



# ASSESSING THE BENEFITS OF THE ASEAN+6 SINGLE WINDOW FOR ASEAN MEMBERS

Sithanonxay Suvannaphakdy and  
Neo Guo Wei Kevin

# TRENDS IN SOUTHEAST ASIA

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## FOREWORD

The economic, political, strategic and cultural dynamism in Southeast Asia has gained added relevance in recent years with the spectacular rise of giant economies in East and South Asia. This has drawn greater attention to the region and to the enhanced role it now plays in international relations and global economics.

The sustained effort made by Southeast Asian nations since 1967 towards a peaceful and gradual integration of their economies has had indubitable success, and perhaps as a consequence of this, most of these countries are undergoing deep political and social changes domestically and are constructing innovative solutions to meet new international challenges. Big Power tensions continue to be played out in the neighbourhood despite the tradition of neutrality exercised by the Association of Southeast Asian Nations (ASEAN).

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# Assessing the Benefits of the ASEAN+6 Single Window for ASEAN Members

By Sithanoxay Suvannaphakdy and Neo Guo Wei Kevin

## EXECUTIVE SUMMARY

- The ASEAN+6 Single Window (ASW+6) in this study refers to the geographic expansion of the ASEAN Single Window (ASW) to enable cross-border electronic exchange of trade-related data and documents among ASEAN member states and six FTA partners, namely, Australia, China, India, Japan, New Zealand and South Korea. The ASW is part of ASEAN's trade facilitation reform to reduce intraregional trade costs and time.
- This study considers cross-border paperless trade measures to represent the implementation of ASW+6, using data from the UN Global Survey on Digital and Sustainable Trade Facilitation in 2019. The simulation analyses reveal that the ASW+6 has significant potential to reduce times required to export and import, and to boost trade in ASEAN and its FTA partners.
- Partial implementation of cross-border paperless trade measures would imply an increase in ASEAN's exports of US\$102 billion annually. Under a more ambitious scenario of full implementation of cross-border paperless trade, the export gain for ASEAN would be US\$199 billion annually. At the same time, the time required to export would fall by anything between 19 to 98 per cent, depending on the reform scenario considered.
- Trade gains from a full-fledged ASW+6 have not yet been reaped: even strong performers such as Singapore, Australia and New Zealand have areas for improvements, and weaker performers such as Cambodia and Laos need to make significant progress to catch up with the rest of the region, and deepen their mutual trade integration.



- The sequence of expanding the ASW to FTA partners may begin with countries that are major sources of ASEAN's export gains identified in this study and those that have expressed their political will to move in that direction. These are Japan and South Korea. The ASW should then be enlarged to remaining FTA partners, especially China and India.
- While trade gains from ASW+6 are substantial, the implementation costs can also be significant due to different regulatory requirements across ASEAN+6 countries. Aid for trade and capacity-building to support the reform process have to be an integral part for the design of ASW+6.

# Assessing the Benefits of the ASEAN+6 Single Window for ASEAN Members

By Sithanoxay Suvannaphakdy and Neo Guo Wei Kevin<sup>1</sup>

## 1. INTRODUCTION

The application of technology and innovation in international trade procedures play an important role in making trade simpler, cheaper, more resilient and sustainable. One such initiative in ASEAN is the establishment and implementation of the national single window (NSW). The NSW is an electronic facility that allows parties involved in international trade and transport to submit all information needed to fulfil trade-related regulatory requirements at once and at a single-entry point (UNECE 2020). It enables traders and other economic operators (e.g., transporters, logistics firms, freight forwarders, customs brokers) to submit all information and documents required by different border authorities (e.g., customs, trade and commerce, healthcare, agriculture, standards) to one place or system, instead of making multiple submissions to multiple places or systems.

The key benefits of NSW are time and cost savings for both the public and private sectors. Trade information submitted to the NSW can be exchanged or made accessible to all of the relevant government authorities for processing (or be processed by the single window system

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itself), which eliminates the need for the business to make multiple submissions of the same information or documents. The authorities' responses can be returned to the applicant via the same single-entry point. In the absence of an NSW, a business must approach each border authority separately—often physically at different offices or locations—and provide the information or documents that each authority requires, using that authority's particular forms, procedures and systems.

In ASEAN, the member states have been developing the ASEAN Single Window (ASW) since 2005. The ASW creates an interoperable environment to connect and integrate ASEAN member states' NSWs at the regional level. The establishment and operation of ASW have been supported by three regional agreements or protocols, namely the Agreement to Establish and Implement the ASEAN Single Window signed on 5 December 2005,<sup>2</sup> the Protocol to Establish and Implement the ASEAN Single Window (Implementation Protocol) signed on 20 December 2006,<sup>3</sup> and the Protocol on the Legal Framework to Implement the ASEAN Single Window (Legal Framework Protocol) signed on 4 September 2015.<sup>4</sup>

The implementation of ASW has enhanced electronic exchanges of trade data and documents in the region. In 2020, all ASEAN member states joined the ASW live operation, which allowed more than 800,000 electronic exchanges of the ATIGA e-Form D through ASW for granting preferential tariff treatment among member states. Five member states, namely, Cambodia, Myanmar, Singapore, Malaysia and Thailand, have also exchanged the ASEAN Customs Declaration Document (ACDD) through the ASW, while the remaining members are expected to join by the end of 2021. The ASW opens opportunities for the electronic exchange of more trade-related documents such as e-SPS Certificates, Animal Health Certificates (e-AH) and Food Safety Certificates (e-FS).

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<sup>2</sup> <https://asw.asean.org/index.php/archives/agreements/item/agreement-to-establish-and-implement-the-asean-single-window>

<sup>3</sup> <https://asw.asean.org/index.php/archives/agreements/item/protocol-to-establish-and-implement-asean-single-window>

<sup>4</sup> <http://agreement.asean.org/media/download/20150915020056.pdf>

The present study estimates the potential benefits of expanding the ASW to six FTA partners of ASEAN (hereafter, ASEAN+6 Single Window or ASW+6). If ASW+6 is implemented, it should enable the electronic exchange of cross-border trade-related documents among ASEAN member states and their FTA partners. This study considers six cross-border paperless trade measures as representing the implementation of ASW+6, using data from the UN Global Survey on Digital and Sustainable Trade Facilitation in 2019. These are the availability of laws and regulations for cross-border electronic transactions; the establishment of recognized certification authorities to issue digital certificates for electronic transactions; the facilitation of banks and insurers retrieving letters of credit (L/C) electronically without lodging paper-based documents; and the implementation of cross-border electronic exchange of three trade-related documents, namely customs declaration, certificate of origin (CO), and sanitary and phyto-sanitary (SPS) certificate.

In this study, we estimate the potential benefits of partial or full implementation of cross-border paperless measures with respect to reduction of time required to export and import, as well as an increase in exports. This is done by classifying the implementation of cross-border paperless trade measures into three stages, namely no implementation or planning stage, partial implementation, and full implementation.

Results of the study should be of interest to policymakers in two ways. First, the COVID-19 pandemic has highlighted the need for digitalizing trade procedures through the development of national and regional single windows. The work-from-home directive as part of the COVID-19 control measures means that some regulatory authorities in the ministries of trade, health or agriculture have to provide public services in different locations and may not be fully available to process paper documents submitted by traders. This has created risks of disrupting the supply chains in food and medical supplies. Such risks can be mitigated by the implementation of full-fledged NSW and subsequently ASW+6 to enable exporters or importers to submit all trade-related documents electronically only once for each occurrence of their exports or imports. Such documents are then processed electronically by the regulatory authorities either at the office or in the home.

Second, results of the study should feed into the ongoing discussion on expanding the ASW in ASEAN. In November 2020, the ASEAN Secretariat published the ASEAN Comprehensive Recovery Framework (ACRF) and its implementation plan, which set out strategies and identified measures for recovery in line with sectoral and regional priorities (ASEC 2020). The ACRF trade facilitation measures include the harmonization of standards for essential goods and the expansion of ASW to ASEAN's key trading partners. This aims to reduce compliance costs and procedural obstacles for traders, which should improve the efficiency of their business operations and increase their participation in international supply chains.

This study consists of five sections. After the introduction in section 1, section 2 provides economic rationales for establishing the ASW+6. Section 3 describes the mechanism of ASW+6 in facilitating trade of participating countries. Section 4 presents the empirical results on potential reductions in export and import times as well as export gain under different scenarios of cross-border paperless trade reforms. Section 5 concludes the study with policy implications.

## **2. THE NEED TO FURTHER SIMPLIFY TRADE PROCEDURES**

Cross-border single window interoperability—the ability of NSW in two or more countries to exchange and use information to facilitate trade—could enable cross-border paperless trade within ASEAN and between ASEAN and countries outside the region. This section analyses regulatory-related requirements and their associated time and costs for the movement of goods across ASEAN members and with their six FTA partners, namely, Australia, China, India, Japan, New Zealand and South Korea.

Traders, freight forwarders and truck operators must comply with different documentary and procedural requirements imposed by ASEAN+6 countries. For example, the World Bank's Doing Business database reveals that on average, ASEAN importers have to fulfil eight documentary requirements to import parts and accessories of motor vehicles (HS 8708). The number of required import documents

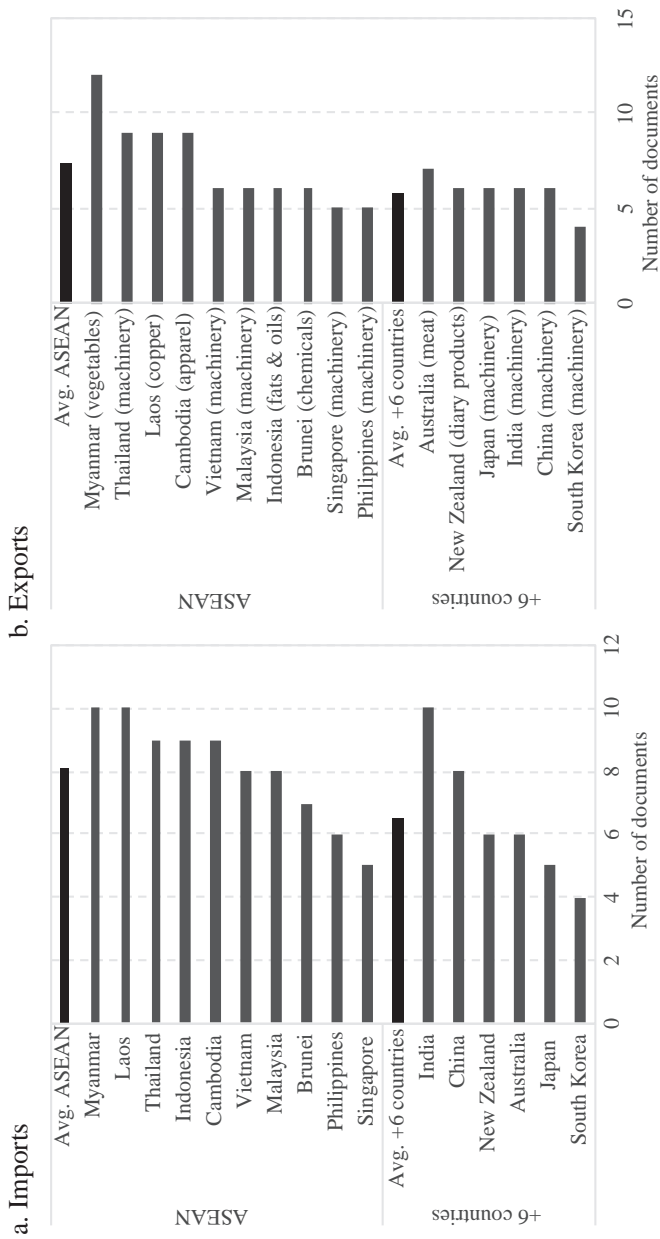
varies across member states, ranging from five in Singapore and six in the Philippines to eight in Malaysia and Vietnam, nine in Cambodia, Indonesia and Thailand and ten in Laos and Myanmar. The average number of documentary requirements in the six FTA partners of ASEAN is 6.5, which is slightly lower than that of ASEAN. It ranges from four in South Korea and five in Japan to eight in China and ten in India (Figure 1a).

On the export side, exporters in ASEAN member states and their six FTA partners have to submit seven and six documents, respectively, to export goods that have comparative advantage to them (Figure 1b). These are machinery for Thailand, Vietnam, Malaysia, Singapore and the Philippines; vegetables for Myanmar; copper for Laos; apparel for Cambodia; vegetable fats and oils for Indonesia; and organic chemicals for Brunei. All ASEAN+6 countries require a lower number of documents for exports than for imports, which may reflect the governments' intentions to encourage exports rather than imports. For example, importers in Vietnam and China have to fulfil eight documents, while their exporters have to fulfil six documents.

To comply with all documentary requirements for imports or exports, traders spend time and incur financial costs associated with trade procedures. These include obtaining documents (such as time spent and fee to get the document issued and stamped); preparing documents (such as time spent gathering information to complete the customs declaration); processing documents (such as time spent waiting for the relevant authority to issue the CO); presenting documents (such as time spent showing a port terminal receipt to port authorities); and submitting documents (such as time spent submitting the customs declaration to the customs agency in person or electronically). Often, this information and documentation must be submitted to several different agencies, each with their own specific (manual or automated) systems and paper forms.

Costs and time of documentary compliance vary across ASEAN+6 countries. Importers in five ASEAN member states incur high costs and spend long periods of time to comply with all documentary requirements for imports. These are Cambodia, Indonesia, Laos, Myanmar and Vietnam. In contrast, importers in South Korea, Singapore, Thailand, Malaysia, Brunei and the Philippines face relatively low costs and short

**Figure 1: Number of Documents Required for Imports and Exports in ASEAN+6 Countries, 2020**



Source: Authors' calculation using data from World Bank's Doing Business.

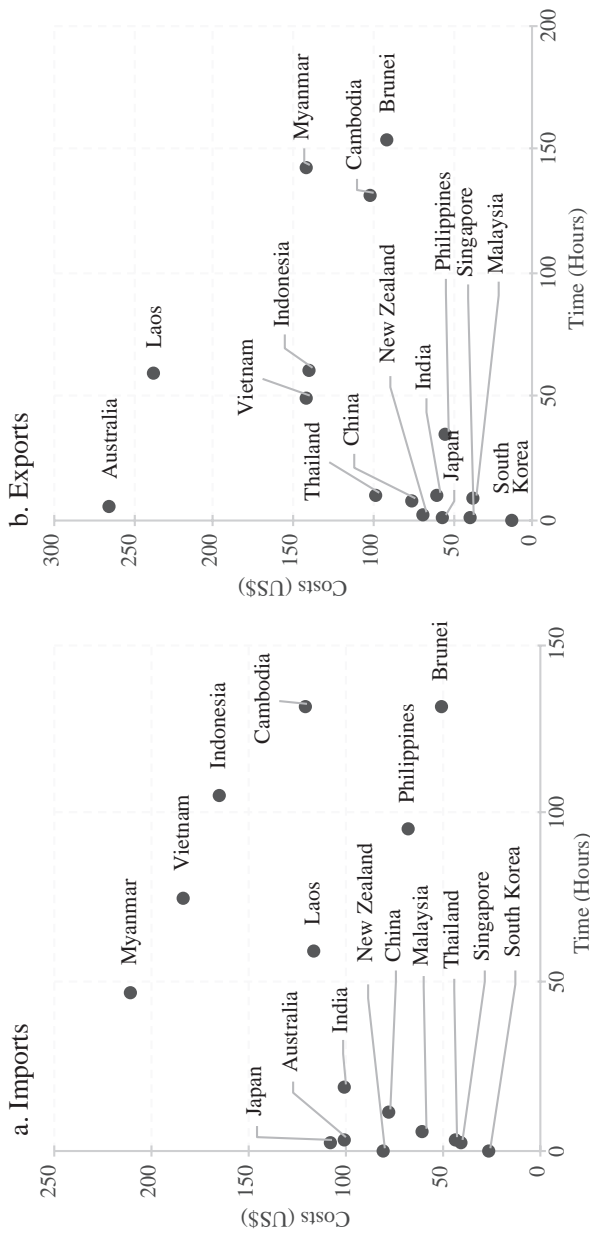
time on documentary compliance for imports. For example, the costs of documentary compliance for imports in ASEAN range from about US\$40 in Singapore and Thailand to US\$60 in Malaysia and US\$210 in Myanmar (Figure 2a). The same pattern is true for exports (Figure 2b). High trade compliance costs and long delay in obtaining trade documents impede the development of regional value chains where goods typically cross borders multiple times. COVID-19 containment measures such as mandatory testing and 14-day quarantine periods for truck drivers add to complex documentary requirements and their associated costs.

Regulatory burden on imports and exports could undermine the participation of ASEAN+6 countries in global value chains (GVC). ASEAN+6 countries constitute one of the three main hubs for global production chains, which have tight trade links in electronics and high technology equipment (Figure 3). China is one of the top three economies with high GVC participation in the world. It also has the highest GVC participation among ASEAN+6 countries, followed by Australia, Japan, South Korea, India, Singapore, Thailand, Malaysia, Vietnam, and Indonesia. The thickness of lines linking China to the rest of ASEAN+6 countries in Figure 3 suggest strong trade links among them.

Strong trade links among ASEAN+6 countries via GVCs amplifies the need to simplify the procedures for imports and exports of both final goods and intermediate goods such as parts and components. Intermediate goods cross borders multiple times before reaching the final stage of production. This happens in two ways. First, domestic firms can import intermediate inputs from their foreign value chain partners which they then use for the production and export of their own goods. Or domestic firms can export intermediate goods to their foreign value chain partners, which in turn use them to make their own exports. The decision of domestic firms to source inputs from foreign counterparts depends on several factors, such as minimizing costs, securing supplies tailored to specific production technologies, and improving quality. Complex import procedures due to large number of documentary requirements increase the costs of imported intermediate inputs, which results in higher costs of production for exports. This reduces the country's competitiveness in GVC participation.

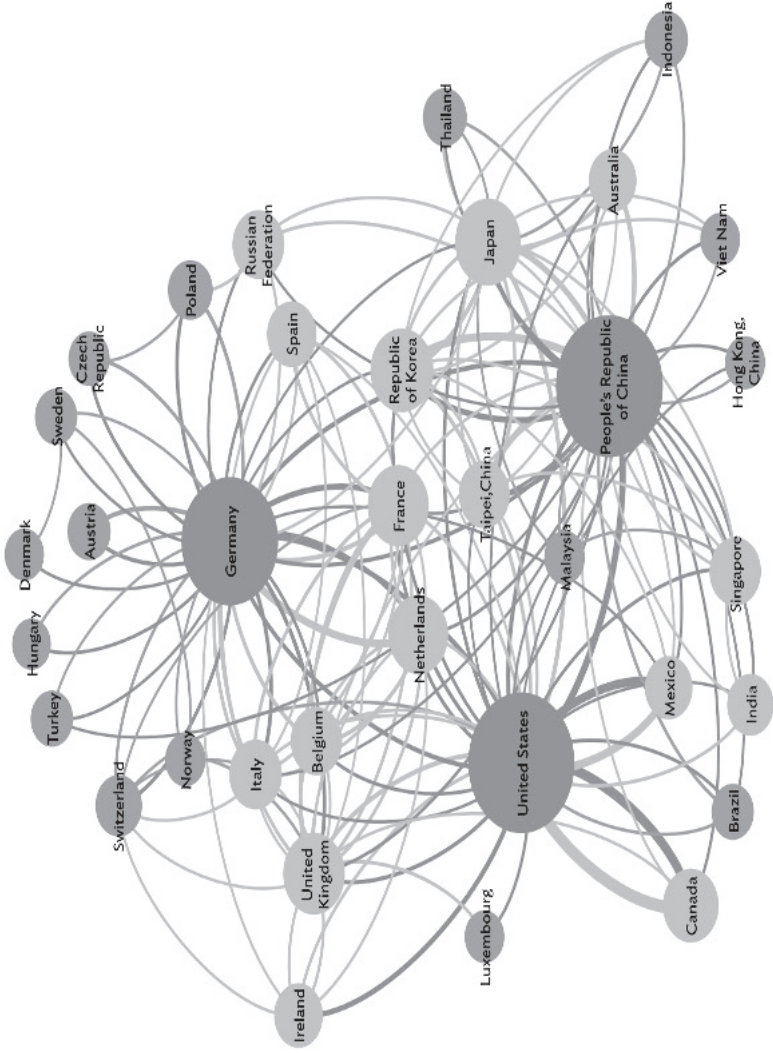


**Figure 2: Trade Times and Costs for Documentary Compliance in ASEAN+6 Countries, 2020**



Source: Authors' calculation using data from World Bank's Doing Business.

**Figure 3: Global Production Chains**



Source: Adapted from Abiad et al. (2018).

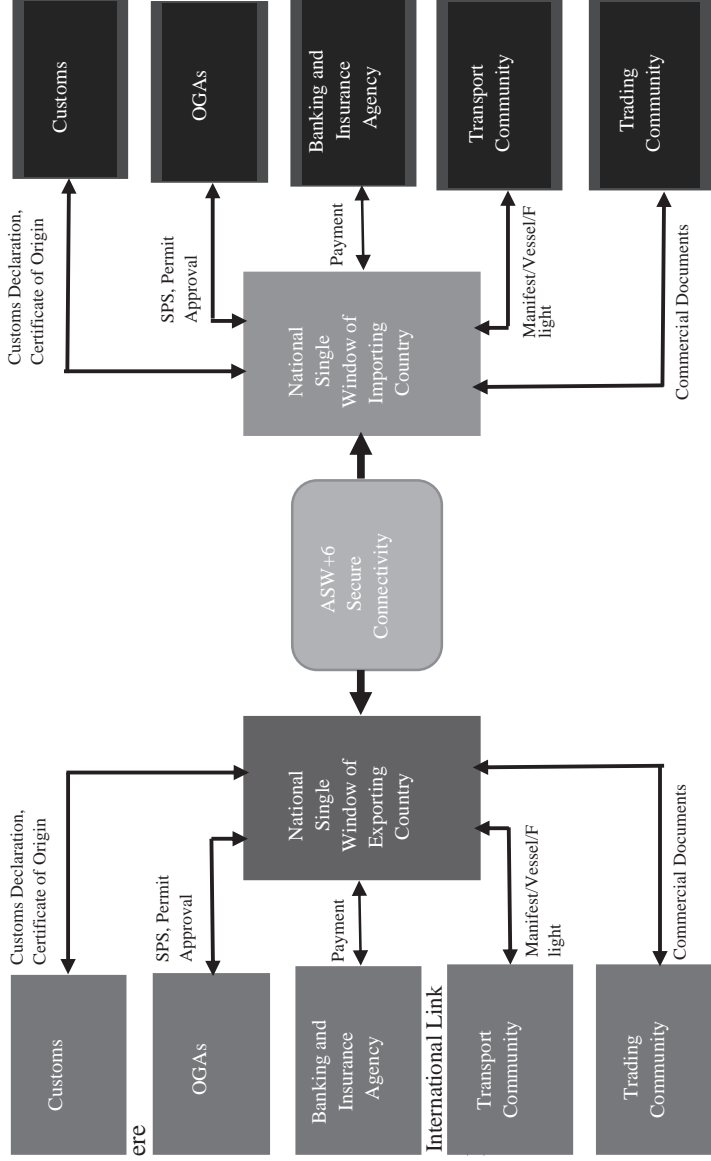
### **3. A CONCEPTUAL MODEL OF THE ASEAN+6 SINGLE WINDOW**

One approach to address the complex trade procedures and high costs and time associated with them is the establishment of the ASW+6. The ASW+6 is a regional single window that connects the ASW to the NSW of FTA partners. The ASW is a regional initiative that connects and integrates the NSW of 10 ASEAN member states for the electronic exchange of cross-border trade-related documents among them.

The establishment of the ASW+6 should enable the cross-border electronic exchange of trade-related documents between ASEAN and its FTA partners as well as among FTA partners. Figure 4 illustrates the cross-border electronic exchange of trade information between two NSWs via ASW+6. One NSW is located in the exporting country, and another NSW is located in the importing country. In each country, the NSW processes seven types of trade-related documents and data, namely customs declaration, certificate of origin, SPS certificate, permit approval, payment for goods and services, manifests, and commercial documents. The key stakeholders from the public sector include customs, agriculture, health, and standards. The key stakeholders from the private sector include commercial banks, insurance firms, exporters, importers, freight forwarders, transport operators, and customs brokers.

However, ASEAN member states and their FTA partners are in different stages of implementing the NSWs and cross-border electronic exchange of trade-related documents (Table 1). The establishment of NSWs is essential for conducting an electronic exchange of trade-related documents across countries. While the NSWs in ASEAN+6 countries have been established, half of them have not yet been fully implemented. Laos is in the planning stage, while Cambodia, Myanmar, the Philippines, Vietnam, Australia, China and India have partially implemented their NSWs. In contrast, Brunei, Indonesia, Malaysia, Singapore, Thailand, Japan, New Zealand and South Korea have fully implemented their NSWs. Given different levels of NSW developments, ASEAN may first consider to link the full-fledged NSWs in Brunei, Indonesia, Malaysia, Singapore and Thailand to those of the FTA partners. The remaining

**Figure 4: Conceptual Model of ASEAN+6 Single Window**



*Note:* OGAs = Other government agencies. ASW+6 = ASEAN+6 Single Window.  
*Source:* Adapted from ASEAN Single Window (ASEC 2006).

**Table 1: Stages of Implementing NSWs and Cross-Border Paperless Trade Measures in ASEAN+6, 2019**

Country	Necessary Condition	Cross-Border Paperless Trade Measures						
		National Single Window	Laws for Electronic Transactions	Recognized Certification Authority	Customs Declaration	Certificate of Origin	SPS Certificate	Letters of Credit
<i>ASEAN Member States</i>								
Brunei	Full	Partial	Partial	Partial	Planning	Planning	Planning	No
Indonesia	Full	Partial	No	Partial	Partial	Partial	Planning	Partial
Cambodia	Partial	No	No	Planning	Planning	Planning	Planning	Partial
Laos	Planning	Partial	Planning	Partial	Planning	Planning	No	No
Myanmar	Partial	Partial	Full	Full	Planning	Planning	No	No
Malaysia	Full	Full	Full	Full	Planning	Planning	Planning	NA
Philippines	Partial	Partial	Partial	Partial	Planning	Planning	Partial	Partial
Singapore	Full	Full	Full	Full	Planning	Planning	Partial	Partial
Thailand	Full	Partial	Full	Full	Partial	Partial	Planning	Partial
Vietnam	Partial	Partial	Partial	Partial	Planning	Partial	Partial	No
<i>+6 Countries</i>								
Australia	Partial	Full	Full	Full	Partial	Partial	Partial	Full
China	Partial	Partial	Full	Full	Partial	Partial	Partial	Partial
India	Partial	Full	Full	Full	Planning	Planning	Partial	No
Japan	Full	Full	Full	Full	Partial	Partial	Partial	Partial
New Zealand	Full	Full	Full	Full	Full	Full	Partial	No
South Korea	Full	Partial	Full	Full	Partial	Partial	Partial	Full

*Note:* No = not implemented; Partial = partially implemented; Full = Fully implemented; NA = data is not available.

*Source:* United Nations' Global Survey on Digital and Sustainable Trade Facilitation, available at <https://www.untfsurvey.org/world> (accessed 6 July 2021).

member states may join the group later when their NSWs are fully implemented.

The six FTA partners are better prepared than ASEAN member states in enabling cross-border electronic exchange of trade-related documents. Four out of six FTA partners have put in place laws and regulations for electronic transactions, while only two out of the ten ASEAN member states have done so. Similarly, all FTA partners have established their recognized certification authority issuing digital certificates to traders for conducting electronic transactions, while more than two-thirds of ASEAN member states are in the planning stage or have partially implemented such a measure. With the exception of India, the FTA partners have conducted cross-border electronic exchange of trade-related documents such as customs declaration, certificate of origin, and SPS certificate (see Annex 1 for more details of key components of cross-border paperless trade measures). This suggests that ASEAN member states need to make progress in a number of cross-border paperless trade measures to catch up with their FTA partners.

## **4. POTENTIAL BENEFITS OF THE ASEAN+6 SINGLE WINDOW**

The establishment and operation of ASW+6 to enable cross-border paperless trade may be viewed as a gradual process involving the simplification, standardization, and modernization of trade procedures. This study applies counterfactual simulations by conducting “what if” exercises based on the current reality of cross-border paperless trade implementation and two reform scenarios, namely partial and full implementation of cross-border paperless trade.

Following Shephard (2014), we assess the benefits of ASW+6 in three stages. First, the relationship between cross-border paperless measures and trade time (i.e., time required for exports and imports of goods) is estimated by running a regression of trade time on the score of cross-border paperless measures (see Annex 2 and 3). Second, the estimated coefficient of cross-border paperless trade in the first stage is used to simulate the reductions of trade time under different scenarios of cross-border paperless trade reform across ASEAN+6 countries. Third, the

reduction of simulated trade time in the second stage is used to simulate export gains.

#### *4.1 Simulated Export and Import Time under Reform Scenarios*

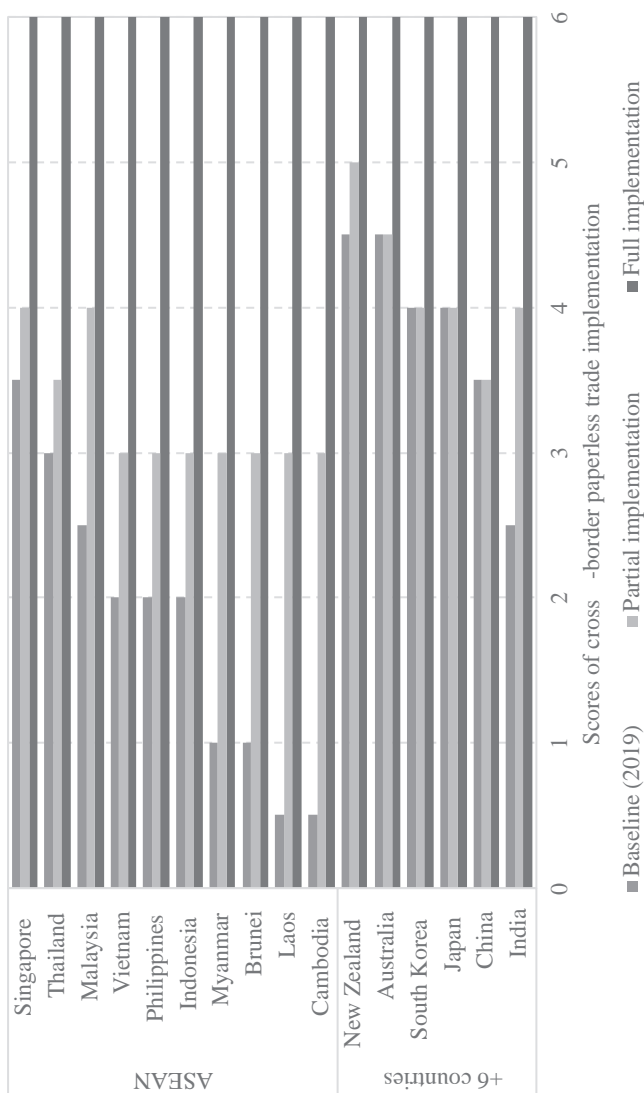
We simulate the reductions of export and import time under two scenarios of cross-border paperless trade reforms. They are:

1. All ASEAN+6 countries achieve at least partial implementation of cross-border paperless trade.
2. All ASEAN+6 countries achieve full implementation of cross-border paperless trade.

The first step in running the counterfactual simulations is to calculate the overall cross-border paperless trade scores that countries would have if they partially (Scenario 1) or fully (Scenario 2) implemented the cross-border paperless trade measures. Figure 5 illustrates the scores of the baseline data as well as the counterfactual scores of cross-border paperless trade under Scenarios 1 and 2. The score has a maximum value of 6, indicating full implementation of all measures. The regional average of the baseline score is 2.6, but its range is very wide. In ASEAN, Singapore has the highest score, while Cambodia and Laos have the lowest. For FTA partners, Australia and New Zealand have the highest score, while India has the lowest. The regional average of cross-border paperless trade implementation score improves by 40 per cent under Scenario 1 and 134 per cent under Scenario 2. Both scenarios can therefore be seen to be ambitious when measured against the current implementation baseline, but not unreasonable in light of the substantial reforms already undertaken in some ASEAN+6 countries.

The next step is to translate changes in cross-border paperless trade implementation scores into changes in export and import time. The simulation results in Figure 6 reveal that the regional average for Scenario 1 is a 41 per cent decrease in export time (Figure 6a) and a 37 per cent decrease in import time (Figure 6b), but the range in export and import time is very wide. Countries that have already implemented significant reforms, such as Australia, China, Japan and South Korea, see

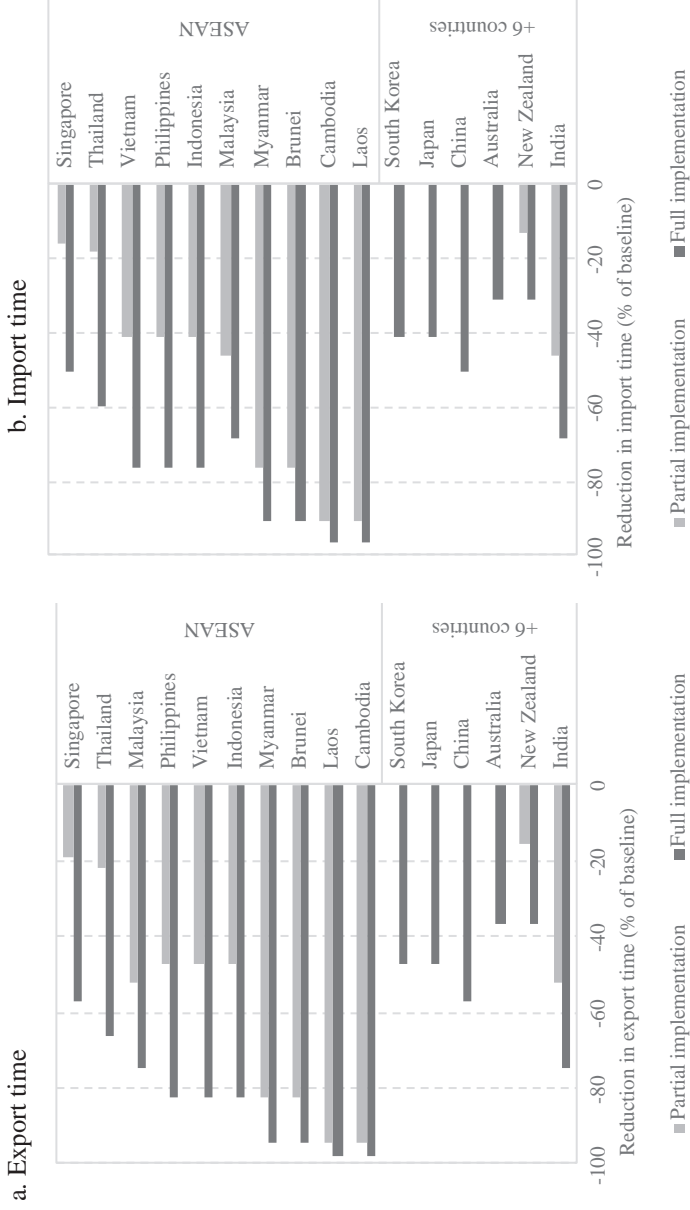
**Figure 5: Scores of Cross-Border Paperless Trade Implementation for the Baseline (2019), Partial Implementation (Scenario 1), and Full Implementation (Scenario 2)**



Source: Authors' calculation using data from UN Global Survey on Digital and Sustainable Trade Facilitation in 2019.



**Figure 6: Reductions in Simulated Export and Import Time under Partial (Scenario 1) and Full (Scenario 2) Implementation of ASW+6**



Source: Authors' calculation.

no change to their score and the export time under Scenario 1, but others, such as Cambodia, Laos, Brunei and Myanmar, experience the reduction of export time by more than 90 per cent of the baseline.

Reductions in export and import time are even greater under Scenario 2. The regional average is a 71 per cent decrease in export time and 65 per cent decrease in import time, but the range is also very wide. The decrease in simulated export time runs from 37 per cent in Australia and New Zealand to 57 per cent in Singapore and 98 per cent in Cambodia and Laos. The same pattern is true for the reduction in simulated import time. Although these figures are in some cases very large, they lie in the range of time savings from the implementation of NSWs. The implementation of a NSW in Thailand could reduce the export time by 42 per cent from twenty-four days in 2007 to fourteen days in 2011 (UNNEXT 2012). The implementation of a NSW in Singapore could reduce the turnaround time for processing trade documents by 99 per cent from about two to four days (before the implementation of NSW) to 15 minutes (after the implementation of NSW) (UNNEXT 2010). These comparisons provide further evidence that the counterfactual scenarios, although ambitious, are reasonable in the context of reform efforts previously undertaken in ASEAN+6 countries.

#### *4.2 Simulated Export Gains under Reform Scenarios*

The simulated export gains can be obtained by translating the simulated changes in export time into exports using an estimated elasticity from Djankov, Freund and Pham (2010). Djankov, Freund and Pham (2010) show that a 10 per cent decrease in export time is associated with a 3.5 per cent increase in exports. In this case, the time elasticity for exports is 0.35.

The simulation of export gains proceeds by first expressing the counterfactual export time under reform scenarios as percentage change relative to the baseline of export time (2019). Next, the percentage change of simulated export time is multiplied by 0.35 to produce counterfactual value for exports. The presentation of results focuses on exports only, both for considerations of space and because the results for imports and exports are similar.

Table 2 shows the simulated export gains under the partial reform (Scenario 1). The regional average of the percentage gains in exports is around 14 per cent. Similar to the case for simulated export time, the range of export gains across countries is relatively wide. Australia, China, Japan and South Korea do not gain at all under the partial reform, because they have already achieved at least partial implementation of all cross-border paperless trade measures.

On the other hand, all ASEAN member states stand to gain from the partial reform of cross-border paperless trade. The export gains range from around 7 per cent of the baseline in Singapore to 18 per cent in Malaysia and 33 per cent in Cambodia and Laos. The driving force behind the cross-country differences in simulated percentage export gains is the baseline level of cross-border paperless trade implementation. Countries that are more advanced in terms of implementation tend to gain less, because they have already undertaken many or most of the measures considered by the reform scenario.

In Scenario 1, total export gains in ASEAN are estimated at US\$102 billion, 60 per cent of which comes from the potential increase in exports to the six FTA partners and the remaining 40 per cent from intra-ASEAN trade. Major sources of ASEAN's export gains from the FTA partners are China, Japan and South Korea. 87 per cent of ASEAN's export gains is accounted for by five ASEAN economies, namely, Malaysia (25 per cent of ASEAN's export gains), Vietnam (19 per cent), Indonesia (18 per cent), Singapore (15 per cent) and Thailand (10 per cent). Another 13 per cent of ASEAN's export gains is accounted for by the remaining ASEAN economies, namely, the Philippines (5.7 per cent), Myanmar (3.1 per cent), Brunei (1.7 per cent), Laos (1.6 per cent) and Cambodia (1.1 per cent) (Table 2). The driving force behind the cross-country differences in simulated values of export gains is the combination of the baseline level of cross-border paperless trade implementation and the baseline value of exports. Singapore, for example, has relatively large export gains because it has the large baseline value of exports in 2019 despite the relatively small change in the cross-border paperless trade score.

For Scenario 2, the full implementation of cross-border paperless trade is more ambitious and results in larger export gains than the partial

**Table 2: Simulated Export Gains under Partial Implementation (Scenario 1) of Cross-Border Paperless Trade in ASEAN+6, US\$ million**

Importer	Exporter															
	ASEAN							+6 countries								
	BRN	CAM	IDN	LAO	MYS	MMR	PHL	SGP	THA	VNM	AUS	CHN	IND	JPN	NZL	KOR
ASEAN	0	3	13	0	100	0	1	66	8	7	0	0	10	0	0	0
BRN	0	0	91	4	78	1	4	234	501	670	0	0	31	0	0	0
CAM	11	7	0	1	1,414	34	137	2,006	691	571	0	0	799	0	37	0
IDN	0	2	1	0	2	0	0	3	297	107	0	0	6	0	0	0
LAO	156	43	1,473	3	0	54	302	2,863	805	650	0	0	1,123	0	38	0
MYS	0	1	144	0	142	0	9	197	331	118	0	0	199	0	2	0
MMR	19	11	1,116	0	759	6	0	548	537	596	0	0	303	0	28	0
PHL	176	56	2,134	5	6,033	197	634	0	650	527	0	0	2,001	0	40	0
SGP	178	137	1,076	812	2,402	772	492	1,028	0	854	0	0	752	0	34	0
THA	25	115	735	226	1,423	37	210	831	910	0	0	0	1,242	0	27	0
VNM	139	38	421	1	1,388	7	66	797	775	617	0	0	647	0	296	0
+6 countries	89	288	4,310	486	5,956	1,556	1,624	3,394	2,211	6,851	0	0	2,820	0	519	0
AUS	157	17	2,186	42	1,595	204	90	791	532	1,094	0	0	0	0	25	0
CHN	588	337	2,939	27	3,083	260	1,767	1,252	1,767	3,249	0	0	859	0	125	0
IND	0	3	76	0	206	1	9	151	119	87	0	0	67	0	0	0
JPN	167	64	1,377	2	1,415	86	536	1,027	355	3,142	0	0	846	0	60	0
NZL	1,706	1,121	18,091	1,611	25,998	3,217	5,882	15,189	10,489	19,140	0	0	11,705	0	1,232	0
KOR																
Total export gains																
Memo:																
Reduction in export time (% of baseline)	-82.36	-94.09	-47.28	-94.09	-52.39	-82.36	-47.28	-19.01	-21.61	-47.28	0.00	0.00	-52.39	0.00	-15.33	0.00
Time elasticity for exports (%)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Export gains (% of baseline)	28.82	32.93	16.55	32.93	18.34	28.82	16.55	6.65	7.56	16.55	0.00	0.00	18.34	0.00	5.36	0.00

Note: BRN = Brunei, CAM = Cambodia, IDN = Indonesia, LAO = Laos, MYA = Malaysia, MMR = Myanmar, PHL = Philippines, SGP = Singapore, THA = Thailand, VNM = Vietnam, AUS = Australia, CHN = China, IND = India, JPN = Japan, NZL = New Zealand, KOR = South Korea  
Source: Authors' calculation.

**Table 3: Simulated Export Gains under Full Implementation (Scenario 2) of Cross-Border Paperless Trade in ASEAN+6, US\$ million**

Importer	Exporter															
	ASEAN							+6 countries								
	BRN	CAM	IDN	LAO	MYS	MMR	PHL	SGP	THA	VNM	AUS	CHN	IND	JPN	NZL	KOR
ASEAN	0	3	22	0	143	0	2	200	23	12	4	193	15	17	0	11
CAM	0	0	159	4	111	1	8	707	1,542	1,168	6	1,257	44	74	1	108
IDN	12	7	0	1	2,022	39	239	6,048	2,129	995	596	8,269	1,142	2,381	87	1,373
LAO	0	2	2	0	3	0	0	10	915	187	2	312	8	19	0	14
MYS	179	45	2,566	4	0	62	526	8,629	2,479	1,132	685	9,363	1,605	2,206	90	1,428
MMR	0	1	250	0	203	0	16	593	1,019	205	15	2,129	285	123	4	96
PHL	21	12	1,943	0	1,086	6	0	1,653	1,654	1,038	226	7,216	434	1,824	68	1,710
SGP	201	58	3,716	6	8,625	225	1,104	0	2,002	918	883	10,015	2,861	3,654	94	1,997
THA	203	143	1,874	846	3,435	882	857	3,100	0	1,487	483	8,500	1,075	5,069	81	1,308
VNM	29	120	1,280	236	2,035	43	366	2,506	2,802	0	487	16,957	1,776	2,646	64	7,974
+6 countries	159	40	734	1	1,984	9	115	2,403	2,388	1,075	0	9,165	925	2,625	706	2,061
	102	300	7,508	506	8,515	1,778	2,829	10,231	6,808	11,933	11,378	0	4,032	22,701	1,237	24,297
	180	17	3,808	44	2,280	233	157	2,384	1,640	1,905	1,450	14,698	0	1,701	61	2,524
	672	351	5,119	29	4,408	297	3,077	3,773	5,440	5,658	4,877	28,596	1,228	0	297	4,731
	0	4	132	0	294	1	16	454	368	151	899	1,110	95	409	0	245
	191	67	2,398	2	2,023	98	934	3,095	1,092	5,472	2,161	21,576	1,209	8,388	143	0
Total export gains	1,949	1,168	31,510	1,678	37,168	3,675	10,245	45,786	32,301	33,337	24,153	139,357	16,734	53,839	2,934	49,877
Memo:																
Reduction in export time due to ASW+6 (% of baseline)	-94.09	-98.02	-82.36	-98.02	-74.90	-94.09	-82.36	-57.31	-66.53	-82.36	-36.51	-57.31	-74.90	-47.28	-36.51	-47.28
Time elasticity for exports (%)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Export gains (% of baseline)	32.93	34.31	28.82	34.31	26.22	32.93	28.82	20.06	23.29	28.82	12.78	20.06	26.22	16.55	12.78	16.55

Note: See Table 2.

Source: Authors' estimation.

reform in Scenario 1. The regional average of export gains in this case is around 25 per cent of baseline exports. The range in ASEAN is again wide, running from Singapore (20 per cent) to Cambodia and Laos (34 per cent). Total export gains in ASEAN are estimated at US\$199 billion, 59 per cent of which would come from the potential increase in exports to the six FTA partners and the remaining 41 per cent from intra-ASEAN trade. 91 per cent of ASEAN's export gains is accounted for by five ASEAN economies, namely Singapore (23 per cent of ASEAN's export gains), Malaysia (19 per cent), Vietnam (17 per cent), Thailand (16 per cent) and Indonesia (16 per cent). Another 9 per cent of ASEAN's export gains is accounted by the remaining ASEAN economies, namely the Philippines (5.2 per cent), Myanmar (1.8 per cent), Brunei (1.0 per cent), Laos (0.8 per cent) and Cambodia (0.6 per cent) (Table 3).

## **5. CONCLUSION AND POLICY IMPLICATIONS**

The establishment of the ASEAN+6 Single Window which will enable cross-border electronic exchange of trade-related documents has significant potential to reduce trade times and boost trade in ASEAN and its six FTA partners. In particular, partial implementation of cross-border paperless trade measures would be associated with an increase in ASEAN's exports of US\$102 billion annually. Under a more ambitious scenario of full implementation of cross-border paperless trade, the export gain for ASEAN would be of the order of US\$199 billion annually. The time required to export would fall by 19 to 98 per cent, depending on the reform scenario considered.

These figures are based on counterfactual simulations using 2019 data, and parameters estimated using simple econometric models. The simulation results should not be interpreted as forecasts of the likely impact of particular reforms, but as general indications of the direction and relative magnitude of the changes that will take place if reform occurred today, and if all other factors were held constant. Although the methodology used in the report is a relatively simple one, it produces results that are consistent with previous work that has addressed particular aspects of cross-border paperless trade at the national level.

The implementation of ASEAN Single Window has been a stepping stone in moving towards highly efficient cross-border paperless trade reforms. In general, ASEAN has a good record of designing and implementing trade facilitation reforms that have lowered trade costs and boosted exports. However, the UN Global Survey on Digital and Sustainable Trade Facilitation in 2019 used in this report shows that the extent of implementation of key cross-border paperless trade measures varies substantially from one country to another.

The key policy message from this study is that larger geographic coverage of the ASW increases its potential in reducing time to export or import as well as enhancing intra- and extra-regional trade. The gains from the full-fledged ASEAN+6 Single Window have not yet been reaped: even strong performers such as Singapore, Australia and New Zealand have areas for improvements, and weaker performers such as Cambodia and Laos need to make significant progress to catch up with the rest of the region, and deepen their trade integration.

Given the complexity of establishing the regional single window on a larger scale, ASEAN should prioritize the expansion of ASW to its trading partners. All six FTA partners of ASEAN in this study have operated their national single windows and are ready to connect with the ASW. They have also put in place the legal framework for electronic transactions, and to some extent engaged in the cross-border electronic exchange of trade-related documents and data.

The sequence of expanding the ASW to FTA partners may begin with countries that are major sources of ASEAN's export gains identified in this study and those that have expressed their political will. The simulation results of cross-border paperless trade reforms reveal that the largest source of export gains from the full implementation of cross-border paperless trade measures for ASEAN is China, followed by Japan, South Korea, India, Australia and New Zealand. In addition, the ongoing discussion on the possibility of exchanging electronic certificate of origin between ASEAN and two trading partners, namely Japan and South Korea,<sup>5</sup> presents an opportunity to enlarge the ASW. ASEAN should then

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<sup>5</sup> <https://asw.asean.org/index.php/about-asw>

explore possibilities of expanding the ASW to remaining FTA partners, especially China and India.

While trade gains from ASW+6 are large, the costs of its implementation can also be significant due to different regulatory requirements across ASEAN+6 countries. As a result, Aid for Trade and capacity building to support the reform process have to be an integral part for the design of ASW+6 between the member states and their FTA partners. The key for ASEAN policymakers going forward will be to provide adequate human, technical, and financial resources to support the advancement and expansion of ASW.



## **ANNEX 1: DATA ON TRADE FACILITATION MEASURES**

The stage of trade facilitation implementation in each country is based on the UN Global Survey on Digital and Sustainable Trade Facilitation.<sup>6</sup> This is divided into four stages, namely no implementation, pilot stage of implementation, partial implementation, and full implementation (UNESCAP 2021). The full implementation of a trade facilitation measure refers to full compliance with commonly accepted international standards, recommendations and conventions such as the Revised Kyoto Convention, UN/CEFACT Recommendations or the WTO Trade Facilitation Agreement (TFA); it is implemented in law and in practice; it is available to essentially all relevant stakeholders nationwide, and supported by adequate legal and institutional frameworks as well as adequate infrastructure, and financial and human resources.

Partial implementation of a trade facilitation measure refers to partial compliance with commonly accepted international standards, recommendations and conventions; or the process of rolling out the implementation of such measure; or the implementation of such measure on an unsustainable, short-term or ad-hoc basis; or the implementation of such measure in some—but not all—targeted locations (such as key border crossing stations); or some—but not all—targeted stakeholders involved in the implementation of such measure.

The pilot stage of implementation of a trade facilitation measure refers to the implementation of such measure that is available only to a very small portion of the intended stakeholder group (or at certain locations). No implementation of a trade facilitation measure refers to the fact that such measure has not been implemented, but it may still include initiatives or efforts towards implementation of the measure.

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<sup>6</sup> The survey covers 143 economies and 58 measures related to the WTO's Trade Facilitation Agreement (TFA) as well as to paperless trade and the UN treaty on cross-border paperless trade in Asia and the Pacific (CPTA). It is conducted jointly by all five UN Regional Commissions and a number of global and regional partners every two years.

Table A.1.1 summarizes key indicators for cross-border paperless trade measures in the UN Global Survey. For digital signatures to work, a trusted third party known as a Certification Authority is needed to issue digital certificates that certify the electronic identities of users and organizations. Some examples of this are the Controller of Certification Authorities in Malaysia and Singapore. If such a certification authority does not exist, the situation is regarded as No implementation.

**Table A.1.1: Key Indicators of Cross-Border Paperless Trade Measures in the UN Global Survey on Digital and Sustainable Trade Facilitation**

No.	Cross-border paperless trade measures	Key indicators in the questionnaire
1.	Laws for electronic transactions	<ul style="list-style-type: none"> <li>• e-commerce and/or e-transaction laws</li> <li>• legal recognition of electronic data/document from trading partners</li> </ul>
2.	Recognized certification authority	<ul style="list-style-type: none"> <li>• digital certificate service providers in the country</li> </ul>
3.	Electronic exchange of customs declaration	<ul style="list-style-type: none"> <li>• sharing of data on customs declaration electronically with one or more country regularly and systematically</li> <li>• share of trade with participating countries in country's total trade is greater than 85 per cent</li> </ul>
4.	Electronic exchange of certificate of origin	<ul style="list-style-type: none"> <li>• recognition of electronic certificate of origin by government authorities</li> <li>• share of trade with participating countries in country's total trade is greater than 85 per cent</li> </ul>
5.	Electronic exchange of SPS certificate	<ul style="list-style-type: none"> <li>• recognition of electronic SPS certificate legally by government authorities</li> <li>• share of trade with participating countries in country's total trade is greater than 85 per cent</li> </ul>
6.	Banks and insurers retrieving letters of credit (L/C) electronically without lodging paper-based documents	<ul style="list-style-type: none"> <li>• recognition of the legal status of key electronic documents for trade finance such as electronic commercial invoices and electronic bill of lading</li> <li>• provision of digital trade finance facilitation services such as online preparation and submission of documents, electronic platform to lodge collateral in support of financing, and electronic platform to request for financing of invoices or receivables</li> </ul>

Source: Authors' compilation from the questionnaire of the UN Global Survey on Digital and Sustainable Trade Facilitation 2021.

## **ANNEX 2: METHODOLOGY FOR ESTIMATING THE RELATIONSHIP BETWEEN TRADE TIMES AND CROSS-BORDER PAPERLESS TRADE**

The relationship between trade times and cross-border paperless trade is estimated in three steps. First, the score of six cross-border paperless trade measures in Table 1 (in the main text) is calculated by converting qualitative data into quantitative data. This is done by applying a simple scale: no implementation or data unavailability corresponds to zero; partial implementation corresponds to 0.5; and full implementation corresponds to one.

Export and import times are measured in hours. They were obtained from the World Bank's Doing Business database. Time for exports or imports consists of two components, one for documentary compliance and another for border compliance. Documentary compliance captures the time associated with the documentary requirements of all government agencies of the origin and the destination countries. It includes the time for obtaining documents; preparing documents; processing documents; presenting documents to port authorities; and submitting documents. Border compliance captures the time associated with customs regulations and with regulations relating to other inspections that are mandatory in order for the shipment to cross the border. It includes time for customs clearance and inspection procedures conducted by other agencies.

We then use a basic econometric model to estimate the relationship between trade times and the score of cross-border paperless trade measures. The model also controls for two factors that determine trade times, but instances are not many due to the small number of observations in the dataset (forty-three—the number of countries that are key trading partners of ASEAN, see Annex 3). These two factors include the score of general paperless trade measures and the score of other trade facilitation measures.

The general paperless trade measures include:

1. electronic customs system;
2. Internet connection available to customs and other trade control agencies at border-crossings;

3. electronic Single Window system;
4. electronic submission of customs declarations;
5. electronic application and issuance of import and export permit;
6. electronic submission of sea cargo manifests;
7. electronic submission of air cargo manifests;
8. electronic application and issuance of certificate of origin;
9. electronic payment of customs duties and fees; and
10. electronic application for customs refunds

Other trade facilitation measures cover the following areas:

1. transparency;
2. formalities;
3. institutional arrangements and cooperation; and
4. transit facilitation;

Data on general paperless trade measures and other trade facilitation measures were also obtained from the UN Global Survey on Digital and Sustainable Trade Facilitation in 2019. They are originally qualitative in nature but have been converted into scores using a scale.

Our estimation results in Table A.2.1 show that cross-border paperless trade is associated with lower export and import times. It is statistically significant for the export time, but not for the import time. This suggests that a greater level of cross-border paperless trade reduces the export time more than the import time. A 10 per cent increase in a country's cross-border paperless trade score is associated with an approximately 16 per cent decrease in export time. For a hypothetical country with the regional average of the score of cross-border paperless trade measures (2.6), this result means that implementing one extra measure (equivalent to 39 per cent increase in the score of cross-border paperless trade) would be associated with a decrease in export time of about 62 per cent. The same interpretation applies to the estimated coefficient of cross-border paperless trade in the model of import time.

However, the *R*-square in both models is low due to the limited number of control variables. For the model of import time, the *R*-square is 0.134, meaning that three sets of trade facilitation indicators could

explain 13 per cent of the variation of the import time. The estimated coefficients on general trade facilitation and cross-border paperless trade have the expected negative sign, but they are not statistically significant at any conventional level. For the model of export time, the estimated coefficients on general trade facilitation and cross-border paperless trade are negative and statistically significant at 10 and 5 per cent, respectively. Its *R*-square is slightly higher than that of import time.

***Table A.2.1: Regression Results for Trade Times and Cross-Border Paperless Implementation***

	<b>log(Export Time)</b>	<b>log(Import Time)</b>
log(Trade Facilitation)	-2.995* (-1.74)	-3.664 (-1.55)
log(General Paperless Trade)	2.259 (1.67)	2.42 (1.48)
log(Cross-border Paperless Trade)	-1.579** (-2.34)	-1.311 (-1.62)
Constant	8.04 (1.43)	8.953 (1.27)
Observation	43	43
<i>R</i> -square	0.19	0.134

*Note:* t-statistics are in parentheses. \*, \*\*, \*\*\* refer to 10 per cent, 5 per cent, 1 per cent significant level, respectively.

*Source:* Authors' estimation.

## ANNEX 3: LIST OF COUNTRIES INCLUDED IN THE REGRESSION MODEL

The sample of this study covers forty-three countries, which comprise of key trading partners of ASEAN, RCEP partners, ASEAN+1 FTA partners and EU members. The United States and some EU members have been dropped from the sample due the unavailability of data on cross-border paperless trade.

No.	Country	Key Trading Partners of ASEAN*	RCEP Partners	ASEAN+1 FTA Partners	EU Members
1	Australia	1	1	1	0
2	Austria	0	0	0	1
3	Belgium	1	0	0	1
4	Brazil	1	0	0	0
5	Brunei Darussalam	0	1	1	0
6	Bulgaria	0	0	0	1
7	Cambodia	0	1	1	0
8	Canada	1	0	0	0
9	China	1	1	1	0
10	Croatia	0	0	0	1
11	Czech Republic	0	0	0	1
12	Estonia	0	0	0	1
13	Finland	0	0	0	1
14	France	1	0	0	1
15	Germany	1	0	0	1
16	Greece	0	0	0	1
17	Hungary	0	0	0	1
18	India	1	0	1	0
19	Indonesia	0	1	1	0
20	Ireland	0	0	0	1
21	Italy	1	0	0	1
22	Japan	1	1	1	0
23	Laos	0	1	1	0
24	Lithuania	0	0	0	1

25	Malaysia	0	1	1	0
26	Malta	0	0	0	1
27	Mexico	1	0	0	0
28	Myanmar	0	1	1	0
29	Netherlands	1	0	0	1
30	New Zealand	0	1	1	0
31	Philippines	0	1	1	0
32	Poland	0	0	0	1
33	Portugal	0	0	0	1
34	Russian Federation	1	0	0	0
35	Saudi Arabia	1	0	0	0
36	Singapore	0	1	1	0
37	South Korea	1	1	1	0
38	Spain	1	0	0	1
39	Sweden	0	0	0	1
40	Switzerland	1	0	0	0
41	Thailand	0	1	1	0
42	United Kingdom	1	0	0	0
43	Vietnam	0	1	1	0
	Number of countries in each group	18	15	16	20

*Note:* \* ASEAN member states not included.

*Source:* Authors' construction.



## REFERENCES

- Abiad, A., K. Baris, J.A. Bernabe, D.J. Bertulfo, S. Camingue-Romance, P.N. Feliciano, M.J. Mariasingham, and V. Mercer-Blackman. 2018. *The Impact of Trade Conflict on Developing Asia*. ADB Economic Working Paper Series No. 566. Manila: Asian Development Bank.
- ASEAN Secretariat (ASEC). 2006. *Technical Guide of ASEAN Single Window and National Single Window Implementation*. Jakarta: ASEAN Secretariat.
- . 2020. *ASEAN Comprehensive Recovery Framework*. [https://asean.org/storage/ASEAN-Comprehensive-Recovery-Framework\\_Pub\\_2020\\_1.pdf](https://asean.org/storage/ASEAN-Comprehensive-Recovery-Framework_Pub_2020_1.pdf)
- Djankov, S., C. Freund, and C.S. Pham. 2010. “Trading on Time”. *Review of Economics and Statistics* 92, no. 1: 166–73.
- Shephard, B. 2014. *Estimating the Benefits of Cross-Border Paperless Trade*. A Report in Support of Implementation of ESCAP Resolution 68/3. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.
- UNECE. 2020. “Recommendations and Guidelines on Establishing a Single Window to Enhance the Efficient Exchange of Information Between Trade and Government: Recommendation No. 33”. [https://unece.org/fileadmin/DAM/cefact/recommendations/rec33/ECE-TRADE-352\\_Rev.1E\\_Rec33\\_2020Edition.pdf](https://unece.org/fileadmin/DAM/cefact/recommendations/rec33/ECE-TRADE-352_Rev.1E_Rec33_2020Edition.pdf)
- UNESCAP. 2021. *Digital and Sustainable Trade Facilitation in Asia and the Pacific 2021*. Washington, DC: United Nations.
- UNNEXT. 2010. “Best Practice in Singapore Window Implementation: Case of Singapore’s TradeNet”. <https://www.unescap.org/sites/default/d8files/knowledge-products/brief2.pdf>
- . 2012. “Developing a National Single Window for Import, Export and Logistics in Thailand”. <https://www.unescap.org/sites/default/d8files/knowledge-products/brief8.pdf>

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