectors and regulatory agencies.

Reduces the costs and time that is inherent in paper-based documentation and submission procedures.<sup>138</sup> This enhances the competitiveness of Thailand as an international trade and supply and logistics hub. For instance, customs clearance has been reduced from 3 to 10 days in 1998 to less than 5 minutes in 2018 and time for export has been reduced from 24 to 14 days.

### Going Forward

The Thailand Single Window still needs to enhance the window to make it better able to meet the needs of international integration and be in line with the policy of enhancing the competitiveness of Thailand in the ASEAN region.

The following are some developments that could enhance the functionality of the Single Window:

1. Improvement in the quality of the information regarding logistics, export and import in the Standard Data Set.
2. Continually revising relevant regulations or laws to facilitate a better paperless environment
3. Linking the Thailand Single Window not only with ASEAN but with the Single Windows of other member states and those outside of ASEAN.
4. Enhancing capacity building programs for business communities and government agencies.
5. Setting up streamlined repositories linked with the ASEAN Trade Repository to provide trade-related regulatory information to traders.
6. Streamlining and simplifying the supply chain and logistics, export and import processes.
7. Constantly reviewing the current model of the Single Window and upgrading it to meeting international standards that make integration with other Single Windows seamless.

## Malaysia Single Window

The Malaysia Single Window has been active since 2009 though it was relaunched in 2012 with a new look and feel and additional features.<sup>139</sup> The Single Window portal is known as myTRADELINK. It is an initiative of the Ministry of Finance of the Malaysian government and Dagang Net Technologies<sup>140</sup> has been appointed as a service provider to operate the Single Window platform. MyTRADELINK is a website

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<sup>138</sup> Thailand logistics cost was reduced at least USD 1.5 billion annually.

<http://www.thainsw.net/INSW/index.jsp?nswLang=E>

<sup>139</sup> Ministry of Finance launches myTRADELINK <http://www.mytradelink.gov.my/admin-page/-/blogs/ministry-of-finance-launches-mytradelink>

<sup>140</sup> Dagang Net is a leading e-commerce service provider, has pioneered and spearheaded initiatives aimed at creating paper-less, electronic Customs-related services to ease the facilitation and streamlining of international trading processes for the import/export, trade and logistics industries.

and portal that makes it possible for the trading community to submit and exchange documents for import, export or transit, with regulatory agencies from anywhere and at any time online.<sup>141</sup>

The Malaysia Single Window enhances the efficiency of government agencies and facilitates trade by allowing:

1. Submission of information, documentation and data through a single portal (Single Window)
2. Reuse of information and data re-usability
3. Synchronized processing of information and data from traders and other stakeholders that eventually ensures that the release of cargo is fast and efficient.

In 2012, the portal was relaunched to give it a fresh feel and look. It has also been further improved to provide user-friendly navigation that makes it easier to access services such as eDeclare, eManifest, ePayment, ePCO, ePermit, and ePermitSTA.

The portal also comes with more features to facilitate trade that includes a Trade Repository (NTR) where traders can get information such as:

- Permit Issuing Agencies
- Trade Regulations
- Customs
- Industry players

### Benefits of the Malaysia Single Window

Malaysia has a vibrant trading community that comprises not only traders and warehouse operators, manufacturers, shipping agents, importers, exporters, and forwarders but also insurance agencies, banking organizations, the transport and logistics community in addition to links to ASEAN and other international trade communities. As such, it is important that communications are as effective as they can be. However, manual processes, slow and the lack of coordination between the agencies results in duplication of procedures and data which slows down trade.

The Malaysia Single Window provides the following benefits:

- Connects traders and the related regulatory agencies in one shared portal, where they can exchange information, data and documentation to fulfil regulatory procedures for imports, exports or transit, online. Traders no longer must fill manual applications or must-visit several agencies.
- The electronic Single Window provides an efficient, secure and safe portal with single connectivity access where the logistics community, the public and other stakeholders can feel safe submitting and accessing trade documents.
- The Single Window is a portal that also acts as an information hub where traders can get regulatory information and news that helps them to streamline their international trade transactions.
- Significant reduction of physical and manual processes through single submission, which also enables the reusability of data and documentation is beneficial for both regulatory agencies and

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<sup>141</sup> National Single Window <https://www.miti.gov.my/index.php/pages/view/1149>

traders. Traders also save much on time and cost of duplicate paperwork while agencies can get all their information from a single place.

- Stakeholders using myTRADELINK benefit from improved efficiency in the clearance and release of cargo and data processing. The portal also enhances security and transparency thus making transactions more predictable, which boosts trade and increases profits.

### Services provided by myTRADELINK

**eDeclare** – a web-based application that makes it possible to prepare and submit trade declarations online at any time and from anywhere.

**ePayment** – Users can prepare and submit duty to Customs authorities from anywhere and at any time thus saving on costs and time.

**eManifest** – The comprehensive system makes it possible for clients such as freight forwarders, principal shipping agents and shipping agents to make applications electronically for cargo manifests and vessel berthing to the regulatory authorities.

**ePermit** – Users can apply for permits and get approvals from a range of regulatory agencies online.

**ePermitSTA** – You can now apply for your permits and pre-registration more conveniently and faster online. This is because of the portal is made to monitor all strategic items and trading activities as set out in the Strategic Trade Act of 2010.

**ePCO** – Users can apply to the Ministry of International Trade and Industry for the electronic Preferential Certificate of origin, which is used as an auxiliary document for the issuance of an equivalent certificate of origin by other regulatory authorities.

**eBased Trade Eco-System - ASEAN Single Window (ASW)** – ASW is a platform for Trade Facilitation, a unique regional initiative that connects and integrates NSWs of ASEAN member states to expedite cargo clearance within the context of increased economic integration in the ASEAN region.

### Singapore- Networked Trade Platform

On the 26<sup>th</sup> of September 2018, the Networked Trade Platform (NTP) was launched by Singapore Customs.<sup>142</sup> The NTP is a project of Singapore Customs that acts as the trade information management platform to facilitate the development of Singapore into a leading nation in supply chain management, trade and trade financing. The aim of the project is to transform the trade and logistics ecosystems and ease the interconnection and integration between government systems, community platforms and businesses through digital transformation.

At the launch of the platform, it was described as a transformational platform that moves transactions from the Single Window to a one-stop interface that will make it possible for regulators, stakeholders, and business partners to interact and perform trade-related transactions.

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<sup>142</sup> <https://www.straitstimes.com/business/new-trading-platform-to-digitalise-paper-based-trade-processes-grow-trade-opportunities>

## The Development of the NTP

The NTP is the product of the collaboration between the Government Technology Agency of Singapore and the Singapore Customs alongside more than 20 government working groups, agencies and ministries.<sup>143</sup> The government also conducted workshops and discussions with more than 400 organizations and industry experts.<sup>144</sup>

According to the participants, one of the biggest challenges facing international trade was time-consuming manual data entry on paper systems. Coordinating with multiple business partners such as logistics, insurance, and banking services has also led to the development of costly proprietary digital systems. The information helped in refining the design of the Networked Trading platform to include trade service-related services to benefit more enterprises.

## The Shift to a Singular Platform

Singapore has always been actively developing new and technologically advanced trade systems, and the new platform replaces Singapore's Single Window TradeNet and the business-to-business platform TradeXchange.<sup>145</sup>

TradeNet is a Window that provided regulatory trade declaration requirements. It was a business to government platform that was first set up in 1989 and had 12 Competent Authorities and 36 Controlling Units that issued 9 million permits every year<sup>146</sup>.

TradeXchange was an integrated information technology platform set up to integrate logistics and trade IT systems for government, land, air, and sea transactions. It was a business to business platform that connected the supply chain community including logistics providers and value-added service providers and developers.

## The NTP at a Glance

The NTP is designed to build upon and improve on the service offerings of the two systems it replaced. Specifically, it is designed to be a one-stop trade information system that is integrated with many other systems and platforms<sup>147</sup>.

As it stands, it has more than 800 companies spread across different industries in the logistics and wholesale trade industries have signed up as members of the Networked Trading Platform.<sup>148</sup>

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<sup>143</sup> Ministry of Finance, Ministry of Trade and Industry, Ministry of Transport, Civil Aviation Authority of Singapore, Economic Development Board, Enterprise Singapore, Info-communications Media Development Authority, the Monetary Authority of Singapore and the Maritime Port Authority of Singapore.

<sup>144</sup> Singapore's new digital trade platform can help build cross-border linkages <https://www.businesstimes.com.sg/government-economy/singapores-new-digital-trade-platform-can-help-build-cross-border-linkages>

<sup>145</sup> Singapore has always been adapting to the changing business and technological landscape in order to retain our competitive edge [http://www.scfcommunity.org/uploads/1/1/5/8/115852915/overveiw\\_of\\_ntp.pdf](http://www.scfcommunity.org/uploads/1/1/5/8/115852915/overveiw_of_ntp.pdf)

<sup>146</sup> [http://www.scfcommunity.org/uploads/1/1/5/8/115852915/overveiw\\_of\\_ntp.pdf](http://www.scfcommunity.org/uploads/1/1/5/8/115852915/overveiw_of_ntp.pdf)

<sup>147</sup> Overview of the NTP <https://www.ntp.gov.sg/public/introduction-to-ntp---overview>

<sup>148</sup> Singapore launches the Networked Trade Platform to digitalize and streamline end-to-end trade processes <https://www.scic.sg/index.php/news-room/perspectives/item/10-singapore-launches-the-networked-trade-platform-to-digitalise-and-streamline-end-to-end-trade-processes>

The following are some of the important aspects of the NTP that may drive its success going forward:

1. Data Tools and VAS (Value Added Services) – NTP offers next-generation automation and digitization of business processes that promote connectivity to VAS providers and business partners.<sup>149</sup>
2. Government Services – Industry stakeholders get access to government applications such as licenses, schemes, permits, and declaration submissions.<sup>150</sup>
3. Partners and Networks – Stakeholders get access to communities, forums and blogs where they can discuss industry opportunities and best practices.
4. Developer Zone – Access to innovative tools and infrastructure that will be useful to developers looking to design value-added services on the network trade platform.

## Features and Functions of NTP

### Engage Your Partners & Networks

NTP comes with a huge range of ways that facilitate the interaction and connection between industry partners. These include the likes of blogs, forums and communities where traders and regulators can post to ask for feedback, information and reviews. The development of a network makes the collaboration of projects easier given that the NTP Data Repository provides a huge database to connect with business partners. Right from the website, it is possible to search for information and data about goods.

### Data Tools and Value-Added Services

The NTP provides a secure data repository where stakeholders can safely store their sensitive trade-related and business data. With data stored on the NTP, it is easier to control who can access it and hence traders can opt to only share the data with a business partner to enhance confidentiality.<sup>151</sup>

The ease of sharing documents and data with industry partners also makes working with partners and colleagues on the NTP seamless. Traders and regulatory authorities are also free to share documents and data with business partners outside the NTP using direct links through email.

### Value-Added Services (VAS)

The NTP helps address industry needs on an end to end basis right from understanding risks and opportunities of new markets, payments and invoicing, preparing trade documents, declaring customs, obtaining insurance and trade finance. The NTP works with industry stakeholders to improve service by introducing a range of value-added services to enhance the trading environment.

By 26<sup>th</sup> September 2018, NTP had more than 25 value-added services (VAS) on the platform and was actively onboarding more.<sup>152</sup> Other potential value-added services may include trade news updates, market operations and insights data, international connectivity, and trade finance unified compliance.

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<sup>149</sup> Houses existing TradeXchange value-added services and new value-added services as well

<sup>150</sup> Houses existing TradeNet functionalities and new Government-related functionalities as well

<sup>151</sup> Manage your documents digitally <https://www.ntp.gov.sg/public/introduction-to-ntp>

<sup>152</sup> Networked Trade Platform <https://www.customs.gov.sg/-/media/cus/files/media-releases/2018/fact-sheet---networked-trade-platform.pdf>

## Government Services

There are several government services available on the Networked Trade Platform though more will be introduced over time.<sup>153</sup> The services include customs advice applications, trade registration and management, schemes and licenses management, inventory management, Permit and declaration management, and advanced HS Code search functionality.

1. **Advanced HS Code Search** – Traders can easily search the platform to find the appropriate HS (Harmonized System) code so that they can accurately classify goods.
2. **Customs Advice Applications** – Access to advice on customs services. For instance, on how to register transport vehicles.
3. **Permit and Declaration Management** – Online application of certificates of origin and permits and tracking of the status of the same.
4. **Inventory Management** – Advanced inventory management to track and manage quotas under different schedules.
5. **Licenses and Schemes Management** – Online application for schemes and licenses according to TradeFIRST Assessment. (TradeFIRST stands for Trade Facilitation & Integrated Risk-based System. It is an integrated assessment framework that provides a holistic assessment of a company and determines the level of facilitation accorded. The assessment is free, and it is mandatory for all companies who wish to apply for a Singapore Customs scheme or licence.)<sup>154</sup>
6. **Trader Management and Registration** – Self-service platform, where traders can register for all manner of accounts and services.

## The Benefits of the NTP Platform for Industry Stakeholders

The NTP matches supply and demand on the trade supply chain through making use of digital platforms to make new opportunities easily discoverable, which helps boost competitiveness and raise productivity.

Through the NTP, the Singapore government is fostering better partnerships between commercial service providers to come up with solutions that provide greater convenience and better access.

The NTP facilitates an end to end digital trade ecosystem by bringing together players on the entire value chain onto a single platform. Traders can then take advantage of a range of value-added and trade-related services such as payment reconciliation, cargo freight booking, customs declarations, cargo insurance and trade financing.

The NTP platform is making it easy to coordinate shipments, better manage trade compliance and improve cash flow all from one platform. In addition to providing links between previously unconnected digital islands, the NTP helps stakeholders become more efficient through digitalization. It makes this possible through facilitating the sharing of important digital documents such as permits, and invoices.

The elimination of paper documentation and manual entry of data for trade transactions helps to reduce costs and time and enhances the accuracy of data. The NTP is thus an important node for enhancing Singapore's connectivity with the rest of the world.

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<sup>153</sup> <https://www.ntp.gov.sg/public/government-services>

<sup>154</sup> <https://www.customs.gov.sg/businesses/customs-schemes-licences-framework/tradefirst>



## Promoting Cross Border Trade

Trade is by nature cross border. As such the NTP has several initiatives to strengthen linkages of the Networked Trade Platform on the international stage.

Some of these initiatives include

1. Discussions with Chinese customs to link up the NTP Single Window System with the Chinese counterpart to enhance smooth trade flow and trade declarations.<sup>155</sup>
2. Singapore Customs Administration and the Customs Authority in the Netherlands are in the process of finding ways to connect their two economies by leveraging technology to streamline regulatory processes.
3. NTP is collaborating with the NTT Data Corporation and the MUFG (Mitsubishi UFJ Financial Group) on a Proof of Concept Prototype that will use the blockchain to enhance cross border transactions between Japan and Singapore

## International Recognition

In 2016 the International Data Corporation awarded the NTP with the best Smart City Project in the Economic Development category of its Smart City/Asia Pacific Awards.<sup>156</sup>

Singapore Customs has also been recognized at the World Summit on the Information Society, where it won in the e-business category in 2017.<sup>157</sup> The prizes are intended to provide recognition for outstanding digital projects across the globe in aspects such as media, e-government, e-science, and e-environment. Singapore's Trade Platform was the first Singaporean digital initiative to ever win in any category at the World Summit since it was established in 2012. Singapore Customs Single Window came out best out of the four submissions in the e-business category.

The Public Sector Transformation Awards awarded the NTP with the Best Practice Award in 2018 for its efforts at engaging government agencies, businesses and the trading community during the development of the platform.

## Mapping of Single Window Systems Against Single Window Maturity Model

The below diagram summarizes the 21 APEC economies against the 5 evolutionary stages of Single Window maturity. There is a level of subjectivity to this analysis but it more or less ranks the economies in order of maturity. When a Single Window is doing cross-border transactions such as the economies in ASEAN using the ASW then these economies were placed at level 5. Similarly for the Pacific Alliance economies which are also doing cross-border transactions among the Pacific Alliance economies. If the economy had electronic Customs and also connectivity with OGA partners, then that economy was placed at a level 2. If the economy was only doing electronic Customs then that economy was placed at a Level 1.

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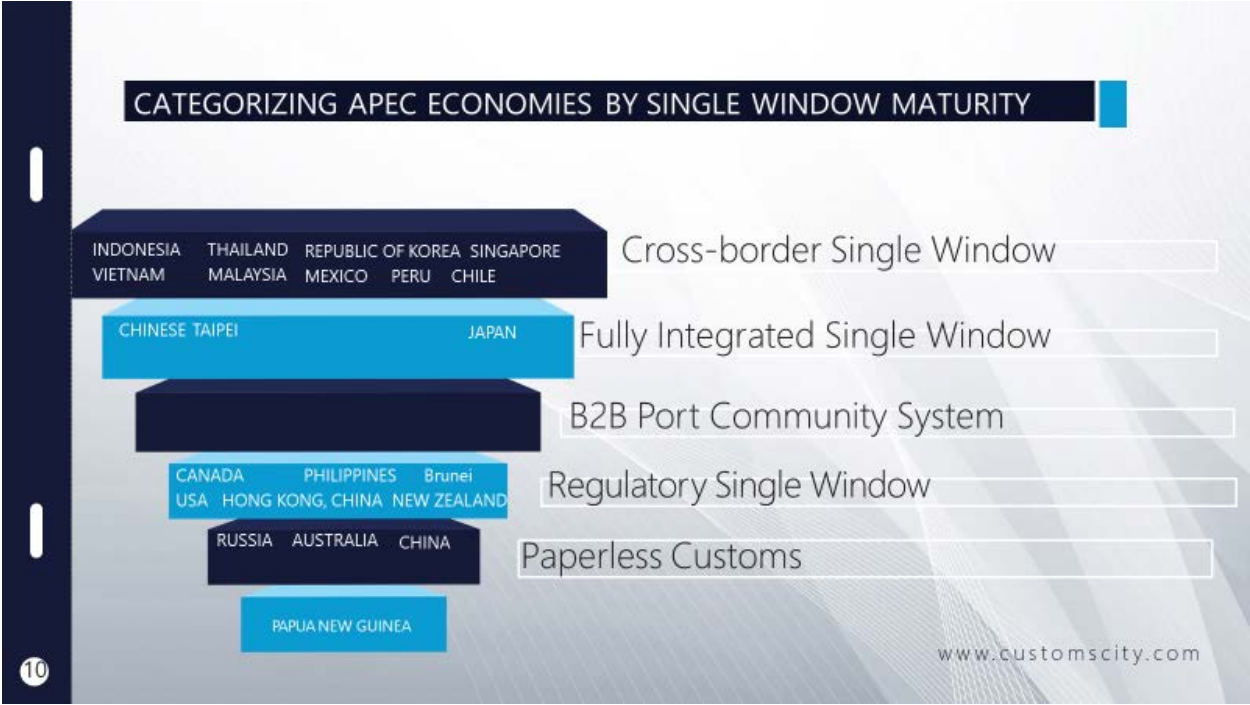
<sup>155</sup> <https://www.straitstimes.com/business/new-trading-platform-to-digitalise-paper-based-trade-processes-grow-trade-opportunities>

<sup>156</sup> National Trade Platform grabs Smart City Award <https://www.tech.gov.sg/media/technews/national-trade-platform-grabs-smart-city-award>

<sup>157</sup> <https://www.itu.int/net4/wsis/stocktaking/Prizes/2019/>

Some economies have moved away from an emphasis on issuing certificates of origin to a self-signing certification process. Therefore some economies are not exchanging certificates of origin via their Single Window, therefore, putting less emphasis on doing cross-border transactions. Some Single Window systems are quite advanced systems although they might only be showing below at Level 2 or Level 4 below.

Some of the Single Window systems labelled at Level 5 might not be as mature when compared to their Level 2 or Level 4 regulatory capabilities but for the purpose of this study, they are labelled at Level 5 due to the fact they are exchanging documents internationally via their Single Window.



Section II

Case Studies

ASEAN Single Window

The ASEAN Single Window<sup>158</sup> typically abbreviated as ASW is a customs clearance initiative that integrates and connects the Single Windows of ASEAN Member States. The integration is meant to expedite the electronic exchange of customs documents and information that would make it easier for importers and exporter to acquire permits, custom clearance, and documentation required for trade with members of ASEAN. The ASW provides the legal framework and secures IT architecture that will allow commercial, transport, and trade data to be exchanged between the trading community and government agencies electronically. This will enhance trade competitiveness and efficiency, reduce the time and cost of doing business and ease the cargo clearance process.

<sup>158</sup> <http://asw.asean.org/index.php/about-asw>

## Progress in Implementing the ASEAN Single Window

The decision to establish the ASW was made by the member states of ASEAN in 2005, and the document ratifying it was adopted in 2006.<sup>159</sup> The document defined the ASEAN Single Window as an environment where member states integrate and operate.<sup>160</sup> In a 2008 blueprint, the New Single Window for the ASEAN region was described as an initiative to facilitate the single submission and processing of information and data for clearance of cargo in customs, an expedition of customs clearance and reduction of transaction costs and time. The ten economies of ASEAN that are part of the ASW are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

The original timeline for the ASEAN Single Window going live in 6 economies was in 2008 while the remaining four were to make their Single Windows by 2012. However, given the different stages of development and readiness of the different economies, achieving the goal would prove difficult. Economies such as Singapore, Thailand, the Philippines, Malaysia and Indonesia were more developed as compared to the likes of Myanmar, Laos and Cambodia. Viet Nam and Brunei Darussalam were in the midpoint of not being very well developed and totally undeveloped in terms of infrastructure.

Viet Nam and Brunei Darussalam had Single Window platforms, but they were not integrated into the shared platform<sup>161</sup>. Like the less developed economies, there was a challenge in that even the more developed economies had different levels in terms of readiness and infrastructure available for participation in the Single Window. For instance, Malaysia and Singapore were at different stages of connecting and streamlining all ports and airports and trade-related government bodies to their Single Windows.

## Challenges in Implementing the Single Window

There were four primary challenges that were very pertinent when it came to the implementation of the ASEAN Single Window that include: Need for industry-wide collaboration, establishing Single Windows, technical and legal issues.

### The Need for Industry-Wide Collaboration

Just like with any Single Window System, success depends on industry-wide collaboration and adoption. With the ASEAN Single Window involving ten economies, the private sector and government agencies, it is more critical than ever to foster collaboration so that people can understand policy outcomes and the overarching objectives. The lack of knowledge, bureaucracy at the lower levels, and political unwillingness are major stumbling blocks.<sup>162</sup> Some states members tasked with implementation were well trained in the technicalities of the Single Window, yet they lacked information about the ASEAN Economic Community (AEC). As such, many did not have any motivation to make NSW commitments operational by the set deadline.

Less developed members of ASEAN did not have the legal and technical knowledge. Moreover, the agency responsible for implementing the Single Window did not have all the support they needed since

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<sup>159</sup> Agreement to Establish and Implement the ASEAN Single Window Kuala Lumpur, 9 December 2005

<sup>160</sup> ASEAN Secretariat (2006) Protocol to Establish and Implement ASEAN Single Window, Jakarta

<sup>161</sup> Koh, J. and Mowerman, A.F. (2013). 'Towards a Truly Seamless Trade Facilitation Regime in ASEAN Beyond 2015', ERIA Discussion Paper Series, ERIA-DP-2013-29, Jakarta: ERIA

<sup>162</sup> For example, Thai NSW links 36 government agencies and Indonesia NSW links 18 government bodies.

bureaucrats did not make the project a priority. This meant that such projects were starved of financial resources for full implementation.

### Resistance to Reorganization

A Single Window makes a one-stop facility from the highly fragmented system which often requires major reorganization. Many government agencies were resistant to the transfer of their functions to a new platform. The resistance came from both operational staff and senior bureaucrats. Bureaucrats did not like that their powers or functions were being taken away. The operational staff did not like that they may need to learn new job skills, change location or any other change in their circumstances.

### ASW is a Multiyear Implementation Project

The ASEAN Single Window is a multiyear project and hence it is subject to being interrupted by a variety of factors. The biggest include policy priority, political transition and readiness of infrastructure. For instance, when governments change, they may not prioritize the implementation of the Single Window. Uptake may also be too slow due to implementers taking a staggered approach to updating infrastructure. A good example of this was Indonesia whose window only had 17 ports when 126 were expected. This tends to push the full implementation across the ASEAN Single Window to dates that are further out than previously set out.

### Launch of the ASEAN Single Window

The ASEAN Single Window went live on 1<sup>st</sup> January 2018. However, this was not a full launch as only Indonesia, Viet Nam, Malaysia, Thailand, and Singapore were ready to move into the new platform and accept electronic data (e-ATIGA Form D). From the platform, electronic data is then passed through the ASEAN Single Window so that they are granted a preferable tariff under the ASEAN Trade in Goods Agreement (ATIGA).

On the new ASW, a trader no longer needs to present a hard copy of the Form D. Form D allows importers to claim preferential tariff duty. There is now better and more proactive communication between the respective regulatory bodies such as Customs and Certificate Issuing Agency and the traders.

The use of hard copies had been one of the biggest bottlenecks when processing preferential duty. The launch of the ASW marks a new milestone as the process is now faster and cheaper as forms are submitted and processed electronically. Member states have benefited from the operationalization of ASW as it has streamlined trade procedures and documentation. Moreover, government agencies have had an easier time processing customs and other fees while traders have experienced reduced time and costs of doing business.

Moreover, the ASW Improves border enforcement and eases the processing of cargo to integrate economies of the ASEAN region even further. Besides, the ASW operates in electronic processing submission and exchange of information and data. As such, it will enhance compliance and facilitate trade.

Nevertheless, there are many technical issues that are yet to be addressed even though the ASEAN Single Window is now live. It is a complex distributed system that requires integration of each Single Window in ASEAN including stakeholders in trade and regulatory authorities in government. Overall, the ASEAN Single Window has been performing just fine in the ASEAN region in which it was introduced.

The developments in the ASW since it went live have made the other members not yet on it take note. All members of ASEAN now agree on the huge window of opportunity presented by the ASEAN Single Window. As customs in ASEAN are modernized and moved to electronic issuance and verification, paperless trading will save traders a lot of time and money. The ASW will keep on increasing functionality and documentation supported by the platform soon.

### Moving Forward Design and Implementation of the ASW

There is no clear path to achieving success in the implementation of the ASEAN Single Window at least for the short term. Economies within ASEAN have different trading patterns and technological disparities. For instance, the Philippines and Cambodia have in place strong protectionist policies while economies such as Malaysia and Singapore have little exports and hence have little to no incentive to protect local industries. The ASW needs to reduce costs and time, and documentation needed while ensuring that security and local interest of all economies are taken into consideration.

ASEAN member states have been very proactive in setting up common formats and standards for customs declarations. The ASEAN Customs Declaration Document (ACDD)<sup>163</sup> uses 48 common parameters normally used by most member states to make one comprehensive document. As it stands, the ASW member states have agreed that compliance will be deemed to have been satisfied if the 48 information parameters are contained in their data set of customs.

Nonetheless, even as there has been a lot of effort to harmonize standards, there still exist huge disparities among the ASEAN Single Window Economies. Thailand, the Philippines, Indonesia, Malaysia and Singapore have already established their Single Windows. On the other hand, economies such as Cambodia and Laos have yet to establish their own windows, meaning that the member states have different priorities. As such, the focus needs to be on testing and designing quality standards so that the platform can also be used in B2B activities. The more established economies in ASEAN also need to share best practices and help the less developed economies by sharing their excess installed capacity.

### Benefits of the ASEAN Single Window System

The Single Window system provides a lot of benefits not only to business but also government agencies and regulators.

#### Benefits to businesses

1. Businesses can benefit from the reduced need for paper documentation, which in some instances is reduced to zero.
2. The supply chain becomes more predictable and efficient. The use of commercial and electronic regulatory data provides traders with a predictable environment and improve trace and track capabilities.
3. A robust legal framework that includes aspects of legal liability, use of electronic evidence in court, acceptance of electronic signatures, confidentiality and data protection.
4. Traders can easily retrieve and reuse data from the ASW, where they can get their export declarations, freight papers, and any other custom declaration documents.

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<sup>163</sup> [https://www.asean.org/uploads/archive/apris2/file\\_pdf/result/Flyer%204%20-%20Harmonising%20customs%20clearance%20procedures%20the%20ASEAN%20Customs%20Declaration%20Document.pdf](https://www.asean.org/uploads/archive/apris2/file_pdf/result/Flyer%204%20-%20Harmonising%20customs%20clearance%20procedures%20the%20ASEAN%20Customs%20Declaration%20Document.pdf)

5. Since documentation is for the most part electronic, traders reduce their expenses in the form of storage, documentation errors, and courier costs inherent in paper documentation.

#### Benefits to Governments

1. The ASEAN Single Window system improves compliance and operational transparency.
2. It is easier and convenient to cross-reference commercial documents against intelligence systems and relational databases for improved profile and risk management.
3. The ASEAN Single Window makes mutual recognition agreements possible as traders can avoid going through certain checks if they have already been vetted and certified in a member economy of the ASW.
4. With the elimination of paper documentation and the introduction of electronic documentation, governments provide a more efficient and predictable environment for traders, which boosts trade.



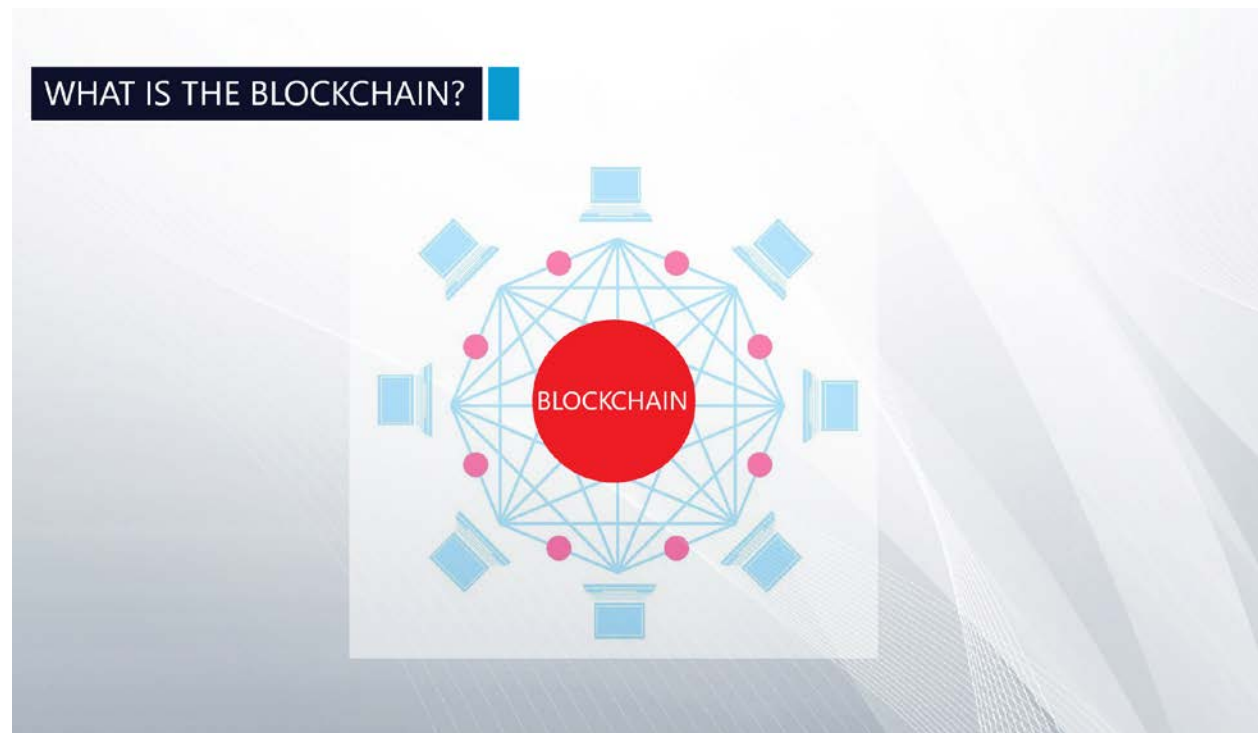
#### Conclusion

The ASEAN Single Window will expedite customs clearance and improve the cost and time for imports and exports at border points. The initiative has come a long way since 2015 when most of the economies were developing their windows. This meant that there was a lack of coherence which made it impossible to operationalize the ASW. As it stands 80% of ASEAN economies have integrated their systems to the ASEAN Single Window system. However, Myanmar and Laos are yet to develop a window and hence are not likely to join the ASW in the near term.

To foster industry-wide adoption, member economies need to raise awareness about the benefits of the initiative which many traders are unaware of. They will also need to foster coordination among Single Windows of member economies using best practices to help economies that do not have the finance or technical know-how.

## Blockchain & the Logistics Industry

What if we could eliminate all middlemen in supply chain logistics? What if we could record, verify and coordinate shipments autonomously without needing any third parties? One of the biggest problems in global supply chain logistics is the many layers of complexity that underlie almost every shipment. It is all a matter of trust that has made industry partners incorporate all manner of checks and balances to ensure that information and documentation provided by others are accurate and true. This has led to the proliferation of middlemen as purveyors of trust, given the lack of an autonomous trust system. However, the business of trust is now being disrupted with the evolution of Blockchain Technology.



### What is the Blockchain?

Companies in the shipping and logistics industry survive or die according to how good they are at implementing new technologies that help lower the cost of shipping and improve efficiency. In recent times, the blockchain has been touted as the best logistics and shipping solution to deal with the issue of middlemen in the supply chain.

So, what is the Blockchain – It is a distributed ledger on which you can record transactions between parties in an immutable and secure way<sup>164</sup>. The blockchain works on a shared database that can be accessed by industry partners hence eliminating the need for third parties who previously were needed to record, verify and coordinate shipping transactions. By moving to a distributed and decentralized ledger system, the blockchain eliminates a lot of the layered complexity that was associated with conventional data silos.

<sup>164</sup> <https://blockgeeks.com/guides/what-is-blockchain-technology/>

## What could be the Impact of the Blockchain?

Global supply chains have many third-party intermediaries, varying interests and diverse stakeholders and hence could benefit a lot from the Blockchain. Supply chain logistics can primarily gain in two ways; enabling new business models and driving efficiency.

### 1. Driving Efficiency

The blockchain could significantly enhance the efficiency of global trade by reducing or eliminating bureaucracy and the need for physical documentation. For instance, a lengthy paper trail of importation of goods could be reduced from hundreds of steps of verification into an automated and simple tamper-proof digital format, with far fewer steps, and made accessible on a shared platform.

### 2. Enabling New Business Models

New blockchain models allow for the development of new business models that include tamper-proof documents, certificates, digital identities, and micropayments. For instance, driver training organizations could build on the blockchain to make tamper-proof digital certificates to reduce fraud that is rife in paper-based certificates.

## Key Challenges Facing Blockchain Adoption in the Supply Chain

The adoption of the Blockchain could result in significant savings through new business models and the enhancement of operational efficiency. Nonetheless, just like with many technologies, there are challenges that need to be overcome before the technology goes mainstream. The following are some of the challenges facing the adoption of the Blockchain in supply chain and logistics.

### 1. Gaining Industry-Wide Adoption

One of the biggest challenges that will make or break the technology is whether it can be accepted and adopted across the industry. No one can deny the benefits of the blockchain when it comes to the secure and accurate exchange of information between industry stakeholders. However, technology can only become valuable when adoption reaches critical mass<sup>165</sup>.

With more stakeholders moving to the blockchain, it will evolve into industry practice such that ultimately every stakeholder will need to adopt it into their systems. As it stands, there is likely to be resistance by some industry participants that may still have legacy systems and processes.

### 2. The Development of Governance and Standards

Just like with any new industry technology it takes a while before governance structures and standards are developed. The global supply chain blockchain system has several companies competing for dominance. These include the likes of Blockchain in Transport Alliance (BiTA)<sup>166</sup> and TradeLens<sup>167</sup> by Maersk and IBM. As expected, there is not much interoperability between the two systems, which can result in problems unless regulatory bodies step in to determine standards.

### 3. Problems with Blockchain Technology

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<sup>165</sup> <https://cerasis.com/using-blockchain-in-supply-chain-logistics/>

<sup>166</sup> <https://www.bitastudio/>

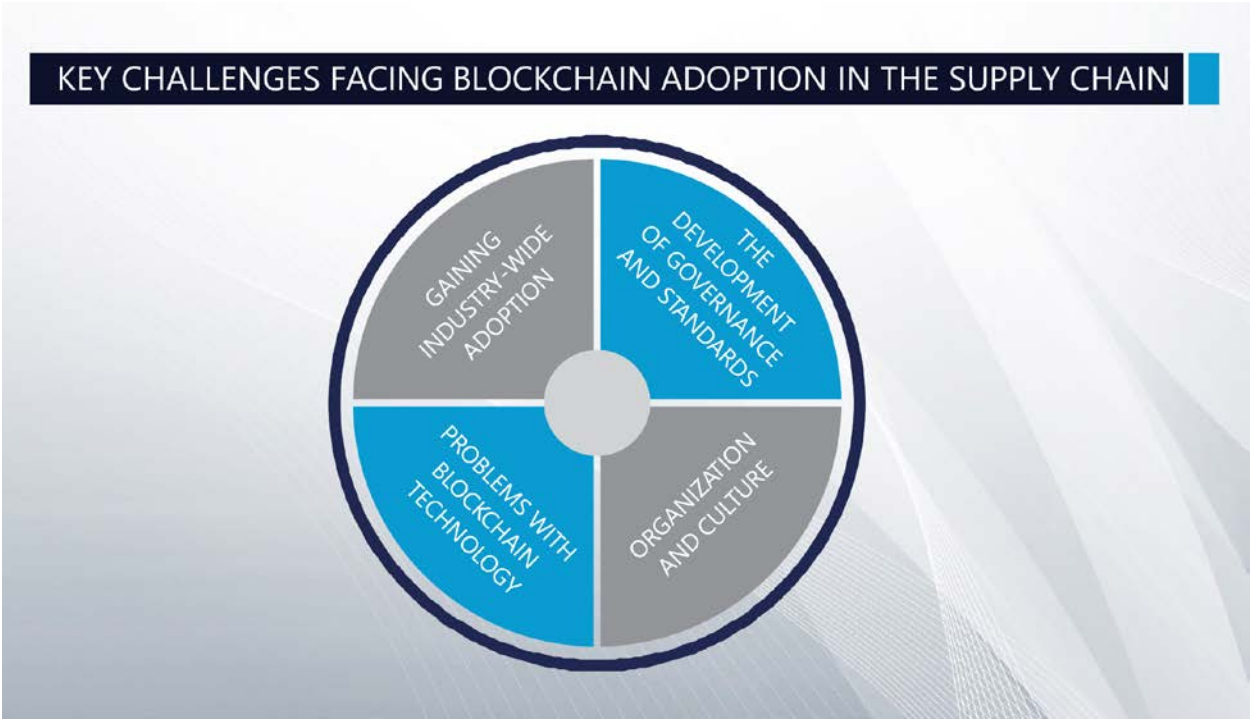
<sup>167</sup> <http://www.tradelens.com/>



Blockchain has technical limitations and hence the effectiveness of its use in supply chain logistics will be limited by the level of technical development. Unlike other technologies, the adoption of blockchain is not incremental as implementations have been known to exhibit high latency and scale poorly.<sup>168</sup> It thus becomes necessary to come up with new innovations to address performance and scalability which drives up costs.

**4. Organization and Culture**

Organization and culture are significant in how effective new technologies are in an industry. Supply chain management is particularly vulnerable to this given that it needs the buy-in of numerous stakeholders most of whom have diverse interests. As such, there is a need to foster a culture of organizational exploration and embracing of new opportunities that the blockchain offers for the supply chain management.



**How Blockchain is Unlocking Value in Logistics**

Excellence in supply chain logistics requires collaboration with stakeholders to ease the complex flow of information, physical goods and financial transactions. However, given the multi-layered nature of the global supply chain, there is a lot of inefficiencies inherent in the system. For instance, with more than 500,000 trucking companies in the United States, we have diverse levels of technology adoption, data silos, unstandardized process and low transparency among the stakeholders.

Regulatory bodies sometimes exacerbate the situation since they may ask for documentation and data to be submitted in paper-based and manual processes that are significant time and money sink. The

<sup>168</sup> <https://searcherp.techtarget.com/feature/10-blockchain-problems-supply-chains-need-to-look-out-for>

following are some of the ways the Blockchain is overcoming the friction in global freight and unlocking value:

### Better Freight Tracking

The modern consumer is used to on-demand and same-day delivery and hence companies need to constantly innovate to stay competitive. However, authentication is one of the bottlenecks in achieving efficiency in tracking and scaling. Current systems depend on APIs and EDIs, which are subject to manipulation and misinterpretation that can result in dire consequences on the supply chain.<sup>169</sup>

Using the Blockchain, such issues can be eliminated as data entered into the system is immutable and impossible to tamper with. The technology can thus increase the trust in the system as it is easy to enter and validate data entered into the system at any point in the supply chain.

### Enhance Efficiency Using AI and IoT

Blockchain provides capacity monitoring using innovations in IoT. Using IoT sensors in shipping vehicles and trucks can help transportation companies and shippers determine how much space is taken up in the truck, or the condition of the goods in transit. This information is then transmitted and recorded via the blockchain and helps to determine shipping conditions and costs.

For instance, SkyCell a Swiss firm used IoT sensors transmitting using the blockchain to monitor location, humidity and temperature of their shipments. This made it possible for the company to detect deviations which made it possible for them to reduce deviations in temperature to ensure that their pharmaceuticals did not go bad during transit.<sup>170</sup>

The same system can be used to document processes such as customs forms, and bills of lading so that there is always an immutable record of the quality of the shipment in the supply chain.

### Leaner and Faster Logistics in Global Trade

The shipping industry is highly complex with multiple custom regulations and over 50,000 merchant ships which results in a lot of inefficiencies. For instance, a study found that it can take 30 organizations and people and more than 200 communications and interactions to process a shipment of vegetables from Kenya to the Netherlands.<sup>171</sup> Reducing supply chain barriers could increase global trade by up to 15% and GDP by up to 5%.<sup>172</sup>

Blockchain could reduce the friction in the supply chain in aspects such as trade finance, customs collaboration, track & trace, transport management and procurement. Blockchain technology could optimize the time and cost associated with administrative and trade documentation processing for shipping.

In this regard, Accenture is designing a blockchain platform that will serve as a source of truth and replace the traditional bill of lading<sup>173</sup>. This is expected to save millions of dollars in operational cost and process efficiency for insurance companies, banks, customs agencies, ports, carriers, consignees and shippers.

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<sup>169</sup> <https://enterprise-info.trimble.com/blockchain-technology#freight>

<sup>170</sup> <https://www.freightwaves.com/news/blockchain/skycellblockchaincoldchain>

<sup>171</sup> <https://www-03.ibm.com/press/us/en/pressrelease/51712.wss>

<sup>172</sup> [http://www3.weforum.org/docs/WEF\\_SCT\\_EnablingTrade\\_Report\\_2013.pdf](http://www3.weforum.org/docs/WEF_SCT_EnablingTrade_Report_2013.pdf)

<sup>173</sup> <https://www.accenture.com/us-en/insights/blockchain/industrial-blockchain-freight-logistics>

## Improving Transparency and Traceability in Supply Chains

There are several projects being undertaken to improve traceability and transparency using the blockchain. These innovations are intended to gather and permanently store data such as where goods come from, how they are made and how ethical or safe they are. Since the data is permanent and is stored on a shared platform, industry stakeholders can track and trace the attributes of shipments better than never before.

With counterfeit drugs killing up to a million people a year<sup>174</sup>, DHL and Accenture have come up with a blockchain system that provides track and trace capabilities for pharmaceuticals. The technology documents pharmaceuticals in their journey from the store shelf right to the consumer to prevent counterfeiting at any stage. The same technology could also be used for other items such as luxury goods or for proving whether the goods at the department store were ethically sourced.

## Smart Contracts for Automating Logistics Processes

Smart contracts are one of the best things to ever come out of blockchain technology. According to industry estimates, up to 10% of all shipments come with data inaccuracies that result in process inefficiencies which result in disputes.<sup>175</sup> It is a problem that is so common that according to Accenture, reducing these inefficiencies could result in a reduction of costs by up to 5%.<sup>176</sup> With blockchain, smart contracts in the form of real-time data and documents are embedded in the blockchain. The contracts are then automatically executed once the agreed stipulations are met. One application of smart contracts is ShipChain which is a pioneering company that records supply chain information and executes contracts once the stipulations are met. For instance, it will record the product leaving the factory, being loaded into trucks and then execute the contract once the driver confirms delivery.

## Success Factors in Implementation

Just like any other technology, there are success factors that need to be adhered to in implementation for the adoption of blockchain to be successful. Success factors include:

### 1. Creating a Culture of Collaboration

Blockchain in the global supply chain is intensively collaborative and it will not work otherwise. Blockchain technologies and platforms that have succeeded have had intensive collaboration between the various stakeholders such as industry partners, regulators, industrial organizations and government agencies among others. When more stakeholders agree to use the blockchain it becomes the industry standard and hence economies of scale and value are created, thus driving adoption.

### 2. Developing Blockchain Capabilities and Knowledge

Organizations that have developed capabilities and knowledge of the blockchain have been able to take advantage of it to innovate and come up with new efficient models. As such, it is important that individual contributors and partner organizations have the resources, tools, and time to work on integration and innovation with the blockchain.

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<sup>174</sup> <http://www.who.int/mediacentre/news/releases/2006/pr69/en/>

<sup>175</sup> <https://www.intra.com/assets/documents/ced97146-272c-436e-8c54-131313915625.pdf>

<sup>176</sup> <https://www.accenture.com/us-en/blogs/blogs-blockchain-can-drive-saving>

### 3. Participation in Blockchain Opportunities that Add Value

Stakeholders need to participate in blockchain pilot programs and prototypes to understand and proof concepts. By participating, organizations can determine what technologies will add value and which will not. This will be beneficial especially for commercial organizations as they can then get in on the ground floor when efficient technologies that could create competitive advantage are developed.

#### Conclusion

Blockchain technology has found application in a wide range of industries including the supply chain and logistics industry. It has helped make the supply chain more efficient and spawned innovative new business models and services. There are tons of projects on the blockchain being built to reduce the inefficiencies of the supply chain.

However, the strongest aspects of the blockchain will always be in automating administrative tasks and enhancing transparency and trust. These are the aspects in which most new innovations are being made.

Moving forward, the blockchain is also combining with other modern technologies such as robotics, artificial intelligence and IoT to enhance supply chain efficiency. However, it is important to acknowledge that blockchain platforms and technologies depend on collaboration, transformation and development in technology if they are to be a success.

#### Pacific Alliance Overview

On 6<sup>th</sup> June 2012, four economies signed the Lima Declaration which established the Pacific Alliance. The four economies are Mexico, Colombia, Chile, and Peru. *The Pacific Alliance as a model of integration, lessons learnt, and we can explore the challenges in forming alliances*. There is a consensus in politics and economics that the Pacific Alliance is a dynamic and innovative coalition that was prior unimaginable globally.

#### Rationale

Perhaps, the most important rationale behind the formation of the Pacific Alliance was the need to establish deep integration that would pave the way for the free mobility of people, goods, services, and resources. In this regard, there was going to be integration in the capital as well as investment. The vision then was that this would promote the growth and competitiveness of the individual member states in promoting better well-being, enhancing inclusion, and reducing socio-economic inequality.<sup>177</sup>

#### Achievements

The four founding members have been able to eliminate 92 % of trade tariffs, with the remaining ones still in negotiation. The bloc has been hailed for its ease of doing business due to its easier access to credit, protection of the minority investment, ease of getting a construction work permit, and the ability to register private property. Additionally, there is a harmonization of the certificate of origin among the states and their interaction in trade. A product from any of the four passes as a product to in any economy.

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<sup>177</sup> The first meeting that conceived the ideas of the Pacific Alliance was called by President Alan Garcia, Peru. He held a meeting with the presidents of Mexico, Columbia, and Chile.

This expedites the export and import processes, and at the same time, removes unnecessary bureaucratic barriers.

## Pacific Alliance -Interoperability Platform (IOP)

IOP is an initiative from IDB (Inter-American Development Bank) for the Development and Implementation of an Interoperability Platform for the exchange of cross border information among the Pacific Alliance economies comprising of Chile, Colombia, Mexico and Peru. The IOP interfaces with the respective member economy's Foreign Trade Single Window (or VUCE- Ventanilla Única de Comercio Exterior). The VUCE enables a single, standardized submission and processing of trade data, as well as a single point of approval for clearance of cargo. The IOP is expected to boost secure cross-border trade through standardized electronic documents exchange and processes that allow for mutual recognition of Trade documents across all the four-member economies. The initial scope of this project includes the secure cross-border exchange of Phytosanitary Certificates and Certificate of Origin (eCO) messages among the member economies of Pacific Alliance.

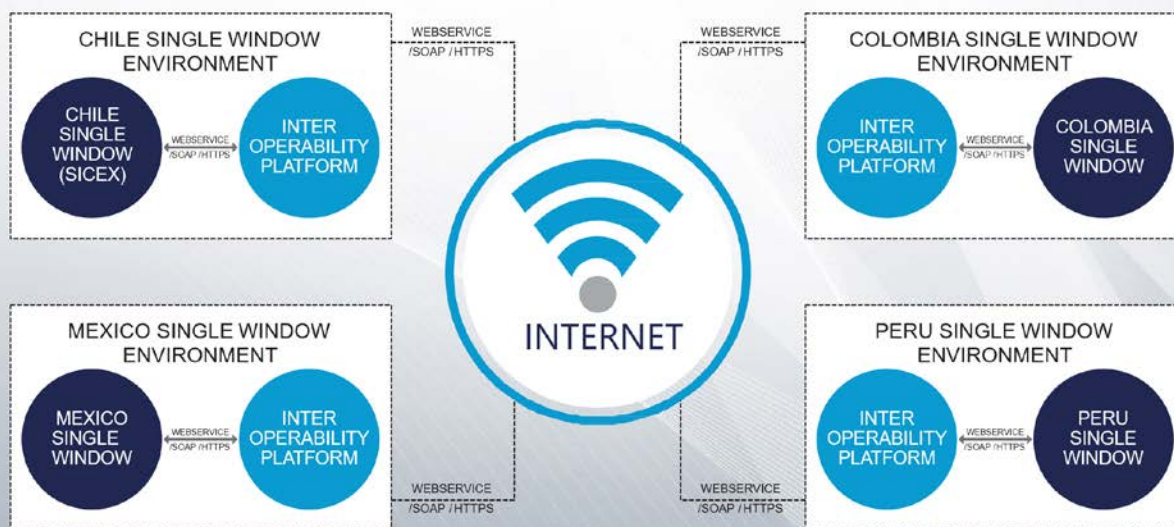
The IOP was conceived in the agreements of the IV meeting of Red VUCE that took place in Santiago, Chile on December 2013, and its premises are:

- Design and implement a system that facilitates the integration of Foreign Trade Single Window/VUCE of each economy
- Implement a point to point (P2P) integration.
- Must have 2 points for interoperability between the economy of origin and the economy of a destination. (submission of request information and response information with acceptance/rejection of the trade document with observations)
- Implement a pilot program that can be the guide for the integration of other economies in the region by considering the level of maturity in the implementation of their Foreign Trade Single Window and the existence of normative framework.

### IOP Solution Overview

The diagram below shows the high-level architecture of the IOP solution. Each member economy has its own operating Foreign Trade Single Window platform (VUCE), where the intermediaries like the exporters and importers prepare all the required documentation for performing their foreign trade transactions online. An IOP instance is deployed in each of the member economies and interfaces with the respective VUCE. Since the IOP is built on a decentralized and distributed architecture, each member's economy can manage and support corresponding IOP instance.

## PACIFIC ALLIANCE - INTEROPERABILITY PLATFORM (IOP)



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The components shown in the diagram are summarized in the table below.

No.	Component	Description and Functionality
1	Foreign Trade Single Window / VUCE (Chile/ Colombia/ Mexico/ Peru)	<p>These are Single Window platforms of Chile (SICEX), Colombia, Peru, and Mexico, leveraging on IOP, for cross border exchange of Phytosanitary and Certificate of Origin messages.</p> <ul style="list-style-type: none"> <li>Phytosanitary certificate, which certifies that plant or plant products are conforming to sanitary regulations, as issued by the Plant Protection Organization (NPPO) of each Economy</li> <li>Certificate of Origin, which certifies that products have been produced, manufactured or processed in the specific economy based on rules of origin, is issued by Chamber of Commerce of each economy</li> <li>When a PSC/CO certificate is issued (after internal processing by local agencies), source Single Window in the economy of Export forwards the SPS/CO certificate message to appropriate destination Single Window in the economy of Import through IOP.</li> <li>Correspondingly, (after internal processing by local agencies), destination Single Window in the economy of Import forwards the response message with observations to appropriate source Single Window in the economy of Export through IOP.</li> </ul>

<sup>178</sup> CrimsonLogic was the system implementation company for the IOP Project

2	Interoperability Platform	<p>The solution is built on the principles of Service Oriented Architecture (SOA) and Enterprise Application Integration (EAI) using web services. Following are reference data models of certificates exchanged:</p> <ul style="list-style-type: none"> <li>• Phytosanitary certificate: UN/CEFACT 13B XML</li> <li>• Certificate of Origin: Regional v1.8.1 XML</li> </ul>
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## The Import Control System

The ICS<sup>179</sup> is an electronic system designed by the European Commission in conjunction with the Member States, intended to ease the submission and processing of an Entry Summary Declaration (ENS). It also makes it possible to exchange messages and information between economic operators and customs administrations, and with the European Commission (EC). The system ensures that import operations originating in one economy of the EU can be completed in another member's economy, without the carrier having to resubmit the same information.

### The Cargo Security Arm of the EU Single Window

As it stands, The European Single Window does not have an online system or portal where traders can log in to submit or access data. However, such functionality is provided by the EDI messaging system that is part of the ICS system. The ICS message formats across the European Commission are standardized making it easy to send manifest data in the same format to any of the economies of the EC such as the UK, Ireland, Spain, and Germany among others.

### Features/Functionality and Best Practices by the UK ICS

As Office of First Entry (OoFE), the UK ICS accepts ENS declarations from traders which need to be lodged before the shipment arrives at the first point of entry in the European Commission customs territory.

**Record Diversions** – If the carrier diverts the aircraft or vessel to a Member State other than what was indicated as the Original Office of First Entry (OoFE), they will be required to lodge a diversion request with the original office of first entry. The original office of first entry will then forward all ENS and positive risk data to the new OoFE.

As the office of subsequent entry, the UK ICS acts as to control the entry of goods into the EC by either allowing or rejecting entry.<sup>180</sup> The ICS works as a risk analysis institution checking shipments for security and safety according to EC wide risk profiles. Risk analysis typically involves inspection of goods destined for member economies and even non-EC economies. The analysis is typically performed before the arrival of the shipment in the UK.

Once a risk is identified, the ICS may:

1. Take immediate action such as issuing a “Do Not Load” (DNL) notification to all parties involved in shipping maritime goods.
2. Forward the data obtained from the risk analysis to subsequent airports and ports of entry.

<sup>179</sup> <https://www.revenue.ie/en/customs-traders-and-agents/documents/electronic/ics-trader-guide-post-brexit.pdf>

<sup>180</sup> <https://www.gov.uk/guidance/import-control-system#import-risk-analysis-for-safety-and-security>

3. Pass on ENS data if requested to do so by the other Member States



### The United Kingdom and the ICS

The United Kingdom is a member state that has been very successful at implementing the ICS. Their success has come from a combination of standardization and harmonization of procedures and some customization of their own procedures. While the EC provides fallback mechanisms, the UK has used its autonomy to come up with best practices to ensure that security is upheld, even when the ICS system is experiencing system downtimes. When it comes to how the ICS works, it is very similar to how it works across the EC as the format of data, security and risk thresholds and, registration and sharing of information procedures are like that of many others in the EC.

### Import Control System Fallback Measures by the EC

The European Commission has designed business continuity plans<sup>181</sup> that traders can resort to when they have technical difficulties when using the electronic ICS. The BCP (Business Continuity Plan) comes in handy when the ICS is unavailable and usually include:

1. Traders will be expected to have another economic operator submit their declarations on their behalf. Traders are more likely to encounter difficulties on arrival if the ENS was sent very late.
2. A trader must submit a valid ENS declaration as part of the fulfilment of their obligations.
3. The economic operator is expected to submit their ENS data and system failure will not be accepted as an excuse for non-submission of ICS declarations.

If a participant's system is unavailable:

<sup>181</sup> [http://ec.europa.eu/ecip/documents/procedures/business\\_continuity\\_plan\\_en.pdf](http://ec.europa.eu/ecip/documents/procedures/business_continuity_plan_en.pdf)



1. Economic operators are expected to have their own fallback arrangements (often another service provider system) or else submit their ENS through the gov't portal.
2. If fallback systems are unavailable, the trader may use another's trader's system to submit their ENS declarations.

If the primary UK ICS system in addition to the gov't portal is offline both on the operator and regulator end:

1. Service Providers and Economic Operators are expected to continue sending messages to the ICS until the HMRC sends a message asserting that the ICS system is offline. The requests are typically queued until the ICS system is back online. Once the system is up and running, traders can send ENSs for consignments that have not had their Arrival Notification process but are already on the high seas or in the air.
2. Member states will typically get a notification telling them when the UK ICS is offline so that they can know that some consignment particularly those sent on short hops may have an MRN (movement reference number) missing.

### How to Register for and Submit Entries to the UK ICS

The UK makes it so easy to register for ICS and submit your ENS declarations.

Once you are enrolled, registered and activated<sup>182</sup> in the UK ICS, you can create your ENS as an XML message and submit it to the OoFE through either:

1. A Pre-authenticated dedicated community service provider's message gateway that is compliant with IMS/HMRC standards of security.
2. A portal is known as Trader Front End available only to registered users of the ICS.

### The European Single Window

While still under construction<sup>183</sup> the Single Window is a facility that allows traders to submit standardized documents and information from a single point to fulfil all transit-related export and import regulatory requirements. The electronic Single Window is intended to promote trade facilitation as traders are required to submit their documentation once and be free to ship their goods across the EC (European Community). Since it is a complex task, the European Single Window is being implemented in phases. As such, most members in the EC refer to the ICS as the Single Window System. The EU Single Window System currently works with a few certificates such as the Common Veterinary Entry Document (EU SW-CVED) and the Common Entry Document (CED) certificates.<sup>184</sup>

Several economies are operational with the European Single Window including Portugal, Estonia, Cyprus, Poland, Bulgaria, Latvia, Slovenia, Ireland, and the Czech Republic. The successful pilot has attracted the interest of many other economies who have expressed intention to participate in the EU Customs SW

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<sup>182</sup> <https://www.gov.uk/government/publications/import-control-system-how-to-register-enrol-and-use>

<sup>183</sup> [https://ec.europa.eu/taxation\\_customs/general-information-customs/electronic-customs/eu-single-window-environment-for-customs\\_en](https://ec.europa.eu/taxation_customs/general-information-customs/electronic-customs/eu-single-window-environment-for-customs_en)

<sup>184</sup> [https://ec.europa.eu/taxation\\_customs/general-information-customs/electronic-customs/eu-single-window-environment-for-customs\\_en](https://ec.europa.eu/taxation_customs/general-information-customs/electronic-customs/eu-single-window-environment-for-customs_en)

which is to be named CERTEX that is soon to be rolled out. The later iteration is expected to have better harmonization, enhanced functionality and includes more certificates.

## Electronic Phytosanitary Certification (ePhyto)

About 1.1 trillion worth of goods is traded on the global markets every year<sup>185</sup>. As such, enhancing international agricultural trade is one of the most important things to do to foster economic development. However, the certification procedures for agricultural products are highly complex, time-consuming, and expensive. Certification for agricultural products such as grains, cut flowers, vegetables, fruits, seeds and plants is traditionally done through paper phytosanitary certificates. These certificates are usually issued by the Plant Protection Organization (NPPO) of an exporting state to the NPPO of an importing economy. They certify that the shipment of agricultural products meets the set requirements of the importing state. Agricultural trade facilitation is an attempt to harmonize and simplify procedures for export and import of agricultural products by easing the process of collecting and processing of documents and data. One of the most effective measures to enhance the process is by automating and streamlining procedures through the ePhyto solution.

### The ePhyto Certification System

In 2012, the International Plant Protection Convention (IPPC) approved the creation of an international system of certification whose purpose is to replace paper certificates<sup>186</sup>. The system is known as the ePhyto solution.

In a recent release by the Food and Agricultural Organization (FAO), it was asserted that the ePhyto system should be adopted as part of the effort toward improving the security of information sharing while reducing bureaucracy and paper-related costs<sup>187</sup>.

The adoption of the ePhyto certification system substantially reduces the fraud-related risks of the paper certification system. It gets rid of the bureaucracies that involve the printing, creation and exchange of millions of physical certificates by transferring everything to an online secure portal. This move also makes it easier to identify high-risk cargo and to plan for it before it arrives at the port of entry.

The system operates from a central hub from where industry partners can exchange information and data about imports and exports. This eliminates the need for complex processes as once a trading partner registers on the platform, they have access to all data permissions to them. They can thus exchange protocols with any member of the hub regardless of where they are, as content and systems are standardized.

The hub model significantly reduces the costs of exchanging protocols and information while strengthening compliance with phytosanitary certification standards. It also makes it possible for developing economies to participate in the initiative through the GeNS (Generic ePhyto System), without having to invest a lot of money in developing systems for integration with the protocol.

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<sup>185</sup> <https://www.essdocs.com/blog/ippc-approves-system-global-ephytosanitary-certificates>

<sup>186</sup> <https://www.standardsfacility.org/PG-504>

<sup>187</sup> <http://www.fao.org/news/story/en/item/281075/icode/>

## Global Symposium on ePhyto Solution

The development of the proposed centralized hub solution for enhancing agricultural certification was completed in 2017<sup>188</sup>. The international hub is a centralized platform that provides a shared portal where Plant Protection Organizations can exchange electronic phytosanitary certificates. Another component of the system is the Generic ePhyto System. The GeNS is a web platform that makes it possible for economies that do not have their own systems to compose, send and receive ePhytos in the XML format that the hub supports. The GeNS, the Hub, and the standardized certificates in XML format make up the ePhyto solution.

Nine economies connected their systems to the international hub in 2017 as part of a pilot program. While most of the economies are still in the testing stages, a few got into full production and have been exchanging certificates for shipments since January 2018. By March 2018 there were 10,000 exchanges of ePhyto certificates in the pilot program. However, three economies have exchanged a total of two thousand certificates in real trade of plant products showing that the system indeed works.

The IPPC collaborates with the ESG (ePhyto Steering Group) /IPPC (International Plant Protection Convention) and the ICC (International Computing Centre) to develop training and orientation documents and tools<sup>189</sup> needed for an economy to become part of the hub. The hub is currently operational, and the implementation process can be found on the global phytosanitary platform. Through the portal economies with systems can get information on how to produce, send and receive XML certificates according to the standards of the shared hub.<sup>190</sup>

## The ePhyto Solution

The ePhyto project provides a centralized platform that makes it easy for developed economies to connect their systems to a centralized hub. It also provides developing economies that do not have a system with a generic system (GeNS). This allows such economies to compose, send and receive ePhyto certificates.

The hub is a harmonized exchange tool that eliminates the complexity and cost of bilateral exchange protocols through a single communication protocol. The solution makes it possible for economies without the resources to implement a system to transmit ePhyto certificates for imports and exports. This facilitates the trade of plant products and plants thus enhancing people's access to food.

At its core, the solution is designed to be compatible with existing systems though it also works with economies without such systems. It also allows economies to build their own protocols on the system to improve functionality.

## Essentials of the IPPC ePhyto Solution

The ePhyto solution by the IPPC makes it possible for economies to exchange ePhyto certificate through a single portal known as the "hub". It has three major components:

1. A global hub – A centralized system that makes it possible for Plant Protection Organizations to exchange electronic phytosanitary certificates.

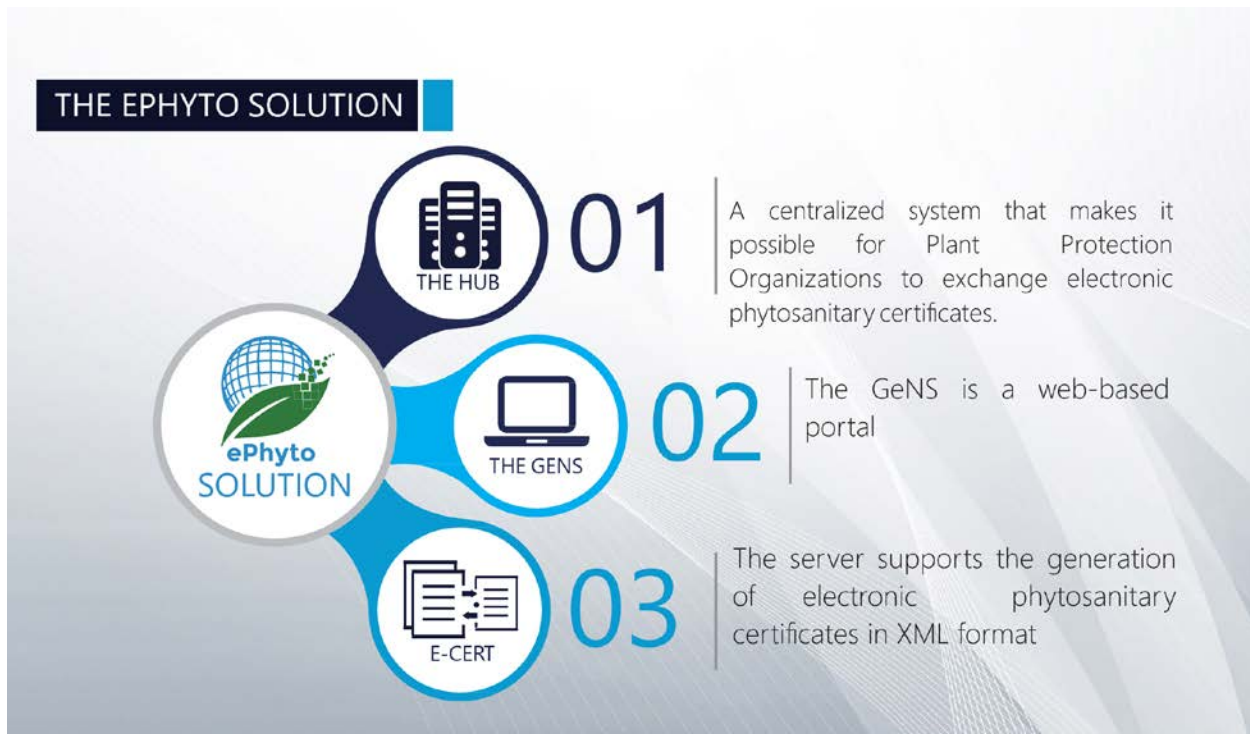
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<sup>188</sup> <https://www.unicc.org/in-focus/2018/05/17/ippc-ephyto-certificates-global-hub-rollout/>

<sup>189</sup> [https://www.ippc.int/static/media/files/publication/en/2019/03/2018-02-20\\_ePhyto\\_for\\_beginners\\_finalized.pdf](https://www.ippc.int/static/media/files/publication/en/2019/03/2018-02-20_ePhyto_for_beginners_finalized.pdf)

<sup>190</sup> [https://www.ippc.int/static/media/files/publication/en/2018/06/2017-04-12\\_-\\_Hub\\_requirements\\_-\\_FINAL.pdf](https://www.ippc.int/static/media/files/publication/en/2018/06/2017-04-12_-_Hub_requirements_-_FINAL.pdf)

2. Generic ePhyto System (GeNS) – The GeNS is a web-based portal that makes it possible for economies without a system to compose, receive and send certificates in the recommended format through the hub.
3. e-cert – The server supports the generation of electronic phytosanitary certificates in XML format that are compatible with several UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) and ISPM (International Standards for Phytosanitary Measures) standards.



### Why the Global Hub Works

1. Admin interface – The hub makes it easy for economies with their own systems and those without to manage NPPO data exchange and track ePhyto information.
2. Privacy – Messages and documents sent through the hub are highly private since the portal only reads the header and sends the message to the intended recipient.
3. Security – It uses a TLS certificate that encrypts data all along the process of exchange. The message is also temporarily stored on the platform and are deleted once they have been delivered to the recipient.
4. Verification – The system eliminates disputes as it provides tracking information and allows verification of exchange by an NPPO.

### Why GeNS Works

The Generic ePhyto System was designed to support developing economies to use the international hub without needing a system or expensive informational technology platform. Through the GeNS, developing economies can participate in sending and receiving ePhyto certificates just like their more developed counterparts with the technology or systems.

The following are some of the reasons why it works:

1. Web-based – It is an online system that can be accessed by any registered member of the hub from anywhere across the world.
2. Simple User Interface – It is easy to use even for economies with low technology given its simple interface that almost any user can use to send and receive ePhyto certificates<sup>191</sup>.
3. Works in Low Bandwidth Environments – Developing economies are notorious for low bandwidth. As such, the system is designed to work in such environments so that an economy that is a member of the hub can have access to the platform from anywhere around the world.

### Who is it for?

The ePhyto solution has a lot of benefits not only for the public but also the private sector<sup>192</sup>. Agricultural industries whether it be regulatory organizations or independent commercial producers have gained a lot from the increased trade flows, improved risk management, enhanced trade security, and transaction cost reductions.

Economies can now connect their ePhyto certification system into a single hub. The standardized XML formats make it easy to accurately and quickly send and exchange ePhytosanitary certificates to multiple economies cost-effectively. As such, exporters are reporting lower rates of delays at entry ports which significantly reduces costs. NPPOs can now communicate with each other to clarify, add or edit any information on certificates to facilitate entry of shipments without unnecessary delays.

ePhyto is reducing the use of paper for the purposes of printing certificates coupled with associated costs such as archiving, retrieving, distributing, and sorting. Moreover, having the ePhyto certificates in one shared platform means that the risk of introduction of fraudulent certificates is significantly reduced. Moreover, it reduces the possibility of disputes and misunderstandings while improving communication and tracking.

One of the most exciting things about the ePhyto solution is that it provides harmonized solutions through which developing economies can take advantage of a centralized hub to access and expand their markets.

### ePhyto Benefits to Trade Facilitation and Risk Management

1. The Phyto solution operates according to the International Standard for Phytosanitary Measures. (ISPM) This means that NPPOs across the globe can send and receive certificates from any economy across the globe. These XML certificates will be readable on any computer system across the world.
2. Plant Protection Organizations are now more efficient as there is less need for validation and data entry. NPPOs can simply log into the web interface of the hub and get all the information they need about a shipment.
3. You get enhanced security when transmitting certificates using the ePhyto solution as the hub is a secure portal where only industry partners authorized to review, and access certificates can do so. This reduces the likelihood of fraud.
4. Clearance of plants and plant products is now more efficient given that there is no need for issuing lost replacement certificates as all documentation is available on the online hub. This reduces delays and costs thus making the supply chain more efficient.

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<sup>191</sup> <http://www.fao.org/3/ca2695en/CA2695EN.pdf>

<sup>192</sup> <http://www.fao.org/3/i8277EN/i8277en.pdf>

5. ePhyto makes it easy to identify risk commodities and helps to predetermine action that needs to be taken before the shipment arrives at the point of entry. Port authorities can decide to have the shipper provide more information about the shipment before arrival thus preventing unnecessary delays.<sup>193</sup>
6. Harmonized standards for documentation and structure of those documents and data make it possible for NPPOs to send and receive ePhytos without needing to set up bilateral systems.
7. Unlike systems or bilateral system that could shut out other NPPOs, the ePhyto solution allows developing nations without systems to participate in international trade. Through a standardized system, they can send and receive certificates just as if it was a system.

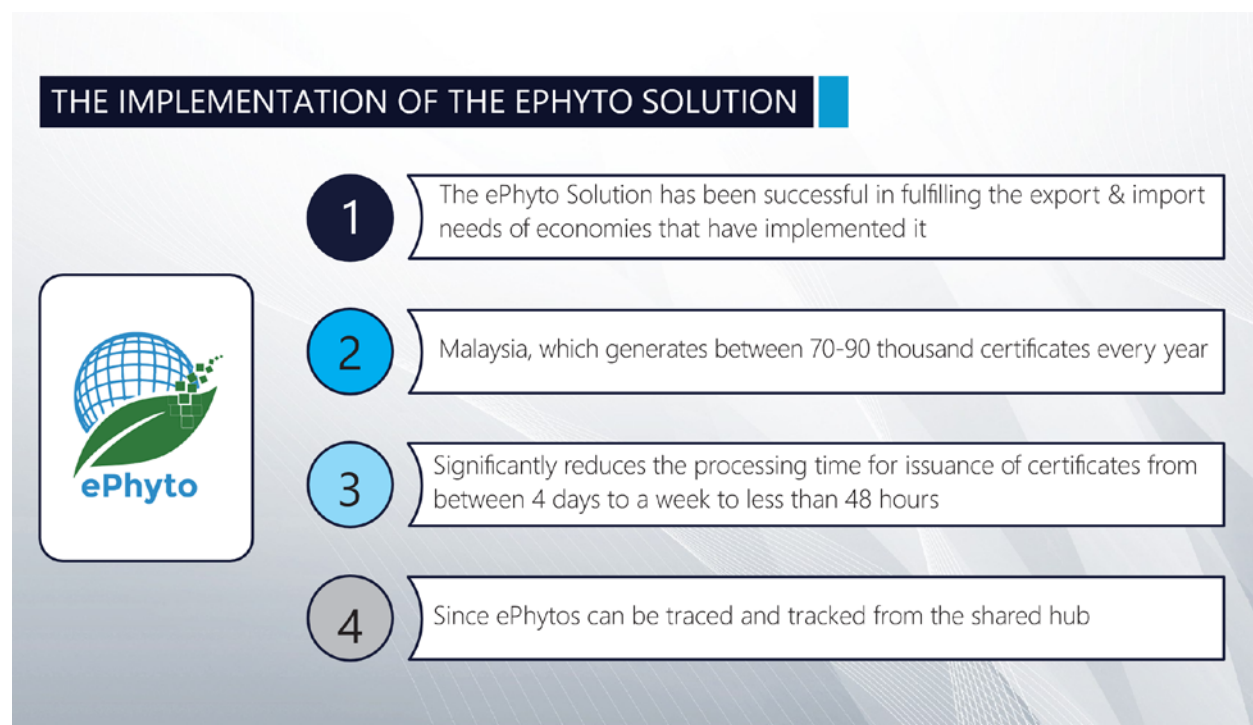
### ePhyto and the Single Window

One of the biggest benefits of the ePhyto solution is that it can be integrated into Single Window systems. The integration provides a lot of benefits when combined with a well-crafted customs system. Some economies that are implementing the ePhyto as part of their Single Window system include:

Ghana – The economy intends to implement ePhyto into its Single Window system using GeNS for the pilot phase before moving to the international hub<sup>194</sup>.

Morocco – The economy intends to implement the ePhyto solution into its Single Window

Malaysia – Malaysia has integrated the ePhyto solution to its system with great success.<sup>195</sup>



<sup>193</sup> [https://www.wto.org/english/tratop\\_e/sps\\_e/session\\_4\\_1a\\_ippc\\_ephyto\\_ketevan\\_lomsadze.pdf](https://www.wto.org/english/tratop_e/sps_e/session_4_1a_ippc_ephyto_ketevan_lomsadze.pdf)

<sup>194</sup> [https://www.unece.org/fileadmin/DAM/cefact/cf\\_forums/2018\\_Geneva/PPTs/SingleWindow\\_PPTs/07\\_-\\_TButterly\\_The\\_Phyto\\_Solution.pdf](https://www.unece.org/fileadmin/DAM/cefact/cf_forums/2018_Geneva/PPTs/SingleWindow_PPTs/07_-_TButterly_The_Phyto_Solution.pdf)

<sup>195</sup> <https://www.unescap.org/sites/default/files/UNNExTBrief19.pdf>

## Conclusion

The implementation of the ePhyto Solution has been successful in fulfilling the export and import needs of economies that have implemented it. A good example of this has been Malaysia, which generates between 70-90 thousand certificates every year.<sup>196</sup> The system also significantly reduces the processing time for issuance of certificates from between 4 days to a week to less than 48 hours. The system also makes the centralization of data possible that makes real-time reporting and sharing of data and information possible. It also harmonizes workflows and improves efficiency by reducing the need for data entry and verification of documents through manual processes. Since ePhytos can be traced and tracked from the shared hub, it reduces the likelihood of fraudulent certificates and disputes about information in such documents. As a result, the solution has made it easier for economies across the world to participate in the clearance of agricultural commodities in an efficient, transparent, predictable and cost-effective manner.

## Pan Asian Ecommerce Alliance (PAA)

The Pan Asian Ecommerce Alliance was founded in 2001 by Hong Kong, China's Tradelink Electronic Commerce Limited, Chinese Taipei's TRADE-VAN Information Services Co, and Singapore's CrimsonLogic.<sup>197</sup> More associations applied for membership over the years and the alliance is now comprised of eleven members including the three that founded it. The other members include Thailand's CAT Telecom, the Philippines' InterCommerce, Malaysia's Dagang Net, Macau, China's TEDMEV, Korea's KTNET, Japan's NACCS, Indonesia's EDI-I, and China's CIECC.

The Pan Asian e-commerce Alliance was formed to provide and promote secure, reliable trusted and value-adding services and IT infrastructure that will facilitate seamless trade regionally and across the globe.<sup>198</sup> Businesses from the different member economies can now have uninterrupted cross border trading due to a single point of contact, reliable and secure paperless transactions, and ready acceptance of certification policies and cross border approvals.

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<sup>196</sup> <https://www.unescap.org/sites/default/files/UNNExTBrief19.pdf>

<sup>197</sup> [https://paa.net/?page\\_id=74](https://paa.net/?page_id=74)

<sup>198</sup> [https://paa.net/?page\\_id=74](https://paa.net/?page_id=74)

## PAN ASIAN ECOMMERCE ALLIANCE (PAA)



### How the PAA Works

The support of the member government-linked companies is one of the things that has facilitated the rapid growth of the PAA. The alliance is now a typical example of the effectiveness of paperless trading in the entire Asia Pacific Economic Cooperation (APEC) region.<sup>199</sup> The PAA seeks to use secured frameworks and systems to facilitate electronic procedures of the B2B or B2G kind, especially for freight and trade enterprises in Asia and across the globe.

The PAA achieves its goals through the formulation of legal standards, PKI cross-certification, the transmission of trade documents where traders can submit standardized digital documents across the logistics and supply chain. Through the PAA systems, it is expected that all transactions are gradually moving from a paper document system to the electronic systems that will make international trade more efficient, secure and faster. It is also reducing operations costs and the overall operational efficiency of the trade chain in the Pan Asia region.

Traders and forwarders that participate in PAA can exchange import and export documents electronically regardless of their solutions or systems. Documents supported by the PAA include:

1. Purchase Order
2. Shipping Order
3. Advance Shipment Notice
4. Electronic Certificate of Origin (e-CO)
5. Packing list
6. Trade Declaration
7. Commercial Invoice

<sup>199</sup> [http://ciecc.ec.com.cn/en\\_about/international.shtml](http://ciecc.ec.com.cn/en_about/international.shtml)



8. Delivery Order
9. Air Waybill
10. Bill of Lading

### The Value Proposition of the PAA<sup>200</sup>

1. Efficient Operations – It is possible to reuse trade data, which when available, saving time in the preparation of documents.
2. Regulatory Integration – Easy integration with regulatory services such as Customs making import and export activity easier.
3. Error Free Operations – Since the data is in the portal and can be automatically reused, there are fewer instances of erroneous entries that are common with multiple re-entries of data in paper systems.
4. Security – The electronic transactions between partners is highly secured and does not require additional data mapping or development work.
5. Neutral Reliable Platform – The shared platform provides neutrality and reliability where trading partners can be certain of a secure and reliable exchange of data and documents.
6. Strong PAA Legal Framework – The PAA comes with a comprehensive contractual agreement among all member companies.

### The Current State of the PAA

The e-commerce service providers that serve the APAC region facilitate the exchange of electronic data for millions of transactions. The Pan Asian portal of the PAA improves on this by providing a shared platform where there is greater connectivity between exporters and importers as well as between users in the insurance and banking sectors.<sup>201</sup> By consolidating service, product and important customer information the portal enhances the competitiveness of its members in international markets. It is believed that the PAA has brought benefits not only to customers and members but has also facilitated the growth of the markets in Asia.

### Going Forward

As part of its mission of promoting cross border electronic trade in the Asia Pacific region, the PAA has come up with working groups. The working groups are working to streamline trade flow and facilitate trade documentation through the following initiatives.

1. Secure Cross Border Transaction Services
2. e-CO (electronic certificate of origin) Initiative
3. Mutual Recognition of Public Key Infrastructure
4. Cross Border Cargo Tracking Service
5. Pan Asian Platform

Members have reported a range of initiatives that are aimed at facilitating cross border paperless transactions. Among the many projects are the cross-border e-SPS exchange and the electronic Certificate of Origin (e-CO) exchange. These two demonstrate the critical role of members of the PAA who serve as the gateway to government agencies and customs. The collaboration and partnership help improve the

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<sup>200</sup> <https://www.carecprogram.org/uploads/Day1-About-PAA-Foundation-Business-Processes-and-Projects.pdf>

<sup>201</sup> [https://www.tradelink.com.hk/eng/about\\_tradelink/regional\\_alliance.html](https://www.tradelink.com.hk/eng/about_tradelink/regional_alliance.html)

trust in the transactions while transforming cross border transactions from paper documentation to the more efficient and cost-effective electronic documentation.<sup>202</sup> The PAA has also put in place an initiative whose aim is to set up a platform to connect qualified manufacturers and exporters in the PAA with buyers across the globe.

### Reasons for the Effectiveness of the PAA

1. The members of the PAA are e-commerce leaders in their local markets
2. It is easy and convenient to input cross border data and documents into the PAA network, which can then be easily inputted into local government databases
3. Members of the PAA have developed close ties with local governments
4. Members have been sending and receiving electronic documents and data for years
5. PAA members can take advantage of a huge customer base in their home economies and in the regional markets

### Challenges in Cross Border ICT Interoperability<sup>203</sup>

There are several challenges that are typical in any cross-border trade and transaction system. These include:

- Different Connection Protocols – Differences in protocols between receiving authority and the e-CO issuing agency, and between the importer and exporter.
- Different Message Standards – Differences in receiving authorities such as customs and the e-CO issuing agencies.
- PKI Mutual Recognition – There is no mutual recognition of certification authorities

### PAA PKI Mutual Recognition Approach

Under the PAA, a Certificate Policy Authority was set up to facilitate the mutual recognition of PKI across jurisdictions.

- Legal Basis for Cross Border Transactions – There needs to be set up an MOU between two states so that clearance of imports can be done without a paper certificate of origin (COO).

### Highlights of the MOU

Both member states:

1. Agree to take electronic certificates as proof of authenticity
2. Agree to exchange cross border electronic certificates of origin to ease the customs clearance process
3. Reserve the right to verify the authenticity of the electronic certificate of origin to determine if it is compliant with local regulations and laws.
4. Agree that the electronic certificate of origin is as good as a paper certificate of origin
5. Accept that the e-CO may be submitted through representatives of the parties to a transaction

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<sup>202</sup> <https://paa.net/?p=51>

<sup>203</sup> [http://www.rcc.org.ru/downloads/RG\\_MIMC/apectel/Interoperable\\_ICT-Alicia\\_Say-Challenges\\_in\\_cross\\_border\\_interoperability\\_in\\_B2G\\_and\\_B2B\\_Transactions\\_for\\_APEC.pdf](http://www.rcc.org.ru/downloads/RG_MIMC/apectel/Interoperable_ICT-Alicia_Say-Challenges_in_cross_border_interoperability_in_B2G_and_B2B_Transactions_for_APEC.pdf)

## Case Study Findings of the eCO Case Study<sup>204</sup>

According to the data derived from the study, the following are some of the benefits of implementing paperless electronic certificates of origin eCO.

### For the Exporter

1. Savings in cost and time since the exporter does not have to get their certificates of origin authenticated by the Chinese Taipei Mission in Korea
2. According to estimates, the exporter saves about 2 days and \$217 for every shipment
3. Avoid the delay and cost of paper COs which need to be sent by express or mail to the importer or their custom broker

### For the Importer

1. Savings in cost and time since the importer does not have to send the certificate of origin to the customs broker or go into the customs office to submit it.
2. The estimated time savings is about 3 days and \$205 for every container shipped

### Business Loss Avoidance

The new Global e-CO process will save an importer about \$397 and the exporter about \$274.

## Global Collaboration

PAA is in a continual quest to collaborate with other international organizations that facilitate paperless trading. The PAA is currently an official guest at the Electronic Commerce Group and has also been invited to the UN/CEFACT as an associate member in addition to an invitation to AFACT. The PAA has also expanded its service scope through alliances such as the Asia Europe Alliance for Paperless Trading. It is also a participant in the ASEAN Single Window initiative and the IATA e-Freight pilot project.<sup>205</sup>

## MIC Customs Solutions

The Challenge in International Trade and Customs Compliance- Import and export have become such a huge part of the daily operations of corporations and organizations in the world. The world is effectively a global marketplace where companies import components and raw materials and export finished products. However, due to differences in regulations among economies, traders must adhere to varying standards at the risk of hefty fines or worse.<sup>206</sup>

### MIC Customs Network

MIC Customs Solutions has managed to become the best customs and trade compliance organization since it is one of the most innovative companies in the space. One of the ways it does this is through having membership in a variety of EU working groups such as the SASP, the Single Authorization for Simplified Procedures. It also has contacts with international authorities and publications across the world. MIC thus has access to information and data as it changes, which makes it easy to update its systems to ensure compliance for clients.

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<sup>204</sup> [https://aric.adb.org/pdf/workingpaper/WP137\\_Ha\\_Lim\\_Paperless\\_Trade.pdf](https://aric.adb.org/pdf/workingpaper/WP137_Ha_Lim_Paperless_Trade.pdf)

<sup>205</sup> [https://paa.net/?page\\_id=74](https://paa.net/?page_id=74)

<sup>206</sup> <https://www.european-business.com/mic-customs-solutions/portrait/>

MIC is currently a member of:

1. European Forum for Foreign Trade, Excise and Customs –EFA
2. Automation Alley
3. Office for the Development of Automation and Simplification of Foreign Trade – ODASCE
4. Thai Shipper Council – TNSC
5. American Association of Exporters and Importers – AAEI
6. The German-Thai Chamber of Commerce – GTCC
7. US Trade Support Network
8. American Chamber of Commerce Thailand – AMCHAM Thailand
9. International Compliance Professionals Association – ICPA
10. The UK Association for International Trade – ACITA
11. Association of Foreign Trade Zones – NAFTAZ
12. United States-Mexico Chamber of Commerce – USMCOC
13. Automotive Industry Action Group – AIAG

### MIC Customs Solutions

MIC is one of the leading providers of global trade compliance and customs software solutions across the world. Its software solutions can be integrated into most ERP systems and work with SAP, Oracle or any legacy or enterprise system that clients use to automate foreign trade processes. MIC Customs currently operates on six continents, in more than 55 economies and serves more than 700 clients. Its specialty is integrating global trade compliance and customs systems according to and regional legal requirements and specific corporate structures. MIC ensures compliance with the regulations while at the same time facilitating efficiency in customs operations.

MIC also provides a single system with one Graphical User Interface, one trade compliance and customs database, and one support and maintenance system across the world. It also does provide software maintenance that incorporates the global trade content and the latest regulatory changes for more than 150 economies.<sup>207</sup> This enhances compliance and makes for an optimum one-stop-shop for global customs. The aim of MIC is to establish a standard through investments in geographic growth, functionality, and technology.

### MIC's Global Implementation

MIC has local headquarters in Thailand, the USA, Belgium, Switzerland, Germany and Austria. The reason for this is that there are many customs regulations across the world. For instance, there is the Free Zone in Thailand, the Union Customs Code in the EU and ACE in the United States. The regulations from the different jurisdictions are made to ease customs procedures so that they are more efficient and suited to modern procedures. There are currently more than 400 ratified free trade agreements and other export control legislation such as embargoes, license determination, export licenses, dual-use and export control commodity lists.

MIC makes it easier to conduct international trade while ensuring that traders are not only compliant with local and international regulations but are also competitive. Through its software solutions and regularly updated database of the regulations of more than 150 economies, MIC helps companies make the most

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<sup>207</sup> <https://www.mic-cust.com/company/>

of changes in regulations and laws in different jurisdictions. This makes it easy for businesses to enhance competitiveness, save money and be compliant.

### Customs & Trade Compliance Software

MIC-CUST is a unique trade and customs compliance solution that provides real global customs management on a single platform.<sup>208</sup> The platform allows its clients to perform electronic and automatic export and import clearance processes including inventory management and special customs regimes. The global customs management system makes it possible for third parties such as forwarders and brokers to easily transfer data. In addition, the configurable return interfaces which third parties may be used for customs declarations to ensure control, transparency and easy broker management. This ultimately results in higher data quality, which improves compliance and a reduction in costs, errors and effort required.

As it currently stands, MIC-CUST is the largest provider of global customs management systems in the world. It has coverage in multiple economies, supports more customs procedures, and connects with more customs authorities than any other provider. As the leading provider of trade and customs compliance software in the automotive industry, it provided its solution to the fourth-largest automotive supplier on the globe in 2017.<sup>209</sup> Since then it has gone on to integrate the client's SAP environment with MIC's software solution. The integration helps in the management of free trade agreements regulations, quota and license checks, supplier declarations, and eligibility determination for efficient calculation of origin of goods.

### Customs Tariff and Export Control Classification

One of the most important components of enhancing efficiency is determining the export classifications of a product, which in turn determines the correct tariff to be paid. Classification can be a tough beast to always get right, though not doing it right could result in losing preferential treatment or erroneous calculation of customs duty. Without a centralized and automated system, companies need to have a team of people making decisions about export control classifications and customs tariffs. This, of course, results in costly errors and inefficiencies that make standardized and central classification very important to any export business.

MIC-Customs Central Classification system seeks to solve this problem. The software solution that went live in March 2019 provides export control classification and validation, assignment and determination of tariffs in a user-friendly format. In fact, the system has just been adopted by a British luxury fashion company with global operations, which is preparing for Brexit.<sup>210</sup>

Since it operates on a global scale it is critical that the fashion company be compliant with international systems for classification and tariffs for cross border movement of its products. Using MIC, the company has come up with a standardized central classification for companywide products that speeds up and simplifies customs processes. This saves the company money and time that would have been used in the determination, validation and classification of products.

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<sup>208</sup> <https://www.mic-cust.com/software-solutions/>

<sup>209</sup> Major multi-national auto parts producer relies on MIC's customs and trade compliance software solutions

<sup>210</sup> First Go-live at a British supplier of luxury fashion with MIC CCS in the UK and Italy

Going forward, MIC will also implement efficient export and import clearance as well as MICS OCS (origin calculation system) so that the company can also take advantage of free trade agreements.

### Origin Calculation - Free Trade Agreement Management

There are currently more than 400 free trade agreements (FTAs) that have been ratified by different jurisdictions across the world.<sup>211</sup> These provide a competitive advantage and potential savings on customs duty that enhances international trade for participants. However, companies can only take advantage of these FTAs by having detailed documentation and being compliant with complex rules of origin. This means that companies must set up detailed processes to determine and calculate origin that makes them compliant with auditing and legal requirements if they are to avoid possible fines.

MIC-Customs Origin Calculation system provides the software to optimize the management of FTAs across the globe. Working with anything from ASEAN to NAFTA and CETA, MIC provides automation of the origin processes. It starts with tracking supplier declarations all the way to the calculation of the multi-level bill of materials and the production of suitable origin documents. MIC traces everything and will reliably detect any changes to the origination status to ensure maintenance.

The latest company to take advantage of MIC origin calculation is BMW Thailand.<sup>212</sup> The software was integrated with BMW Thailand and has been used to calculate motorcycle and vehicle origin tariffs based on FTAs such as ASEAN Trade in Goods Agreement, Thailand Free zone, and ACFTA. (ASEAN-China Free Trade Area) The BMW Group has thus enjoyed benefits ranging from a better competitive position, and potential savings on duty which will enhance trade. MIC's origin calculation software can find applications not only in the automotive industry but also in other industries across the globe where multis need to take advantage of FTAs.

### Export Control Management

Export control compliance is one of the biggest challenges that face exporting companies. Regulations are numerous, complex and constantly changing. Companies need to check end user and/or end-use, license management, determine licensing requirements, embargoes, sanctions list, and export control classifications.

MIC-Customs export control management software makes it easier to control all company transactions and ensure compliance with using export compliance automation.<sup>213</sup> The solution provides comprehensive check reports and status information making it possible to have a reliable audit trail. It makes it easier to screen organizations and persons in a transaction against sanction lists including checking destination and dispatch economy automatically.

One of the best use cases of this is RHI AG a developer, producer and service provider of refractory goods. The Vienna based company serves more than 10,000 companies in the chemical, energy, glass, nonferrous metals, cement, and steel industries across the globe from its 70 sales offices and 32 production plants. Since 2008, RHI has been using MIC solutions for its export control needs<sup>214</sup> that include:

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<sup>211</sup> <https://www.mic-cust.com/software-solutions/origin-calculation/>

<sup>212</sup> Successful Go-Live of MIC's Origin Calculation System in Thailand for a German automotive manufacturer

<sup>213</sup> <https://www.mic-cust.com/software-solutions/export-control-management/>

<sup>214</sup> RHI AG decided for MIC's Export Control Management & Denied Party Screening Solutions

1. Full integration via SAP interfaces to ensure compliance with constantly changing regulations for denied party list screening and export control across the globe.
2. Screening for Denied Party lists, which MIC provides daily so that the company has an up to date list of sanction lists that also include Ultimate Beneficial Owner screening.
3. Export Control Management to monitor and automate complex export compliance processes and functions to prevent export control issues.
4. Export Control Classification so that the company can have export control commodity lists that are up to date.

### Professional Services

In addition to its software solutions, MIC-Customs also provides professional services to its clients. MIC employees across the globe have expert IT training to help come up with custom solutions for their clients. They also have a profound knowledge of trade and customs compliance.

All professionals on the MIC team are Project Management Professionals or have similar qualifications. This is the highest certification for project management across the world<sup>215</sup> and hence clients can be certain that with MIC, they will be getting the best professional help. Moreover, MIC works on the standards of the Capability Maturity Model<sup>216</sup> and complies with the Information Technology Infrastructure Library<sup>217</sup>. As such, all the international processes are checked, documented, audited and continuously improved.

Some of MIC-Customs employees have licenses to practice as customs brokers and thus have expertise on applicable fees and taxes, rates of duty, valuation, classification, admissibility requirements and entry procedures for imports.

### Global Trade Content Service

MIC-Customs provides a huge database of up to date content on customs tariffs, code lists, exchange rates, export control commodity lists among many others. Clients across the globe can get that data from a central database so that they do not have to manually and individually source it from disparate sources that may cost much more money and time.

The best thing about MIC data is that it is constantly updated and hence it is useful even for clients that have internal data systems. MIC software is the best at constantly looking up and updating content as regulations and codes change across the world.<sup>218</sup> This ensures that clients are always compliant and do not violate the laws and regulations of import and export in any jurisdiction.

MIC gets its content from trusted and renowned suppliers of trade content that includes companies and authorities with whom the software solutions provider has exclusive partnerships. As such, The Global Trade Content Service by MIC supports its clients to follow trade regulations and constantly changing customs with minimum fuss and cost.

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<sup>215</sup> <https://www.pmi.org/certifications/types/project-management-pmp>

<sup>216</sup> <http://tryqa.com/what-is-cmm-capability-maturity-model-what-are-cmm-levels/>

<sup>217</sup> <https://www.cio.com/article/2439501/infrastructure-it-infrastructure-library-til-definition-and-solutions.html>

<sup>218</sup> <https://www.mic-cust.com/services/global-trade-content-service/>

## TradeLens

The TradeLens platform is a joint project by IBM and Maersk. The two companies have built a Blockchain platform on Hyperledger technology for leading and driving industry adoption for the Blockchain technology with a focus on trade facilitation. It is a joint project underpinned by Blockchain technology that provides a neutral and open platform for more than 100 diverse organizations comprised of freight forwarders, 3PLs, terminal operators, ports, and carriers. The biggest problem in the global supply chain is the lack of collaboration, trust and transparency which is the premise of what TradeLens and Blockchain are trying to solve. In this case study, we analyze how effective the TradeLens platform is in enabling information sharing and collaboration across the supply chain to increase innovation, reduce friction and promote more global trade. The case study also analyzes the implementation of interoperability and standards in the TradeLens ecosystem to foster innovation. We also analyze how it breaks down longstanding processing and data silos through allowing data to be published directly from the source (without any intermediary) and makes the trade transaction data accessible to all the participants at any time.

### Blockchain- Supply Chain Transparency

The TradeLens ecosystem includes all the supply chain entities such as financial services providers, customs administrations, 3PLs, beneficial cargo owners, shippers, ports, terminal operators, inland transporters, and ocean carriers involved in the shipment process right from originator to recipient. One of the biggest disadvantages of previous supply chain tracking systems was that it involved the verification of data by multiple entities that were often distributed globally. TradeLens uses Blockchain technology to build a distributed, neutral and open platform that allows data sharing of permission documents and data from a common access control structure. This makes it easy for any participant that has permission to view any documents right through the supply chain without having to verify from multiple other sources. Since it uses the Blockchain, none of the data is ever lost making it easy to rectify any mistakes made along the chain.

Unlike many supply chain systems where you must either verify data over several layers of personnel who must provide and exchange the data over the phone or online, TradeLens is different. It integrates all trade data needed by industry partners in one secure and common business network. All members of the network that are involved in a shipping transaction can securely access end to end supply chain information in real-time, which prevents delays in verification. The platform saves a lot of time spent monitoring for events to occur since you can easily configure subscriptions so that you get notifications whenever events happen during shipping. You also do not have to deal with partners asking for information as it is easy to publish any relevant information related to containers or consignment and they can view it easily from their end.

In many other supply chain systems managing documents between industry partners is problematic. TradeLens digitizes documents and allows for easy management. Port officials or freight forwarders can submit their documents on the platform and have any participant in the transaction view them whenever they want to. For instance, it is easy to submit documents and generate events for custom officials, or overland carriers. This improves collaboration and eases the movement of goods since documents can be conveniently submitted, stamped and approved from one platform.



Through the network, you can develop custom APIs on the platform so that you can interact with important persons involved with the shipment. You can view important events and even get notifications for instance when the consignment has been verified and approved by the beneficial cargo owner or customs officials.

### Fostering Collaboration and Trust

What makes the TradeLens platform so effective as compared to other supply chain management systems is the use of the fragmented and distributed Blockchain which has enhanced collaboration and trust. Industry partners can trust that their data is safe in the TradeLens platform given that it is impossible for any individual or organization to change the information entered the network. The blockchain technology that TradeLens uses shares some attributes with the blockchain technology used by Bitcoin. The six features that have made TradeLens so effective and successful include:

**Shared Ledger** – Every organization registered on the TradeLens platform has permission and distributed ledger access. Participants in a consignment will typically need to obtain permission from the originator to access the events in the transaction. The shared ledger comes with copies of document filings, full audit history, authority approval status, relevant supply chain events. The ledger updates with a new block any time there is a new event such as a change in approval status or receipt of the consignment by the overland carrier.

**Smart Contract** – The Blockchain allows for pieces of software to be embedded into the platform with rules on cross-organizational processes including export and import clearance. These are automated processes that are distributed and executed on TradeLens, and hence they cannot be changed by any industry partner. Industry partners can always trust that the data and documentation they receive is the original as it was entered at any point in the supply chain.

**Immutable** – Since the blockchain network is appended-only, network partners cannot change any data and hence the audit history is clear for all to see. If there were any errors in entering the data, the organization responsible adds a new version and both copies will be available for the relevant parties to check out on the platform.

**Permissions** – Unlike the Blockchain network where every participant is anonymous there is more transparency on TradeLens where all the parties are known. TradeLens provides ultimate confidence and privacy to partners using the network. The only parties that can view, submit or approve the information about a consignment are ones that have been identified and provided such permission.

**Channels** – The privacy of the platform is unparalleled and is far above any other supply management system. Using the blockchain, each transaction is made into a sub-network such that any data shared can only be accessible to persons that are members of the channel.

**Selective Endorsement** – The use of selective endorsement on the TradeLens platform means that participants do not have to worry about power requirements common in many Blockchain networks such as Bitcoin. Since TradeLens members are known by everyone involved in a transaction, there is no need for proof of work or verification.

## Applications and Service

### The API

What makes the platform so convenient to use is that it is built to allow integration with in-house systems. One of the most effective ways it uses is through a publicly available and non-proprietary API that is easy to set up and use. The best thing about the API that has made it a favourite among industry partners on the platform is that the subscribers can receive notifications of any updates to the ledger at any time during the shipping cycle.

### WEB UI

TradeLens provides a Web user interface for partners who are not interested in using the API. This works very well for users who are afraid of security risks inherent in integrating their in-house systems with a system such as TradeLens. Since users can access the platform without integration, industry partners can log in and use essential platform features without having to invest in complex integration needing to be performed by IT experts. Some of the features you get access to on the web platform include; documents, track & trace and search functions.

### Layering Legacy Systems on the TradeLens Platform

Today a lot of organizations are looking to integrate their in-house systems with supply chain management systems to reduce the need for layers of supervision and verification. Platforms such as TradeLens provide an answer to these organizations. The platform allows an industry partner such as customs or any other government verification agency to create applications that can be installed on top of the platform. Using such applications, an organization such as the customs agency can get the packing list and purchase order from the platform and perform a risk assessment. They can then give their stamp which will be accessible to any person permitted to view such records. This has made early access to data more complete and immutable, improving efficiency, and increasing compliance while driving legitimate trade.

### Spurring Innovation

#### Standards and Interoperability

Interoperability and standardization are critical for a global supply chain platform and this is one area in which TradeLens does very well.

#### Information Standardization

There are plenty of widely accepted models and adopted codes that work with the TradeLens platform. TradeLens being a platform that is the work of several companies involves a collaborative team that works closely with TradeLens partners, and the TradeLens industry Advisory Board. The collaboration standardizes the access control schemes and data model with the UN/CEFACT model and that of other partners in the industry. This means that information is highly standardized such that it is easier for partners to access all the information they need in a convenient and easy to use format.

#### Interface Standards

For operators needing a supply management system that provides openness and functionality through publicly available APIs made for ease of integration and usability, then TradeLens is the answer. The platform is always improving its software and interface standards to allow for integration with all kinds

of industry partners. TradeLens has expanded its offering and now offers the latest WMS, TMS, TOS, and ERP packages.<sup>219</sup>

### Blockchain Interoperability

Made for use on the Blockchain, TradeLens is very adaptable and it can be easily configured for use with middleware for integration onto the platform. The platform is always being improved and hence it is very versatile which is what makes many industry partners trust in its ability to foster innovation in supply chain management. One good example of middleware that is expected to significantly improve the Interledger Protocol of TradeLens is the Hyperledger Quilt. This will make the transfer of information across ledgers and cross ledger namespace easier and will enhance interoperability even further. Moreover, since the project is a child of IBM and Maersk, it follows the best protocols and standards in ensuring the safety and security of the platform.

### Conclusion

TradeLens was designed to foster collaboration between emerging and traditional partners in global trade. It is designed to foster efficiency, growth and innovation in a model that sees transparency as a thing that could be of benefit to all members of the ecosystem. The ecosystem brings together all manner of parties involved in the supply chain including regulators, the shipper and recipient of the consignment and logistics partners into a single secure collaboration and data-sharing platform. The platform and network drive true information sharing by providing real-time information on the consignment, which allows for the mitigation of problems through exception handling and predictability. Through its Blockchain network, it fosters collaboration and trust through automation and digitization across organizations processes into auditable and immutable transactions. Lastly, TradeLens has managed to spur innovation in supply chain management through its promotion of interoperability, use of an open API, and a marketplace that allows partners to build and deploy software and applications on the TradeLens platform.

### ShipChain

According to a 2018 DHL report,<sup>220</sup> up to 10% of all freight invoices are erroneous, which often results in a lot of inefficiency and disputes.<sup>221</sup> Blockchain could be the best solution for reducing the inefficiencies in logistics and supply chain management including aspects of trade financing and resolving disputes. Blockchain can be effective in this as it enables the embedding of real-time shipment data and digitized documents in a blockchain platform, which can then be used to execute smart contracts.

ShipChain is a pioneering technology that provides a fully integrated track & trace functionality from the time a shipment leaves the manufacturing facility until it is delivered to the client.

The ShipChain Ecosystem bridges the gap between the traditional RESTful web services and distributed ledger technology by using Blockchain to provide historical data immutability, trusted contract execution and no single point of failure.<sup>222</sup> The system allows users to record supply chain information in an

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<sup>219</sup> [https://docs.tradelens.com/learn/tradelens\\_overview/](https://docs.tradelens.com/learn/tradelens_overview/)

<sup>220</sup> BLOCKCHAIN IN LOGISTICS: Perspectives on the upcoming impact of blockchain technology and use cases for the logistics industry

<sup>221</sup> <https://www.intra.com/assets/documents/ced97146-272c-436e-8c54-131313915625.pdf>

<sup>222</sup> <https://docs.shipchain.io/docs/intro.html>

immutable database, which will then execute smart contracts once the set-out conditions have been fulfilled. For instance, it will release payment once the driver logs into the system and confirms that delivery has been made.

### Why ShipChain has Been Successful

ShipChain was designed as an end to end technology platform that makes for a unified platform that revolutionizes the transportation and logistics industry by leveraging the Blockchain. The logistics and supply chain industry are plagued by problems such as the high occurrence of theft and fraud, high markups from middlemen, lack of accountability, and lack of visibility.<sup>223</sup> ShipChain uses the blockchain to provide:

1. End to End Track & Trace – Through the ShipChain, you have unified tracking that keeps all carriers and shippers across the supply chain well informed.
2. Full Visibility – Full transparency and communication are made possible, as every step is entered and recorded on the immutable blockchain.
3. Platform Parity – You no longer need brokers, which makes it possible even for smaller operators to do business due to reduced costs
4. Incentivized Responsibility – Operators get rewards for delivering goods on time and for choosing efficient transportation routes. Better tracking reduces theft and pilferage.

ShipChain makes this possible by executing contracts using the Ethereum blockchain and a couple of sidechains that ease the exchange of logistics data that include bills of lading, geolocation, and telemetry among others.

### The ShipChain Web Platform

ShipChain allows one to do web booking using fiat currencies or the SHIP token.<sup>224</sup> Through the platform, shippers can choose their individual lanes and routes, connect directly with freight carriers and avoid the costs of using middlemen. This provides transparency and a low fee environment that overall reduces costs. The platform also provides AI assistance for shippers to help choose the best routes according to shipper preferences. These preferences are influenced by data such as traffic, weather, hazardous materials or pothole avoidance received from IoT devices on trucks. All these reduce transit time and costs.

### The ShipChain Rewards System

With the US dealing with a truck driver shortage of up to 100,000 drivers<sup>225</sup>, there are certainly more shipments than drivers to handle them. The ShipChain ecosystem rewards drivers for participating in several ways with a proportion of transaction fees deposited to their SHIP wallets automatically. The drivers earn rewards for things such as high customer ratings, eco-friendly driving, log compliance, on-time delivery and adhering to speed limits. This acts as an incentive for new drivers to join while making it possible for carriers to improve margins and providing efficiencies to owner-operators.

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<sup>223</sup> <https://bitcointalk.org/index.php?topic=2544491.0>

<sup>224</sup> <https://hacked.com/shipchain-the-logistics-platform-of-the-future/>

<sup>225</sup> <https://www.thestreet.com/markets/truck-driver-shortage-may-triple-by-2026-analysts-say-14650452>

## Benefits of a Joint Supply Chain Management (SCM) & Blockchain Approach

Companies that have taken advantage of the combined SCM and blockchain platforms are reporting increased traceability and transparency. The combined system leverages open source software and this means that shippers and carriers can develop applications on top of the software to ensure compatibility with in-house systems.<sup>226</sup> Shippers that do not have the finances or technological capacity to create blockchain platforms are turning to platforms such as ShipChain to take advantage of the blockchain. They can now do this without having to spend thousands of dollars on research and development costs. Additionally, since platforms such as ShipChain are made to be compatible with most in-house systems given their open-source nature, almost any logistics company can register and use the platform to seamlessly track and trace their shipments.

## Conclusion

ShipChain is a Blockchain platform that boosts transparency and trust in the global supply chain thus reducing the incidence of inefficiencies and disputes. Shippers can now take advantage of combined supply chain management (SCM) and blockchain technologies to restore end to end visibility and trust. Given how expensive in-house solutions are not to mention issues with compatibility, a public blockchain such as ShipChain is proving to be one of the best solutions for end to end track and trace functionality.

## Global Trade Connectivity Network (GTCN)

In November 2017, the Hong Kong Monetary Authority (HKMA) and the Monetary Authority of Singapore (MAS) exchanged a Memorandum of Understanding (MoU) to jointly develop the Global Trade Connectivity Network (GTCN), a cross-border infrastructure based on distributed ledger technology (DLT), to digitalise trade and trade finance between the two cities and potentially with an aim to expanding the network in the region and globally.<sup>227</sup>

The GTCN is the first strategic joint innovation project arising from the Co-operation Agreement signed by the two authorities in October 2017. The platform is intended to build an information highway using DLT connecting the relevant platforms of Hong Kong and Singapore, which will make cross-border trade and financing cheaper, safer, and more efficient.

The GTCN is an innovative project that showcases how the best international financial centres of Asia can transform trade and trade finance.

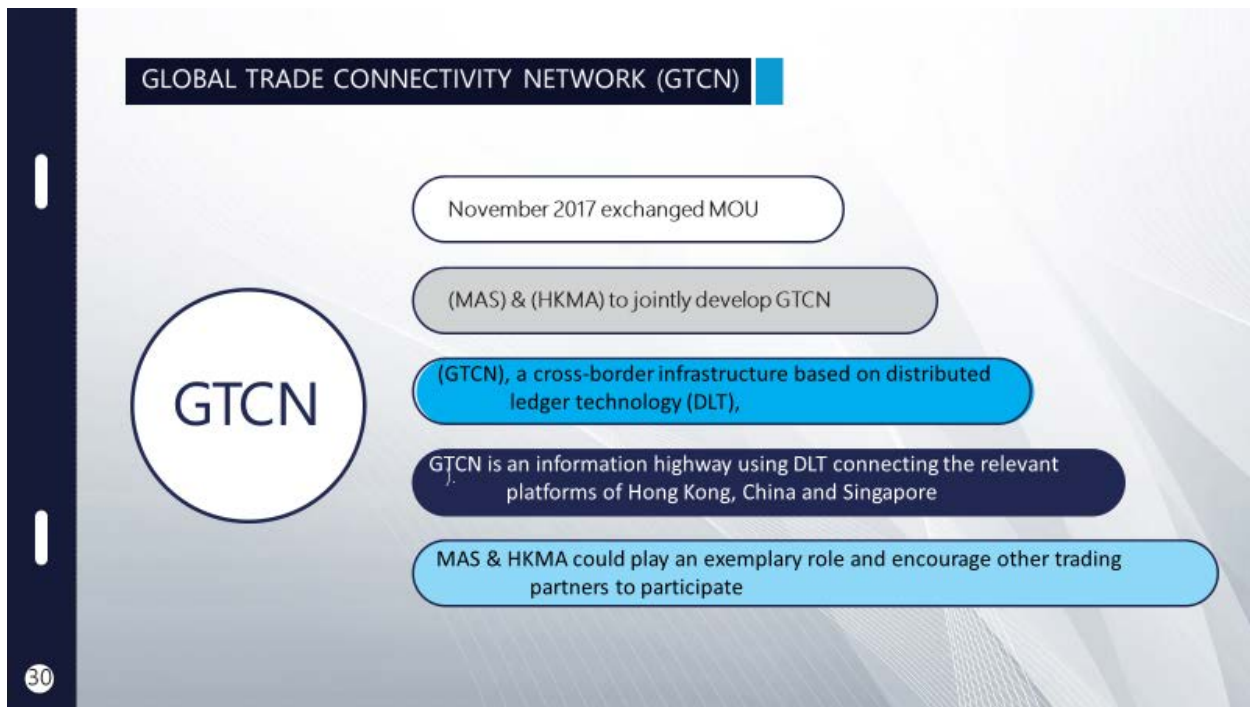
## Why the Distributed Ledger Makes Sense for GTCN

DLT can bring about a completely new record-keeping method that is different from the traditional one which requires the setting up of a centralized database. With DLT, all participants will have their own database and whenever a participant makes an update, a copy of the update will be made and saved to the records of all participants. The data is encrypted in the process and once recorded, it is immutable. These features are particularly suitable for enhancing trade and trade finance processes which usually involve many different parties.

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<sup>226</sup> <https://shippingandfreightresource.com/executive-insights-shipchain-ceo-john-monarch-on-eliminating-the-barriers-to-blockchain-in-logistics/>

<sup>227</sup> <https://www.hkma.gov.hk/eng/key-information/press-releases/2017/20171115-6.shtml>



### GTCN Moving Forward

When the interconnection of trade finance platforms between Hong Kong and Singapore is in place, the authorities could play an exemplary role and encourage other trading partners to participate so that the benefits of the DLT trade finance platform can be spread far and wide.

### Conclusions

The APEC member Single Window systems are all at different levels according to the Single Window maturity model. Some member economies are just beginning their journey while other Single Window systems have evolved to level 5 conducting cross-border transactions with other economies. The progression to level 5 is not linear with some economies skipping a level as the progression and maturity of the projects evolve. It's with the APEC economies progress to level 5 that gives way to a path that can lead to the implementation of an RSW for the APEC economies.

To move the APEC RSW forward the best places to start will be the following areas;

#### Certificates of Origin

The use of an integrated Single Window within regional trading blocs such as ASEAN and its ASW (ASEAN Single Window) is largely successful due to the common agreement to use common standards such as the ATIGA Form D (Certificate of Origin). Other trading blocs such as the Pacific Alliance rely on translation technology and the implementation of the IOP (Interoperability Platform) to translate between the Pacific Alliance members. The IOP has allowed the Pacific Alliance members to successfully exchange documents with each other by first preparing the document inside each respective Single Window system. An instance of the IOP platform also resides in the home economy Single Window with the IOP acting as the intermediary to translate and send the information to the neighbouring Single Window system. The Single

Window system hosts a copy of the IOP technology platform to receive and translate into the receiving party Single Window standard.

As trading blocs have already emerged around the world what is the most likely outcome is the linking of these trade blocs to form the basis of the APEC RSW. Another trading bloc that could emerge to verify certificates of origin electronically could be NAFTA (USMCA). Ultimately the APEC RSW will adopt a standard to receive a certificate of origin but that standard could be borrowed from one of the existing regional trading bloc standards like ASEAN or the Pacific Alliance. The APEC RSW would exist as a layer on top of the regional Single Window systems such as ASW and the Pacific Alliance IOP. Ultimately this would allow a participant such as in Singapore to log in to the APEC RSW and view and verify certificates or origin uploaded from another participant such as in Indonesia or a participant such as in Canada logging in to view and verify NAFTA certificates of origin uploaded from a participant such as in Mexico.

### Phytosanitary Certificates

International organizations such as the IPPC (International Plant Protection Convention) can help fast track the adoption of standards which was accomplished with the XML version of a phytosanitary certificate. This platform known as the ePhyto Hub has allowed other economies without a system to use this platform to exchange certificates electronically which reduces time, cost and fraud. Cases of certificate fraud happened in Canada in June 2019 where China had discovered several fraudulent export certificates were issued resulting in the suspension of all meat exports to China from Canada. These types of events could have been reduced with the proper implementation of an electronic platform to authenticate users and certificates generated on the platform. The CFIA (Canadian Food Inspection Agency) has recently introduced an electronic portal called My CFIA which allows for the request of licences, permits, registrations, export certificates and authorizations.

Economies such as Ghana, Morocco and Malaysia are already implementing the ePhyto solution as part of their Single Window system. If all APEC member economies followed suit and adopted this common platform would fast track the adoption of supporting ePhyto's and also allow for an easier integration to the top layer of an APEC RSW.

### Private Enterprises

Another track for APEC to gather ideas about cross-border collaboration is the private enterprises from APEC economies that are already involved in cross-border collaboration. Several of the existing APEC Single Window systems rely on accredited service providers who play a crucial role in the success of the Single Window system. These service providers help promote the Single Window, support the users and provide value-added services. The PAA (Pan-Asia e-Commerce Alliance) has shown that private enterprise association of technology companies can bear fruitful results.

### Blockchain

To achieve cross-border transactions involves the two systems needing to overcome a lack of standards and interoperability issues. This problem alone is usually the biggest factor for the lack of integration among the APEC Single Windows. Blockchain is a new facilitator of "trust" between organizations or between governments and organizations. This trust is achieved using digital ledger technology which creates a permanent and immutable record in a shared database. These records are called "blocks" which are linked using cryptography or "digital signatures" Governments are joining and linking into various Blockchain consortiums such as TradeLens. This enables government access to a flow of trusted and

reliable information from shipping documents to the location of the cargo in real-time. This new flow of trusted trade information would save millions of dollars if trade participants don't need to replicate and report similar information to port authorities or Customs Authorities. Think of a future where there is no customs declaration but rather a flow of trusted data from incoming shipments and payment of duty and tax is made automatically from the received shipping data.

Blockchain consortiums can exist at the private sector level or at the public sector level as we have seen with the government authorities of Singapore and Hong Kong, China on the development of the GTCN (Global Trade Connectivity Network). The setup and benefits of a public sector Blockchain are like a private sector Blockchain but the control and scope of the Blockchain are controlled by the government members. Blockchain doesn't have to be the technology used as traditional SCL (Supplychain Logistics) API's could perform similar tasks as a Blockchain platform.

### Global Trade Content

Before you ship your cargo there is a lot of planning that happens such as tariff classification, calculating landed cost, checking denied party screening, export control lists among many others. Some Single Window systems have started to incorporate these types of tools as we have seen with the Indonesia Single Window system and their LARTAS tool. Licencing this kind of data for APEC would help lower barriers to trade and improve trade compliance. MIC Customs is one such provider of this data. Knowing where to start and being in compliance can help build confidence among the user base of the Single Window system.



The above categories are a great place to start when examining a path for the APEC RSW. Starting with a series of "quick wins" will help to give the project momentum and once the project starts will surely give way to an RSW in the not so distant future.