This background document has been prepared to facilitate discussions on Standing Committee Agenda item 2a, which focuses on reviewing a draft guide on concurrent implementation of national and cross-border paperless trade.

There are two primary approaches to the implementation of paperless trade:

1. Sequential Implementation: This traditional approach focuses on establishing a robust domestic paperless trade system before venturing into cross-border integration. The rationale is to build internal capacity and expertise, iron out technical and regulatory issues, and refine processes within a controlled environment before tackling the complexities of international trade.

2. Concurrent Implementation: This approach advocates for the simultaneous development and launch of both domestic and cross-border paperless trade systems. It leverages synergies, avoids duplication of effort, and ensures consistency in data standards and processes.

The choice between these approaches is not straightforward and depends on various factors, including a country's technological capabilities, regulatory environment, and trade patterns.

This guide aims to equip policymakers in Asia and the Pacific with references on the pros and cons of concurrent implementation of national and cross-border paperless trade.

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A guide on concurrent implementation of national and cross-border paperless trade

I. Introduction

Traditionally, some countries in Asia and the Pacific have developed paperless systems sequentially, focusing first on national-level single-window systems before considering cross-border integration. However, this approach may not be the most effective in the long run. Given that single-window systems are ultimately designed to facilitate international trade, it is crucial to recognize the advantages of concurrent implementation, where both national and cross-border systems are developed simultaneously. This approach can lead to more integrated and efficient systems, better equipped to meet the evolving needs of global trade.

While concurrent implementation offers numerous advantages, it also presents the following, among others, significant challenges and barriers that must be addressed.

Technical Complexity: Integrating diverse IT systems across different government agencies and private sector stakeholders can be a daunting task. Legacy systems, incompatible technologies, and varying data formats can pose significant technical challenges.

Regulatory Differences: Domestic and cross-border trade are often governed by different legal frameworks, creating data harmonization and interoperability challenges. Aligning these frameworks and ensuring legal certainty for electronic transactions can be a lengthy and complex process.

Customs Procedures: Customs procedures and requirements can vary significantly between countries. Harmonizing these procedures and adopting common standards for electronic customs declarations is essential for seamless cross-border trade.

Resource Constraints: Implementing paperless trade systems requires significant financial investments in technology, infrastructure, and human resources. Many developing countries may lack the necessary funds to overhaul their trade processes comprehensively.

Technical Expertise: Developing and maintaining complex IT systems requires specialized technical expertise. Many countries may face a shortage of skilled IT professionals, which can hinder the implementation and maintenance of paperless trade systems.

Stakeholder Coordination: Diverse Interests: Trade facilitation involves many stakeholders, including government agencies, businesses, logistics providers, and financial institutions. Coordinating the efforts of these diverse actors and aligning their interests can be a major challenge. Some stakeholders may be resistant to change, particularly if they are accustomed to traditional paper-based processes. Overcoming this resistance and building consensus for paperless trade can require extensive communication and engagement efforts.
**Digital Readiness**: Digital infrastructure and skills vary significantly across countries. This digital divide can create challenges for cross-border interoperability and data exchange. Countries with limited internet access or low levels of digital literacy may struggle to adopt paperless trade systems.

Given these challenges for implementing national and cross-border paperless concurrently, this guide does not recommend that all countries take an approach to concurrent implementation in all circumstances. Nevertheless, it aims to provide a few case studies to demonstrate that concurrent implementation is possible in some cases.

By examining the development of single window systems in countries like China, the Republic of Korea, and Singapore, it is evident that the initial focus of single window development was on connecting national government agencies and stakeholders rather than establishing connections with other countries. This suggests that, in most countries, the initial aim of developing a single window system is to integrate national stakeholders. However, if a country adheres to international guidelines such as the UN/CEFACT recommendations on single window development, it will likely facilitate future interoperability of the national single window system.

**II. Case studies**

**II. 1. Republic of Korea’s Single Window and Cross-Border Paperless Trade**

**II. 1.1 An overview**

Initiated by the Presidency in 2003 to align with the revised Kyoto Convention and recommendations by international organizations including WCO and UN, the Government of the Republic of Korea has launched a multiple-phased Single Window project as one of its major trade strategies. This regulatory Single Window environment was implemented in three phases from 2004 to 2007. The initial huge budget of 5.7 billion won was invested by the government. KCS has started the implementation of its Clearance Single Window Project as its first phase. Then later, as of 2011, 23 government agencies relating to trade requirement verification are connected through the internet-based clearance portal of KCS for trade facilitation, seamless logistics flow, customs clearance, and conveyance reports.

For cross-border paperless, Republic of Korea has engaged with various countries to establish cross-border electronic information exchange and paperless operations with its trading partner countries. Its domestic and cross-border paperless trade implementation and services have covered several types of trade procedures and documentation requirements, especially for those related to electronic certificates of origin, quarantine-related certificates, and other business documents used across borders. Some of those are as follows.

- **e-Certificates of Origin (e-C/O)**: Republic of Korea began exchanging e-C/O primarily with China in 2016, followed by Indonesia in 2019 and Viet Nam in 2023. In the future, it
is strategically planned to expand these exchanges continuously, especially with its largest trading partner countries.

- **e-Phytosanitary Certificates (e-Phyto):** In 2021, the Republic of Korea successfully implemented e-Phyto Certificates and exchanges with the United States, followed by New Zealand in 2022. The Republic of Korea has also implemented electronic exchanges of e-Phyto with 12 other countries, including Australia, Israel, Sri Lanka, Guatemala, Panama, Jordan, Uganda, Tunisia, Madagascar, Cameroon, Fiji, and Samoa.

- **e-Animal Quarantine Certificates:** Since 2022, the Republic of Korea has electronically exchanged Animal Quarantine Certificates with New Zealand. Overall, electronic animal quarantine certificates are still limited and in the early stages compared to e-C/O or e-Phyto systems. However, they have considerable growth potential, especially for countries with significant volumes of livestock import and export.

- **e-NEGO:** An electronic negotiation system offered through a uTradeHub platform provides a one-stop service for digitally handling negotiation documents. It is designed to increase export competitiveness by enabling exporters to conduct negotiation operations seamlessly without having to physically visit institutions and banks.

- **e-L/C Service:** Unlike traditional paper-based L/C, the electronic Letters of Credit (e-L/C) service is electronically managed. It electronically processes and systematically manages the entire process from notice to negotiation. This e-L/C system is beneficial for facilitating both domestic and cross-border operations.

II. 1.2 Key Implications

Overall, the Republic of Korea's success in implementing Single Window and several cross-border paperless trade systems serves as a model for other countries looking to enhance and further advance trade facilitation, reduce administrative burdens, and promote economic growth through streamlined and efficient cross-border trade processes. Exchange of e-animal quarantine certificates, electronic negotiation information exchange, and electronic letters of credits are among cases in which domestic and cross-border paperless procedures could be analyzed and designed simultaneously and then implemented towards the end-to-end digitalized trade procedures, including cross-border operations, as their ultimate goals.

II. 2. China’s Single Window and Cross-Border Paperless Trade

II. 2.1 An overview

China has established electronic Customs and Single Window environments by implementing its domestic paperless coordination mechanism, electronic certificate systems, and cross-border interoperability platforms simultaneously since 2000.

Some key lessons learned include the crucial role of the support and promotion from the government and leading bodies. The national and cross-border cooperation mechanisms have
been formally formulated, for example, the Tianjin and Singapore governments have established the cooperation mechanism for economics and trade to simplify and harmonize their customs declarations and clearance procedures. With that simplification and digitalization, enterprises only need to submit a few relevant electronic declaration information to complete the import declaration.

II. 2.2 Key Implications

Six key success factors have been emphasized from the lessons learned through the establishment of the China Single Window.

- Coordination and government support are crucial. A well-working mechanism is essential to ensure effective implementation.
- Reasonable top-level design and standards
- Promoting and implementing relevant legal frameworks
- Cooperation and participation among relevant departments
- Innovative applications with the latest technology
- The implementation of SW should be oriented toward meeting the demands of users.

II. 3. Philippines’ Single Window and Cross-Border Paperless Trade

II. 3.1 An overview

The first phase of the Philippine NSW is a web-based platform that would allow parties involved in trade and transport to store standardized information in a secure, electronic platform to fulfill import, export, and transit-related regulatory requirements.

Some cross-border electronic exchange initiatives were also implemented simultaneously. One such initiative is the electronic Certificate of Origin (e-CO) system, which was implemented in 2020 to facilitate trade through the Philippine NSW and the ASW regional platform. The country’s National Plant Protection Organization (NPPO) has also recently implemented and deployed the cross-border electronic data exchange of ePhyto certificates.

In early 2023, with the support of the Department of Finance (DOF) and the Department of Information and Communications Technology (DICT), a Memorandum of Agreement was signed to fully implement the Philippines’ NSW, now known as TradeNet. This is a significant way forward in onboarding all 73 trade regulatory government agencies for the automated and integrated licensing, permitting, clearance, and certification systems relative to regulated goods' import and export trade.
II. 3.2 Key implications

The experiences of the Philippines' Single-Window development indicate that the country, on the one hand, continues to improve its National Single Window by connecting more agencies and, on the other hand, connecting its National Single Window to trading partners. The Philippines' experience can provide useful guidance to other developing countries in the region on Single-Window development.

II. 4. Pakistan’s Single Window and Cross-Border Paperless Trade

II. 4.1 An overview

Since 2017, the Prime Minister’s Office of the country has designated Pakistan Customs to lead the implementation of an ICT-based trade-related national single window. Pakistan Customs has successfully implemented indigenously designed automation-based trade facilitation initiatives called Web-Based One Customs, which offers efficient paperless Customs operations.

Later in 2021, a Pakistan Single Window Act of Parliament (PSW Act) was enacted to ensure strong political support and institutionalize a legal framework for inter-agency collaboration and its inter-ministerial oversight. The federal government also notified a public sector company incorporated under Section 42 of the Companies Act, 2017, as the operating entity of the PSW system under the provisions of the PSW Act 2021.

The PSW platform, officially launched in 2022, gradually simplified and digitalized regulatory trade procedures not only for Pakistan Customs but also for the other 77 government agencies (OGA). It currently digitizes and covers services related to 132 OGA legal documents, 154 import/export regulatory measures, 27721 unique commodity codes, 153 application forms, and 143 regulatory measures procedures.

The PSW platform includes and integrates with other related services. The Trade Information Portal of Pakistan provides all the regulatory and procedural information to conduct international trade across Pakistan's borders. Risk assessment services on OGA’s LPCOs (Licenses/Permits/Certificates and Other Documents) can also be performed and used for better clearance.

Concurrently, cross-border electronic data interchange systems have also been established with several trading partners. MOUs with regional countries such as China and Russian Federation for sharing information related to advance export declaration, certificates, and statistics through SW integrations.

PSW is also integrated with the IPPC ePhyto hub for the cross-border exchange of SPS e-certificates. The system transforms the data elements from the Phytosanitary Certificate issued by
Pakistan NPPO into XML messages based on the IPPC/ISPM 12 standards. The messages are sent to IPPC's ePhyto hub via the communication protocols of SOAP-based web services.

II. 4.2 Key Implications

Compared with many Single Window Systems in the region, Pakistan’s Single Window System is relatively young. However, its experience implies that a developing country can develop a National Single Window system and conduct cross-border paperless trade, which may set a good example for other developing countries in the region that also aim to develop a National Single Window system.

II. 5. IPPC ePhyto solution

II. 5.1 An overview

The International Plant Protection Convention (IPPC) has offered a great case study and lessons learned about how a global plant health certification process and its digital transformation have been created, promoted, and adopted by many countries with diverse levels of readiness.

The following are its key success factors and lessons learned, which policymakers in the Asia-Pacific region should seriously consider and probably adopt.

**An International Commitment and its Strong Collaborative Platform:** The International Plant Protection Convention (IPPC) is the intergovernmental treaty that aims to protect the world's plants, agricultural products, and natural resources from plant pests. Ratified by 185 contracting parties, the IPPC develops, adopts, and promotes the application of International Phytosanitary Measures (ISPMs) as the main tool to safeguard global food security, facilitate safe trade, and protect the environment.

**Clear Strategic Objectives with the Strategic Framework:** Strategic objectives and the ten-year strategic framework (2020-2030) have been established and driven by an authorized international collaborative agency for plant health and related safe trade. The development agenda includes the implementation of global system and national systems for producing and exchanging electronic phytosanitary certificate (ePhyto) information.

**Harmonization of Electronic Data Exchange:** Cross-border ePhyto information exchange and processes have been harmonized and defined. The structure and transmission of ePhyto will follow a harmonized format using standardized mapping, codes, and lists.

II. 5.2 Key Implications
It can be noticed that the ePhyto mechanisms, as discussed above, have already assisted several countries that lack sophisticated IT systems or have not fully established National Single Window environments yet. These countries are able to expedite the implementation and adoption of the national ePhyto systems. Additionally, they simultaneously implemented cross-border ePhyto exchanges with other nations, encountering fewer impediments and incurring lower associated costs.

This implies that many countries in the Asia-Pacific region could also benefit from concurrently designing and implementing national and cross-border digitized procedures with ePhyto solutions with fewer barriers. It would enable a streamlined and efficient process for exchanging phytosanitary certificates, benefiting both individual nations and international trade.

For example, Fiji's modernization of its phytosanitary documentation system through the IPPC ePhyto Solution showcases the benefits of leveraging international initiatives. By adopting the IPPC Generic ePhyto National System (GeNS), Fiji enabled end-to-end electronic transactions, connecting traders, the Biosecurity Authority of Fiji (BAF), and trading partners.

The transition to ePhyto significantly reduced processing time and costs for Fijian traders. The benefits extend beyond efficiency gains, including improved data quality, enhanced competitiveness, and increased food security. This case study highlights the importance of standardized processes and data, concurrent planning and implementation, and comprehensive training and change management activities. It also demonstrates that countries can modernize their electronic certificate systems for national and cross-border trade digitalization even without a full-fledged National Single Window.

II. 6. ASEAN Single Window: An Integration of Multiple National Single Windows

II. 6.1 An overview

The ASEAN Single Window (ASW) represents a regional effort in harmonizing and integrating the National Single Window (NSW) systems of all ten ASEAN member states (AMS). With the ASW Agreement signed by all AMSs in 2005, it is the commitment to establish the ASW environment to expedite customs clearance procedures among member states to achieve greater economic efficiency. This environment aims to streamline and digitalize trade processes by allowing a unified data submission, synchronized information processing, and a unified decision-making mechanism for Customs release and clearance, benefiting both AMS and participating countries.

ASEAN member states have mobilized the ASW Agreement and its collaboration to drive the establishment of the National Single Window environment to simplify and automate regulatory procedures and coordination among different agencies within the country, also implement cross-
border electronic business processes and information exchange with other AMS’ NSWs, and other non-ASEAN countries.

Cross-border trade procedures covered within the ASW environment include exchanging the ASEAN Customs Declaration Document (ACDD), ATIGA e-Form D, Electronic Phytosanitary (e-Phyto) Certificates, electronic Animal Health Certificates (e-AH), and electronic Food Safety Certificates (e-FS).

Currently, ATIGA e-Form D is fully operated among all 10 ASEAN members. In December 2020, 3 AMS, namely Cambodia, Myanmar, and Singapore, started the cross-border electronic exchange of the ASEAN Customs Declaration Document (ACDD), followed by Malaysia and Thailand from March 2021. In November 2021, ASEAN gave the Philippines the green light for the electronic exchange of the ASEAN Customs Declaration Document.

AMSs have worked on aligning the data structure of electronic Phytosanitary (e-Phyto) Certificates with the International Plant Protection Convention (IPPC) e-Phyto Guideline before planning for the end-to-end test exchange among ready AMS by 2021. Currently, some ASMs, including Thailand and Indonesia, have already adopted the cross-border electronic exchange of ePhyto certificates.

To expand the scope of the ASW, the ASEAN Single Window Steering Committee has developed the roadmap for the exchange of e-document with ASEAN Dialogue Partners (DPs) to identify the mandatory steps, including a) feasibility study; b) legal framework establishment; and c) system implementation to enable the exchange of e-documents across the region.

II. 6.2 Key Implications

Implementing the ASW offers several key lessons and implications that can be valuable for other countries in the Asia-Pacific region.

**Collaboration and Harmonization:** One of the primary lessons is the importance of collaboration and harmonization among member states. ASW’s success is built on the commitment of ASEAN nations to work together and align their customs procedures and data standards. Other countries in the region can benefit from fostering similar collaboration to streamline and digitize cross-border trade.

**Standardization of Data:** ASW emphasizes the need for standardized data and document formats for efficient electronic exchange. This lesson underscores the significance of establishing common data standards and formats in cross-border trade to ensure compatibility and interoperability among different systems.

**Legal Framework and Agreements:** The ASW’s implementation involved the development of legal frameworks and agreements among member states for mutual recognition of cross-border electronic data. Other countries can learn the importance of creating legal structures to support cross-border data exchange and trade facilitation initiatives.
Capacity Building: ASW has highlighted the importance of capacity building and training for customs officials and stakeholders. Other countries can benefit from investing in skill development and awareness programs to ensure the successful adoption of electronic customs and non-customs procedures.

Phased Implementation: ASW adopted a phased implementation approach, starting with simpler processes before moving to more complex ones. This incremental approach allows for gradual adjustments and reduces disruptions. Other countries can consider a similar phased implementation strategy.

Technology Infrastructure: A crucial lesson is the significance of robust technology infrastructure to support electronic data exchange. Countries need to invest in secure and reliable systems that can handle the volume of trade-related data effectively.

Stakeholder Engagement: The involvement of various stakeholders, including the private sector, is vital for the success of ASW. Other countries should engage with businesses, trade associations, and other relevant parties to gather input and ensure a smooth transition to its digitally transformed procedures.

Monitoring and Evaluation: Continuous monitoring and evaluation of ASW's performance have been essential for identifying areas of improvement. Other countries should establish mechanisms for ongoing assessment to adapt and enhance their own electronic trade facilitation systems.

International Cooperation: ASW underscores the value of international cooperation within ASEAN and with external partners. Collaboration with neighboring countries and regional organizations can facilitate cross-border trade and expand economic opportunities.

Transparency and Accountability: Ensuring transparency and accountability in implementing paperless trade procedures is critical. Other countries should prioritize transparency in their systems to build trust among stakeholders and ensure compliance.

Even though the ASW has adopted a phased and incremental approach to its implementation, for example, most member states have focused on implementing its national-level Single Windows first before the cross-border ones. However, all of the enabling components discussed above have been analyzed and designed for regional integration and cross-border interoperability, which have been its main goals from the beginning.

II. 7. Eurasian Economic Union Single Window Project

II. 7.1 An Overview

The Eurasian Economic Union (EAEU) comprises five member states: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russian Federation. In 2014, these countries initiated a project to converge their National Single Window development approaches by adopting the Main Directions
for Single Window Development\(^2\) and a multiannual plan\(^3\). A notable result of this joint effort was the adoption of the Benchmark (Reference) National Single Window model in 2019\(^4\). This high-level document serves as a reference framework for implementing Single Window systems across the EAEU member states.

Given the varying levels of readiness and complexity of the systems, the EAEU adopted a phased and incremental approach to NSW development. Some member states already had national-level Single Windows, so necessary elements for regional integration and cross-border interoperability, such as the integrated information system, were planned concurrently with national plans.

**II. 7.2 Key Implications**

The Eurasian Economic Union (EAEU) adopted an approach to synchronizes the planning, design, and development of national and cross-border paperless trade wherever possible. By working collaboratively, the EAEU member states identified requirements, developed a roadmap, designed target solutions, and assisted each other in establishing National Single Windows.

**II. 8. A Regional-wide Cross-Border Paperless Trade Platform: EU Single Window**

**II. 8.1 An overview**

Following a decade of pilot projects and nearly four years of planning and dialogue, the European Union Single Window Environment for Customs legislation was officially enacted into EU legislation in December 2022.

The following are key factors for steering the concurrent implementation of both domestic and cross-border electronic interoperability among the EU member states.

**Regional-wide Mandate:** It should be emphasized that, in the EU context, it is an economy that has already been harmonized into a single economic union, especially with the concept of the Customs Union. This differs from other regions and countries, especially in Asia and the Pacific. The regional commitment through the EU parliament’s mechanism is quite unique for the EU member states. Nevertheless, we have learned that the EU Regulation 2022/2399 enacted in 2022 has helped mandating all 27 EU member states to commit and collaborate in concurrently implementing the European Union Single Window Environment for Customs with concrete actionable frameworks and timelines.

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\(^2\) [https://eec.eaeunion.org/comission/department/dep_tamoj_zak/edinoe_okno/mdsw.php](https://eec.eaeunion.org/comission/department/dep_tamoj_zak/edinoe_okno/mdsw.php)


Establishment of a Legal Framework: A legal framework has been established to improve information sharing and digital cooperation between customs and non-custom domains. Harmonizing the legal framework across EU member states helps create a uniform operating environment for the Single Window system, promoting interoperability and minimizing confusion or duplication of efforts. Rules have been set out to improve digital administrative cooperation and information-sharing between customs administrations and other government authorities in charge of enforcing EU non-customs formalities at the EU border in different areas of EU responsibility under the treaties, such as health and safety, environment protection, fisheries, agriculture and market surveillance.

Data Harmonization and Standardization: The EU Regulation 2022/2399 requires EU Member States to establish and operate a set of services and systems. Data harmonization among different systems has also been established to enable information to be semantically and syntactically exchanged between the electronic systems of their Customs authority, partner competent authorities and economic operators.

Interoperable IT Infrastructure: The overall IT architecture for cross-border data exchange and interoperability has been proposed and agreed upon. The decision is to establish a centralized system, known as the EU Customs single window certificates exchange system (EU CSW-CERTEX), to improve the sharing and processing of data submitted to customs and partner competent authorities by economic operators, ensuring that those authorities receive the original data in real-time.

Data Privacy and Protection: The agreed system is designed with privacy and data protection at its core. For example, data is kept in the source systems (customs or non-customs) and used only for the purposes already established by customs legislation and sectorial legislation. The exchange hub (the EU CSW-CERTEX) does not store any data when performing data-processing operations. All the exchanges and transformations occur in real time, triggering the contextual erasure of any data as soon as the processing operations are completed. The only data kept in the system is a log file indicating a transmission, along with the reference numbers of the documents concerned.

Stakeholder Engagement and Collaboration: Customs and Non-Customs agencies of each member state are strongly engaged and collaborated.

Ongoing monitoring and reporting: The European Commission will prepare annual progress reports to assess the state of digitalization of all non-customs formalities at the EU border, including expected future developments and prospective interactions with customs. Every third year, the annual reports will also cover monitoring and evaluation of the functioning of the EU Single Window, focusing particularly on its impact on economic operators.

II. 8.2 Key Implications
The key implications are that all seven factors and mechanisms applied within the EU region above have suggested several good practices useful for policymakers in the Asia-Pacific region. This EU SW initiative has driven the concurrent implementation and adoption of trade digitalization domestically within each EU member state and interoperable across the member states. Many of them, with some context adjustments, could be utilized to promote and expedite the implementation of trade digitalization among countries in the Asia-Pacific region.

**III. Policy recommendations**

While concurrent implementation of national and cross-border paperless trade systems may not be universally necessary, it offers advantages under certain conditions, depending on business needs, stakeholder interest, readiness, and commitment from leading agencies.

To maximize the potential benefits of trade digitalization, it is recommended that domestic and cross-border paperless trade systems be designed and implemented simultaneously, particularly when trade-related data and documents generated within one country are subsequently used by stakeholders in other trading countries. Several cases have demonstrated the feasibility and benefits of concurrent implementation.

With financial or human capacity constraints, planning and executing national and cross-border paperless may be challenging. In this case, the IPPC ePhyto solution shows that it is possible to find a cost-effective approach to utilizing readily available solutions like the IPPC's Generic ePhyto Solutions.