

ERIA Discussion Paper Series

No. 391

**Exploring Digital Economic Agreements to
Promote Digital Connectivity in ASEAN**

Sarah Y TONG #§

Yao LI

Tuan Yuen KONG

East Asian Institute, National University of Singapore, Singapore

July 2021

Abstract: *This paper explores modules and articles on cooperation concerning the digital economy that are applicable for Association of Southeast Asian Nations (ASEAN) countries under certain circumstances. It investigates the progress of and obstacles to ASEAN's digital connectivity, as well as features of existing Digital Economic Agreements and digital economy-related articles in other agreements. We propose the use of a differentiated strategy and steps to promote integration for ASEAN countries covered in this research.*

Keywords: Digital Economic Agreement; Digital Connectivity; ASEAN.

JEL Classification: F15; F23

Corresponding author. Sarah Y TONG, address: 469A Bukit Timah Rd, #06-01 Tower Block, 259770, Singapore. Phone: 65-6516 3718; Fax: 65-6779 3409. E-mail: sarahtong@nus.edu.sg

§ This research was conducted as a part of the project of Economic Research Institute for ASEAN and East Asia (ERIA) 'ERIA Research on COVID-19 and Regional Economic Integration'. Opinions expressed in this paper are the sole responsibility of the authors and do not reflect the views of ERIA.

1. Introduction

‘Connectivity’ has become a buzzword in recent years at various regional and global platforms, including Asia–Pacific Economic Cooperation meetings, the Association for Southeast Asian Nations (ASEAN) Connectivity Symposium, and the Meeting of the G20 Global Infrastructure Connectivity Alliance. Indeed, good connectivity is essential to promote economic development and to enhance social welfare (ASEAN, 2016; UN, 2014). Meanwhile, strong economic interdependence across countries also has its drawbacks, as illustrated during the COVID-19 pandemic. Economic activities suffered greatly, both within and especially across borders, as virus-containing measures restricted movement of people and goods.

In addition to exposing the vulnerabilities of economic interdependence in the world economy, East Asia in particular, the pandemic has brought about other lasting changes. These include transformation of consumer behaviours, emergence of new business models, and accelerated development of the digital economy (Google, Temasek, and Bain & Company, 2020), underlined by the interconnectedness of people, organisations and machines resulting from the advancement of the internet, mobile technology, and the internet of things. COVID-19 has made clear that improving digital connectivity is critical, not only for economic recovery but for ensuring long-run growth.

ASEAN has recognised the importance of digital connectivity. In August 2018, the 50th ASEAN Economic Ministers Meeting adopted the ASEAN Digital Integration Framework. In line with the Master Plan on ASEAN Connectivity 2025, the framework emphasises that digital integration is key to creating a more inclusive ASEAN region, enabling countries to compete more effectively in the global economy both jointly and individually. However, ASEAN faces many challenges to promoting digital connectivity, including how to align digital rules and standards among different digital systems; how to support cross-border data flows and safeguard personal data; and how to encourage cross-border cooperation in nascent areas such as digital identities, artificial intelligence, (AI) and data innovation.

To overcome these challenges, ASEAN and its member states could draw useful lessons from international agreements signed in recent years that involve digital economy issues, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Gulf Cooperation Council–Singapore free trade agreement. In addition, Singapore is a signatory in two agreements that deal with the digital economy: the Singapore–Australia Digital Economic Agreement (SADEA) and the Digital Economy Partnership Agreement amongst Singapore, Chile, and New Zealand (SCNDEPA), both signed in 2020.¹

It is important to note that there are considerable gaps amongst ASEAN Member States in overall development and in the digital economy, which necessarily pose great connectivity challenges. It is almost impossible for all ASEAN Member States to reach each level of digital integration simultaneously. In addition, as the digital economy is relatively new and evolving, the rules that govern its operation and cooperation must also adapt.

Therefore, an implementation agenda that is modularised, differentiated, and evolvable might promote overall digital integration of ASEAN. The major research question of this report is how to formulate modules of international agreement that are best suited for ASEAN and its member states, within its existing cooperative frameworks.

To answer this question, this report examines and identifies potential modules and articles on cross-border cooperation concerning the digital economy, which are suitable for selected ASEAN countries under certain situations, focusing on two steps. First, we investigate the progress of and obstacles to ASEAN’s digital connectivity. Second, we examine features of existing Digital Economic Agreements (DEAs) and digital economy-related articles in several existing agreements, both within and beyond Southeast Asia. Due to limitations in data availability and time, this project is limited to six ASEAN countries – Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Similar analysis can be repeated for the other four ASEAN countries in the future.

¹ A Digital Economic Agreement between Indonesia and Singapore is currently under discussion.

Our analysis of digital economy-related articles focuses on three existing agreements:

- (1) The Singapore–Australia Digital Economic Agreement (SADEA, signed 2020);
- (2) The Digital Economy Partnership Agreement amongst Singapore, Chile and New Zealand (SCNDEPA, signed in 2020); and
- (3) United States–Mexico–Canada Agreement (USMCA, signed in 2018).

Meanwhile, another five agreements are included as references in our discussion of selected issues, including:

- (4) United Nations Commission on International Trade Law’s Model Law on Electronic Commerce (signed in 1996);
- (5) United Nations Convention on the Use of Electronic Communications in International Contracts (signed in 2005);
- (6) World Trade Organization Trade Facilitation Agreement (signed in 2013);
- (7) United Nations Commission on International Trade Law’s Model Law on Electronic Transferable Records (signed in 2017); and
- (8) The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, signed in 2018).

According to Singapore’s Ministry of Trade and Industry,² the International Agreement Concerning the Digital Economy usually covers three aspects (or modules) of digital economic activities: (i) end-to-end digital trade; (ii) data flow-related; and (iii) digital facilitation. Sections 2 and 3 will touch on all three but focus on the first and the third. For each of the three, our research proceeds in three steps. First, we review the corresponding modules and articles in existing agreements. Second, we investigate the gaps between conditions considered necessary for the implementation of these existing agreements and the actual development of selected ASEAN countries. Third, we evaluate the prospect of the various modules and articles to be adopted by the selected ASEAN countries in the future. In Section 4, we propose possible development direction and strategies for a step-by-step digital integration of selected ASEAN countries. Concluding remarks are presented in Section 5.

² For further details, please refer to ‘Digital Economy Partnership Agreement (DEPA)’, <https://www.mti.gov.sg/Improving-Trade/Digital-Economy-Agreements/The-Digital-Economy-Partnership-Agreement>, accessed 18 February 2021.

2. End-to-End Digital Trade

In existing agreements, articles on End-to-End Trade often belong to two categories: those that aim to facilitate cross-border business and trade through the digitalisation, and those related to digital products. As both can be developed by expanding and upgrading the existing international cooperation system, End-to-End Digital Trade is a good starting point for ASEAN countries to make practical progress toward digital integration. On promoting cross-border businesses and trade through digitalisation, this report focuses on the digitalisation of documentation, logistics and related financial services. On rules concerning digital products, this report will discuss the treatment of regular digital products and the products that use cryptography in cross-border business.

2.1. Documentation

The digitalisation of documents for cross-border business and trade includes e-authentication, e-signature, e-identification, e-invoices and other e-documents for paperless trading. SADEA, SCNDEPA and USMCA all include articles on 'Paperless Trading', while SADEA and SCNDEPA provide more details on the implementation.

2.1.1. Existing articles on digitalisation of documents

As a general principle, the existing agreements call for the provision and acceptance of electronic versions of trade administration documents as the legal equivalent of the paper version. They also included implementation details as listed below:³

- (1) the establishment and maintenance of domestic electronic transactions framework;
- (2) the provision of electronic version of all trade administration documents;
- (3) the development of interoperable digital identity system;
- (4) the establishment and development of interoperable electronic authentication and e-signature recognition system;
- (5) the development of interoperable e-invoicing;
- (6) the establishment of single window to process paperless trade;

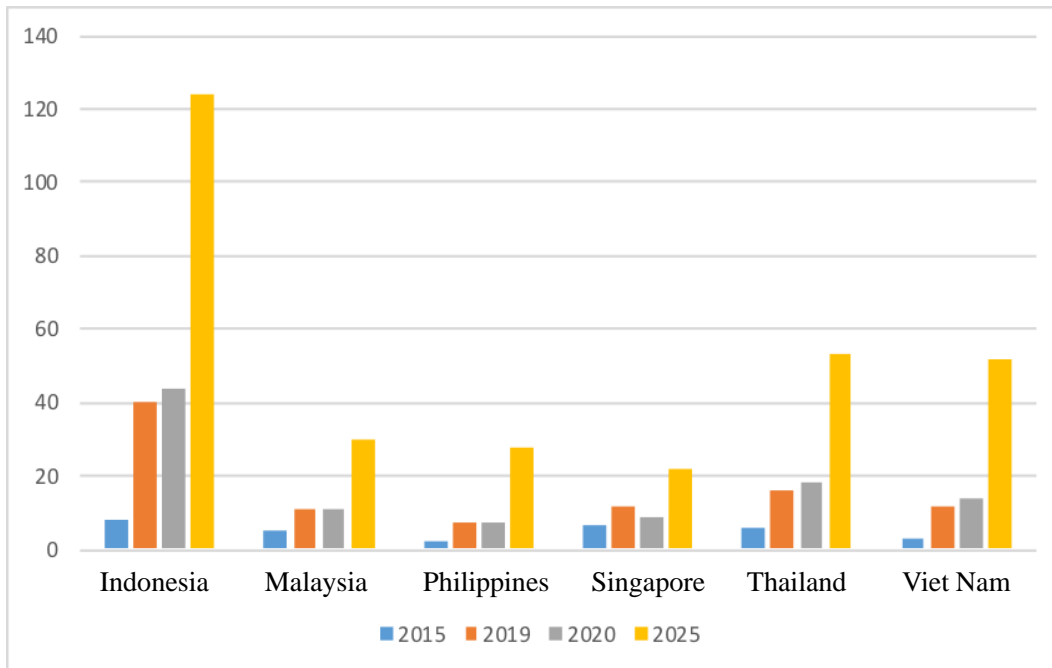
³ The agreements also include implementation measures on document digitalisation related specifically to financial services, which will not be covered in this study. In fact, most trade agreements have included financial sector-related articles as a separate chapter or a stand-alone document.

- (7) the development of data exchange system to support paperless trade; and
- (8) the development of internationally recognised standards for paperless trade.

2.1.2. Development in document digitalisation

According to the report ‘e-Conomy SEA 2020: Resilient and Racing Ahead’, by Google, Temasek, and Bain & Company (2020), the six ASEAN countries included in this report have all made considerable recent progress in developing an internet economy. For example, gross merchandise values of the internet economy in these countries rose rapidly and significantly since 2015 (Figure 1), indicating that countries have progressed in establishing and maintaining their domestic electronic transactions framework (the first measure listed in 2.1.1). Indirectly, these also suggest that systems of digital identity and authentication, as well as that of e-invoicing, should have been established and used for the local transactions.

Figure 1. Internet Economy Gross Merchandise Value of Selected ASEAN Countries
(US\$ billion)



Source: Google, Temasek, and Bain & Company (2020), ‘e-Conomy SEA 2020: Resilient and Racing Ahead’, <https://economysea.withgoogle.com/>. Note: Figures for 2020 are estimated and those for 2025 are projected.

In addition, cross-border trade of digitally deliverable services by these countries has been recorded (Table 1), indicating that electronic trade administration documents have been used. Therefore, we can reasonably believe the first five measures listed in 2.1.1 have been at least partially implemented in these countries included. The next step would be to enhance interoperability of these measures. This will likely be harder, as the level of development in e-government and business-to-consumer e-commerce varies considerably across ASEAN Member States (Figure 2 and Table 2).

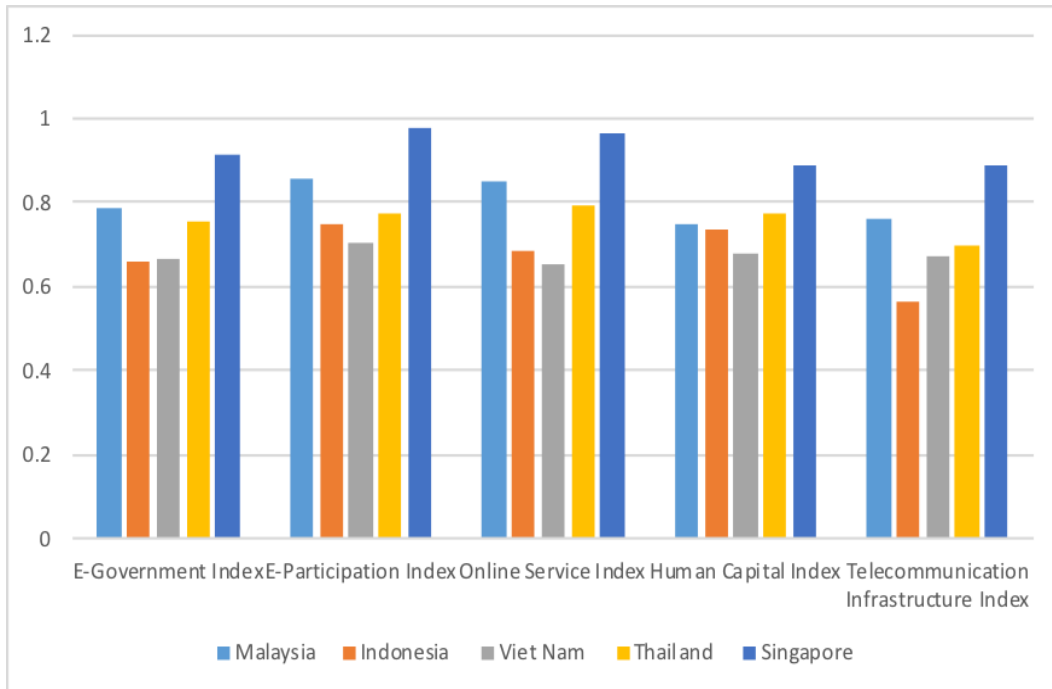
Table 1. Cross-Border Trade of Digitally Deliverable Services in 2019

Economy	Trade	Amount (US\$ million at current prices)	Annual growth (%)	% in world trade	% in total trade in services
Indonesia	Imports	15,339.39	7.61		38.95
	Exports	8,725.84	(5.30)	0.27	27.61
Malaysia	Imports	16,635.46	4.57		38.24
	Exports	11,218.39	5.31	0.35	27.44
Philippines	Imports	10,072.61	16.18		36.07
	Exports	23,667.99	2.57	0.74	57.74
Singapore	Imports	104,166.35	(0.31)		52.33
	Exports	116,085.94	3.22	3.64	56.68
Viet Nam	Imports	2,408.00	(1.15)		12.83
	Exports	1,338.23	0.62	0.04	4.85
Thailand	Imports	24,869.32	6.55		42.32
	Exports	13,490.43	6.09	0.42	16.45

Source: UNCTAD STAT.

(https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en).

Figure 2. Development of E-Government in Selected ASEAN Countries



ASEAN = Association of Southeast Asian Nations.

Source: UN E-Government Knowledgebase,

<https://publicadministration.un.org/egovkb/en-us/Data-Center>). Note: higher values indicate better development in respective areas. Please refer to the website for further details.

Table 2. UNCTAD B2C E-commerce Index, 2019

2019 Rank	Country	Share of individuals using the internet (2018 or latest)	Share of individuals with an account (15+, 2017)	Secure internet servers (normalised, 2018)	UPU postal reliability score (2018 or latest)	2019 Index value	Index value change (2017–18 data)	2018 Index rank
3	Singapore	88	98	97	97	95.1	-0.2	2
34	Malaysia	81	85	75	86	81.9	-0.8	34
48	Thailand	57	82	61	94	73.5	-3.0	43
64	Viet Nam	70	31	66	77	61.1	0.8	69
84	Indonesia	40	49	64	48	50.1	1.6	90
89	Philippines	60	35	43	57	48.6	-2.1	92

B2C = business-to-consumer, UNCTAD = United Nations Conference on Trade and Development, UPU = universal postal union.
Source: UNCTAD B2C E-Commerce Index 2019.

2.1.3. The future of document digitalisation in ASEAN

The first five measures listed in 2.1.1 are ordered by their degree of difficulty, from the easiest to the hardest. For example, most of the six ASEAN countries have established their framework for domestic electronic transaction, where electronic versions of some trade-related administrative documents are available online. Moreover, measures on the top of the list are usually prerequisites to those listed below. For example, to recognise electronic authentication and e-signature, a legally valid digital identity system is needed. To make e-invoicing officially accepted, an officially accepted e-authentication is necessary. Although a country can choose to start all five measures at once, systematic risk would be high. Therefore, it is better to proceed step-by-step to reduce potential risks.

The last three measures listed in 2.1.1 aim to lower barriers and costs in end-to-end digital trade. Unlike the first five measures discussed above, these three can be implemented simultaneously. However, the contents covered by the single window, the data exchange system, and the internationally recognised standards can be developed from a relatively simple version to a more comprehensive one.

2.2. Logistics

Compared to traditional trade, digital trade requires a higher degree of speed and transparency due to much less face-to-face communication between buyers and sellers. This poses additional challenges to storage, parcel delivery and express postal services. Therefore, to promote cross-border digital trade, it is necessary to strengthen cooperation in logistics between trading partners.

However, many trade agreements do not have specific articles related to the logistics of digital trade. Amongst the three agreements covered selected for examination, only SCNDEPA includes details about logistics of digital trade. Meanwhile, USCMSA has no specific relevant articles and SADEA mentions only express shipment. Therefore, discussion in this section is based mainly on SADEA and SCNDEPA.

2.2.1.Existing articles on logistics related to digital trade

In the two agreements, articles related to logistics cover the following six aspects:

- (1) the use of electric, remote-controlled and autonomous vehicles;
- (2) the availability of cross-border options for the delivery of goods, such as federated lockers;
- (3) the last-mile deliveries, including on-demand and dynamic routing solutions;
- (4) the new delivery and business models for logistics;
- (5) the expedited customs procedures for express shipments; and
- (6) the *de minimis* shipment value or dutiable amount of express shipment for which customs duties will not be collected.

The first two are related to physical infrastructure, while the third and the fourth are related to modern management engineering technology and innovations. The last two concern the improvement of cooperation between trading partners' customs systems.

2.2.2.Development of logistics for digital trade

There are still big gaps in logistics infrastructure development and technology across our selected ASEAN countries. From Table 3, we can see that only Singapore and Malaysia have logistics infrastructure quality above the world average level, while others are either at or below the world average level.

Table 3. Logistics Infrastructure of Selected ASEAN Countries

Country	Overall	Road	Railroad	Air Transport	Port
Indonesia	3.79	3.86	3.82	4.52	3.91
Malaysia	5.48	5.46	5.06	5.7	5.44
Philippines	3.04	3.07	1.97	3.25	2.92
Singapore	6.39	6.28	5.74	6.85	6.66
Thailand	4.03	4.21	2.52	4.95	4.18
Viet Nam	3.63	3.47	3.15	4.06	3.84
World	4.06	4.05	3.38	4.41	4.04

Source: WEF (2017) Executive Opinion Survey 2016.

Table 4 shows that the performance of logistics in the six ASEAN countries are quite different in 2018. Singapore ranked the top, followed by Thailand and Viet Nam.

Table 4. The Logistic Performance of Selected ASEAN Countries in 2018

Country	LPI		Customs		Infrastructure		International shipments		Logistics competence		Tracking and tracing		Timeliness	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Indonesia	46	3.15	62	2.67	54	2.89	42	3.23	44	3.1	39	3.3	41	3.67
Malaysia	41	3.22	43	2.9	40	3.15	32	3.35	36	3.3	47	3.15	53	3.46
Philippines	60	2.9	85	2.53	67	2.73	37	3.29	69	2.78	57	3.06	100	2.98
Singapore	7	4	6	3.89	6	4.06	15	3.58	3	4.1	8	4.08	6	4.32
Thailand	32	3.41	36	3.14	41	3.14	25	3.46	32	3.41	33	3.47	28	3.81
Viet Nam	39	3.27	41	2.95	47	3.01	49	3.16	33	3.4	34	3.45	40	3.67

Source: World Bank 2018 Logistics Performance Index (LPI),

<https://lpi.worldbank.org/international/global/2018.%202019>.

2.2.3. The future of logistics cooperation for digital trade in ASEAN

The above analysis shows that there are still considerable gaps amongst ASEAN countries in the development of infrastructure, technology and customs systems related to logistics. As such, the process of promoting logistic cooperation for digital trade between ASEAN countries will be gradual.

In some member countries, delivery of merchandise can be expensive and unreliable. This acts as a deterrent to the development of e-commerce, both domestically and internationally. Meanwhile, the greatest barrier to logistics services in ASEAN has been inefficient customs procedures and inspections, followed by obstacles in land transportation (de Souza et al., 2019).

Countries with leading logistics infrastructure, more efficient customs procedures and inspections or better performance ranking due to other aspects in the region, such as Singapore and Malaysia, can move first. They can also share their experiences and technology with other countries and speed up regional distribution network, which will benefit every member country in the region.

2.3. E-Payments

The fast growth of e-payments has been an important factor promoting digital connectivity and trade amongst countries. On one hand, payment is vital in linking the cyber and the physical parts of e-commerce transactions. On the other hand, e-payments, in particular those provided by non-bank, non-financial institutions and FinTech enterprises, help make up the low coverage of banking, lower the cost of e-commerce and accelerate the development of personal and/or household credit systems in some countries.

However, this also presents challenges to financial authorities in maintaining effective regulation and in promoting cross-country cooperation. Indeed, banks and other financial institutions lag in the development of an e-payment system, which financial authorities are responsible to regulate. As the USCMSA does not have specific articles related to e-payment, the discussion here draws mainly from SADEA and SCNDEPA.

2.3.1.Existing articles on e-payment

The two DEAs cover the following six aspects related to e-payment:

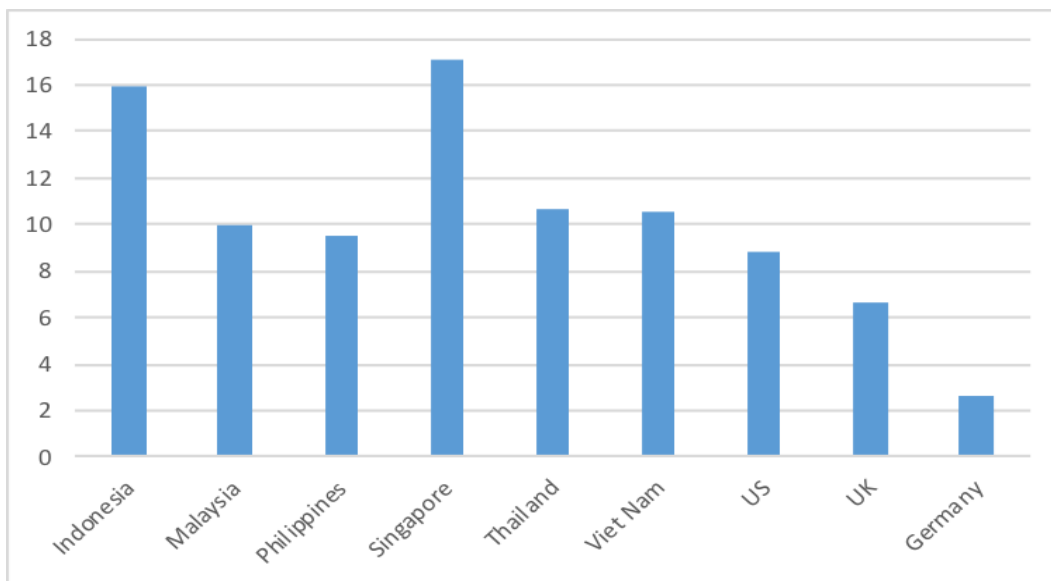
- (1) international standard of e-payment;
- (2) interoperability and the interlinking of payment infrastructures;
- (3) laws and regulations of e-payment;
- (4) measures to improve the safety, efficiency, trust, and security in electronic payment;
- (5) the development and use of a payment system and application programming interface; and
- (6) the promotion of innovation and competition.

The first two are related to the industry standard and physical infrastructure critical to cross-border e-payment, while the third and the fourth are related to the institutional environment and other measures for the secure and efficient e-payment. The last two are related to technology, innovation and competitiveness of e-payment.

2.3.2. Development of e-payment in selected ASEAN countries

According to research by Google, Temasek, and Bain & Company (2020), aside from lending, the gross transaction value of e-payment in Southeast Asia reached US\$600 billion in 2019 and is expected to increase to US\$620 billion and US\$1.2 trillion in 2020 and 2025, respectively. For the first 9 months of 2020, growth in active users for mobile banking apps (based on iOS and Google Play data) are 44%, 33%, 53%, 17%, 5%, 73% for Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam, respectively. The share of the adult population (18 and older) using e-wallets in our selected ASEAN countries is also relatively high compared to some developed countries such as the US, UK, and Germany (Figure 3).

Figure 3. Portion of Adult Population (18 and older) Using E-Wallets in 2019 (%)



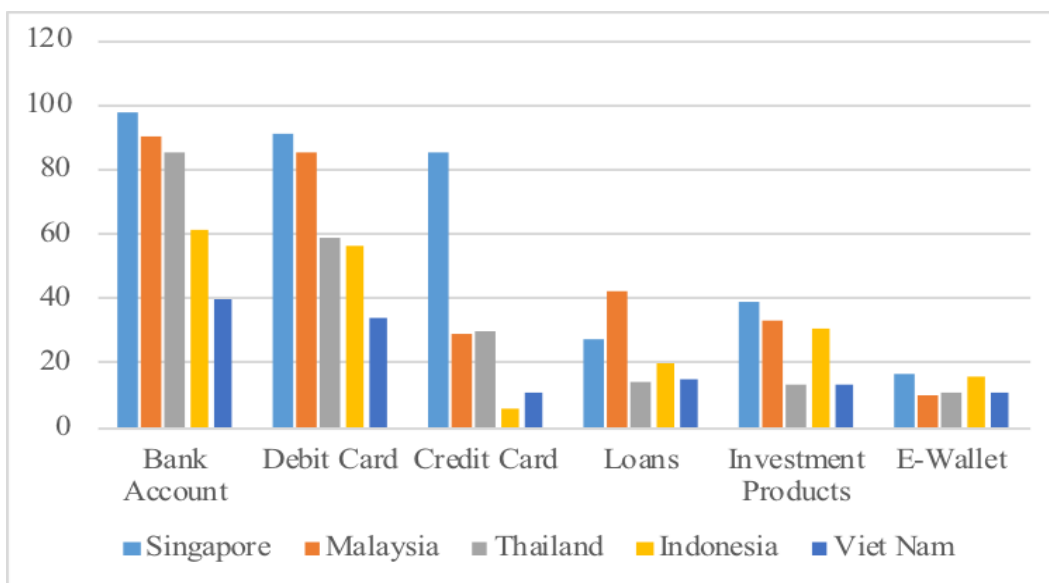
UK = United Kingdom, US = United States.
Source: Boston Consulting Group (2020).

However, e-payment in Southeast Asian countries is still largely limited to urban uses, such as food delivery and ride hailing. Acceptance amongst merchants is low and providers depend heavily on discounts and cash back to win customers (Boston Consulting Group, 2020).

Due to gaps across countries in income, financial infrastructure, regulation and market structure, the adoption rates of financial products are quite different (Figure 4). For example, the ownership of e-wallets, credit cards, and investment products tends to increase as household income grows. The lack of data on the creditworthiness of low-income citizens (financial infrastructure) is an important factor in the relatively low credit card usage rate in Indonesia.

Regulations that affect adoption rates of financial products may include licensing requirements such as foreign ownership limits, spending and balance limits on e-wallet accounts, the minimum capital and technical requirements, and the approvals needed to offer different financial services. In terms of market structure, the number and diversification of financial service providers, as well as the competition intensity are also important (Boston Consulting Group, 2020).

Figure 4. Proportions of Population (18 and older) Using Financial Products in 2019
(%)



Source: Boston Consulting Group (2020).

2.3.3.The future of E-Payment in ASEAN

Covid-19 has significantly boosted the adoption and penetration of digital financial services including the e-payment in Southeast Asia. First, people have increased the online transactions to lower the risk of virus infection. For example, amongst Southeast Asian economies, Cambodia, Lao People's Democratic Republic (Lao PDR), and Myanmar posted annual growth of 20% in e-commerce users in April 2020 compared to the previous year although the average amount spent per user was lower than elsewhere in the region due to the lower transaction revenues (OECD 2020). These changes accelerated consumers' shift from cash to e-payment and even changed people's consumption and payment habits. As transactions increased, acceleration in the adoption of digital payment technologies also occurred in Malaysia, the Philippines, Thailand, Viet Nam, Singapore and Cambodia, well ahead of Brunei Darussalam, Lao PDR, and Myanmar. In addition, more online transactions and e-payments have further increased people's trust of online transactions and expanded digital footprint for better credit assessment of consumers.

Second, to comply with governments' virus containment measures, most financial service providers' employees must work from home. As a result, financial service providers must digitalise more of their operations, including money transfer, payment, customer acquisition, and education, which further increases the amount of e-banking. For example, a comparison of transaction statistics for Philippines indicates that in March 2020 before and after the lockdown, the transaction value of digital banks soared by 633% and that the number of transactions rocketed by 416%. Actually, more and better digital financial services have become a critical value driver for financial institutions to survive from the competition in pandemic (OECD 2020).

Third, to survive the harsh business environments during the pandemic, other businesses, especially other merchants and small and medium-sized enterprises (SMEs), have had to move online through listing on e-commerce or food delivery platforms, or even setting up their own online system. These offline-to-online migrations have not only increased the adoption of digital

transactions and payments, but also accumulated digital transaction records for better credit assessment for businesses.

Fourth, during the pandemic, governments of respective countries have strengthened their support for consumers and businesses to adopt digital financial services, including the issuing of digital bank licenses and the building of electronic identification infrastructure, such as the Electronic Know Your Customer. These accelerate the development of digital services.

As the pandemic has brought about lasting changes on people's consumption habits, as well as business environments and physical infrastructure, both market value and the number of digital transactions in Southeast Asia will continue to increase, even in the post-pandemic era. The ecosystem necessary for the sustainable growth of e-payments such as abundant transaction records for credit assessment, sufficiently large markets and people's confidence in e-payment systems, will gradually improve. Therefore, the future development of e-payment in Southeast Asian regions will retain a strong foothold.

At present, however, digital payment tools are still underused in the region. Only 19% of bank account holders in Southeast Asia access their accounts through a mobile phone or the internet (World Bank, 2019). To encourage the use of e-payments and improve the integration of systems in ASEAN, some basic improvements are important. For example, countries need to work together to make the digital payment tools more standardised and easier to use, improve the speed of both domestic and cross-border online transfers, and remove barriers to small payments. Merchants need to be better supported to acquire performant payment terminals, while fraud prevention mechanisms need to be strengthened to improve customers' trust in the integrity of digital payment tools.

2.4. Digital Products

All our selected existing agreements have articles related to the treatment of digital products in cross-border trade and business. However, only DEAs have special terms for digital products that use cryptography.

2.4.1.Existing articles on trade of digital products

For general digital products, the existing trade agreement articles have covered the following *three* aspects:

- (1) the definition and coverage of digital products;
- (2) the customs duties;
- (3) the non-discriminatory treatment.

These articles are quite basic, and similar to those in traditional trade agreements.

For articles related to the digital products that use cryptography in the two DEAs, the following three aspects are covered:

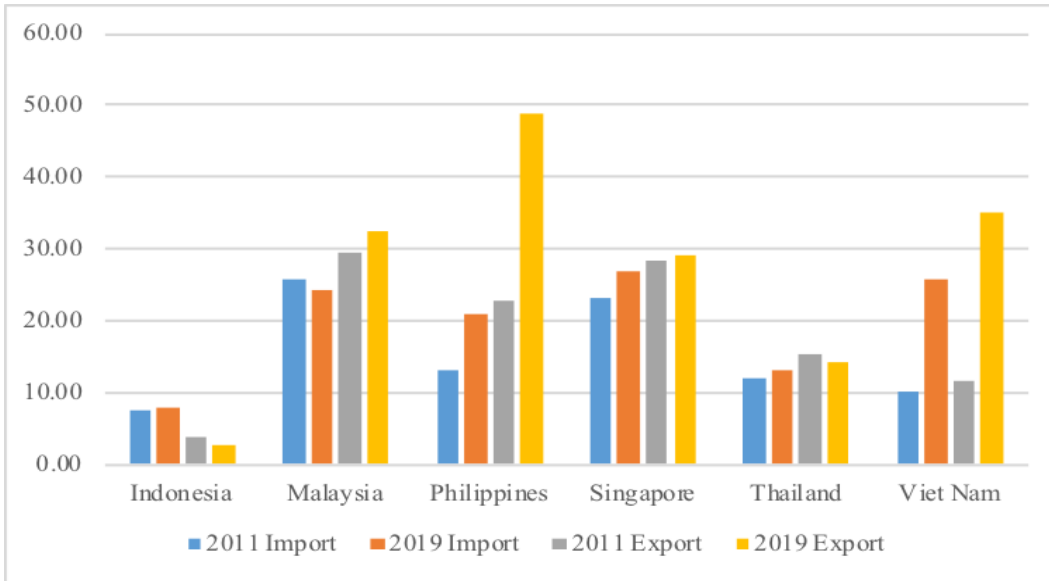
- (1) the definitions of cryptography, encryption, cryptographic algorithms, and keys;
- (2) the protection of trade transaction of digital products that use cryptography; and
- (3) the relationship between this module and the government-controlled network, the financial sector and law enforcement authorities.

These articles are very clear and easy to understand. However, their successful implementation requires the high technical capability of governments for both sides of the transaction in the field of information and communication technology (ICT).

2.4.2. Trade of digital products in selected ASEAN countries

According to World Bank data, since 2011, the shares of ICT goods in both imports and exports have increased and become an important category for some ASEAN countries. For example, the export of ICT goods contributed almost half of Philippines's total export in 2019 (Figure 5). For Malaysia, Viet Nam, and Singapore, the shares of ICT goods in total exports are more than or close to 30% in 2019. These four ASEAN countries are all net exporters of ICT goods. At the same time, the exports of ICT services for some ASEAN countries, such as Singapore and the Philippines, also increased significantly in the past decade (Figure 6).

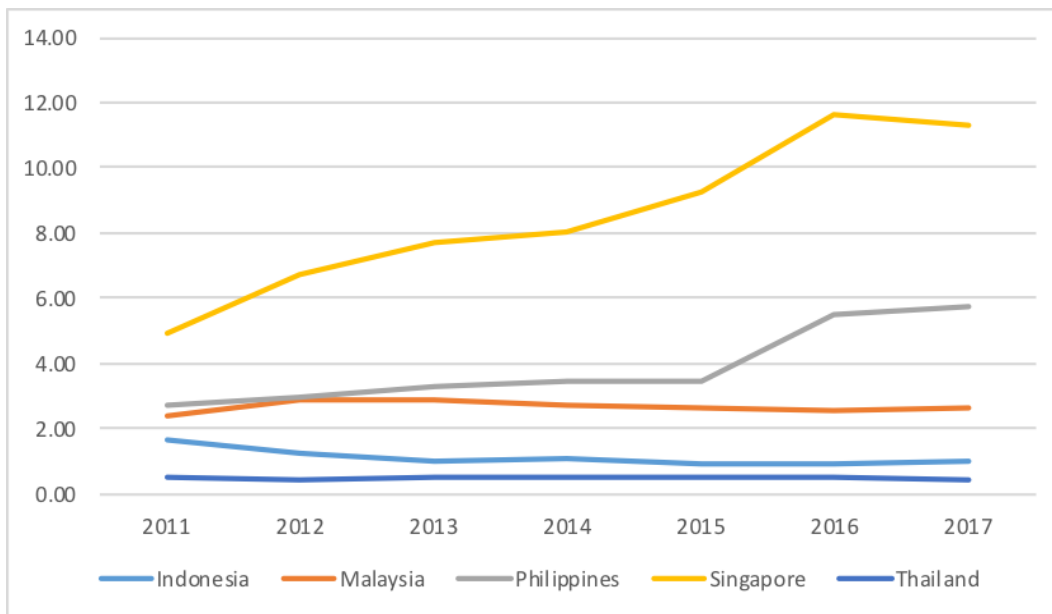
Figure 5. Share of ICT Goods in Trade (%)



ICT = information and communications technology.
 Source: World Development Indicators, World Bank.

However, the development of digital product trade is not balanced in ASEAN. Some countries are still left behind. For example, the shares of ICT goods in both imports and exports are less than 10% for Indonesia. It is also a net importer of ICT products. For ICT services, Thailand’s exports were only US\$0.45 billion in 2017, while Indonesia’s were slightly higher, but still only US\$1.01 billion.

**Figure 6. Exports of ICT Services
(US\$ billion)**



ICT = information and communications technology.
Source: World Development Indicators, World Bank.

2.4.3. The future of trade on digital products in ASEAN

The international trade of digital products with ASEAN countries has kept increasing since 2000. However, similar to other areas of the development, the gaps of engagement in digital product trade still exist and are even enlarged amongst ASEAN members. The reasons can be the differences in economic structure, the stage of economic development, the limitation of infrastructure, etc. Therefore, to improve regional integration of the trade on digital products, each individual ASEAN country still needs to follow its own customised strategy and steps.

For leading countries, such as Singapore, Malaysia, and the Philippines, they may continue their expansion in digital product trade and try to setup the framework and action standards for regional cooperation in international trade of digital products at the same time. For countries left behind, such as Indonesia and Thailand, they can incorporate experiences of leading countries with their own development features and actively engage into the regional cooperation in institutional development.

3. Digital Facilitation

This section covers miscellaneous aspects that can improve the opportunities and participation of the digital economy from the perspectives of the business and consumer, as well as the technology trend.

3.1. Business Participation

This part will discuss measures promoting business participation in domestic and cross-border digital economic activities, including domestic electronic transactions frameworks, cooperation on competition policy, cooperation to enhance trade and investment opportunities for SMEs in the digital economy, information sharing and dialogues.

For domestic electronic transaction frameworks, most of the agreements are required to conform to the United Nations Commission on International Trade Law Model Law on Electronic Commerce (1996) and the United Nations Convention on the Use of Electronic Communications in International Contracts, and to adopt the United Nations Commission on International Trade Law Model Law on Electronic Transferable Records (2017).

To enhance digital cooperation on competition policy, SADEA and SCNDEPA encouraged mutually agreed-upon technical cooperation activities to exchange information and experiences on enforcing competition law, and to share best practices, as well as to provide advice or training including through notification, consultation and the exchange of information on promotion of competition policies in the digital markets.

The agreements promote the trade and investment opportunities of SMEs by leveraging digital tools and technology to improve access to capital and credit and government procurement opportunities, and to link with international suppliers, buyers and other potential business partners. Specifically, CPTPP urges member states to help SMEs overcome obstacles to electronic commerce. SCNDEPA also pushes forward the digital SME dialogue that includes the private sector, non-government organisations, academic experts and other stakeholders to promote the relevant technical or scientific cooperation, or other information arising from the dialogue for future agreement modernisation.

3.2. Consumer participation

This part discusses the digital facilitation from the consumer perspective, including the access to and use of the internet for electronic commerce, and online consumer protection. Most of the digital-related agreements in our study have claimed that it is beneficial for the consumers to be available on the internet, connect the end-user devices that do not harm the network, and access information on the reasonable network management practices of a consumer's internet access service supplier.

For our selected ASEAN countries, all have a considerable number of internet users as a share of their population (Table 2). However, except for Singapore, fewer than half of these internet users are internet shoppers (Table 5). The gaps amongst ASEAN countries, in terms of number of internet shoppers as well as their share of population and of internet users are also large. This is similar to other aspects of the digital economy.

For online consumer protection, it is important to ensure transparent and effective measures to protect consumers from fraudulent, misleading or deceptive electronic commerce activities by encouraging cooperation between national consumer protection agencies or other relevant bodies on activities related to cross-border electronic commerce. It is also important to enhance the awareness of, and access to, policies and procedures related to consumer protection.

Table 5. Internet Shoppers as a Share of Internet Users and of Population**Latest Year**

Country	Share of Internet Users (%)	Share of Population (%)	Latest Data	Note
Indonesia	33	10	2017	Used the internet to buy something online in the past year (% age 15+), FINDEX
Malaysia	23	19	2017	Purchasing and ordering goods and services, source: DOS. 2014: Mid-point estimate of 2013, 2015 data. 2016: 'Online shopping', source: MCMC
Philippines	16	9	2017	Used the internet to buy something online in the past year (% age 15+), FINDEX
Singapore	72	63	2018	Purchasing or ordering goods or services; aged 15 and above, IMDA
Thailand	9	5	2017	Online purchase goods & services, NSO.
Viet Nam	31	19	2017	Used the internet to buy something online in the past year (% age 15+), FINDEX.

Note: FINDEX is the World Bank's Global Findex database. DOS is Malaysia's Department of Statistics. MCMC is The Malaysian Communications and Multimedia Commission. IMDA is Singapore's Infocomm Media Development Authority. NSO is Thailand's National Statistical Office.

Source: UNCTAD B2C E-Commerce Index 2019.

3.3. Emerging Trends and Technologies

This part focuses on SADEA and SCNDEPA and addresses some emerging trends and technologies related to the digital economy, including FinTech and RegTech cooperation, AI, data innovation, and government procurement.

First, both agreements promote cooperation between FinTech firms, the development of solutions for business or financial sectors, and collaboration of entrepreneurship or start-up talent in FinTech, consistent with the laws and regulations to ensure the development of digital economy.

Second, both agreements recognise that the use of AI and related technologies has been increasing in the digital era and require comprehensive frameworks for their trusted, safe and responsible use. The agreements acknowledge the benefits of developing mutual understanding amongst countries to ensure the frameworks are internationally aligned in the adoption and use of AI technologies across the respective domestic jurisdictions and recognised the principle of transparency, fairness and human-centred values.

Third, both agreements recognise that cross-border data flows and data sharing enable innovation. The agreements also recognise that data-sharing mechanisms, such as trusted data-sharing frameworks, may promote innovation and creativity, facilitate the diffusion of information, and create competition and efficient markets. In particular, SCNDEPA supports data innovation through: (a) collaborating on data-sharing projects, including projects involving researchers, academics and industry, using regulatory sandboxes; (b) cooperating on the development of policies and standards for data portability; and (c) sharing research and industry practices related to data innovation.

The digital economy in Indonesia has developed in recent years, but a grand strategy has not surfaced yet. Indonesia, however, already has some programs to support the digital facilitation for businesses and consumers. The programmes included SME business credits for digital platforms, equal tax regulation for domestic and foreign e-commerce entrepreneurs, consumer protection in harmonisation of regulatory levels for electronic certification, accreditation process, and payment mechanism, e-commerce awareness campaign, and conducting national surveillance system for e-commerce transactions.

According to the World Bank report on Malaysia's digital economy in 2018, only a few sectors used digital technologies, since most businesses still do not have access to fixed broadband. Only 29% of businesses had websites in 2015. Amongst them, the service sector and export-oriented manufacturing sector are

most likely to have a web presence for communicating, accessing financial services and getting information but not engaging in electronic commerce. Meanwhile, basic internet access in Malaysia is available nationwide but the speed is slower, and the price higher, than the average high-income country. The deployment of fixed broadband has been much slower, which may impede high-quality connectivity.

Thailand established its Digital Economy Promotion Agency (DEPA), a legal entity taking the role of a government agency to support the use of digital technology based on the Digital Development for Economy and Society Act in 2017. In the first and second year, DEPA has made efforts to transform Thailand into a digital economy and launched a nationwide campaign to deepen public awareness of digital disruption. In 2019, DEPA proposed the Thailand Digital Valley, which includes the DEPA One-Stop service, Digital Startup Knowledge Exchange centre, Digital Co-creation and Innovation centre, Digital Edutainment centre and Digital Go Global centre. The new infrastructure targets to be a new digital hub for Southeast Asia. In addition, one of the major achievements of DEPA in 2019 is to assist SMEs, hawkers, and farmers to adopt technology and innovation. It includes 3,000 cases and 50 model cases.

The adoption of digital technology and innovation is also one of Viet Nam's steps to transform the country's fast-growing economy. The digital development of Viet Nam is driven by the government's E-commerce Master Plan and IT Master Plan and the foreign direct investment in the IT Industry. Along with the Vietnamese government's digital policies, world-renowned IT companies, including Intel computers and processors, Samsung, Seoul Semiconductors, IBM, Siemens, Sony, HP and Toshiba have opened factories in Viet Nam in swift sequence since 2010. Foreign direct investment not only pushes the government to improve the digital infrastructure, but also creates public awareness of the digital economy and induces the local companies, particular SMEs, to raise their digital competitiveness. Together with Malaysia and Singapore, Viet Nam, as well as the member states of CPTPP, promulgates the chapter of e-commerce that includes the promotion of digital facilitation such as domestic electronic transaction framework and support SMEs to use the digital technology for business.

4. Differentiated Integration Strategy and Steps

Based on our analysis in Section 2-4, we propose a differentiated integration strategy and steps for selected ASEAN countries in this section. As the selected ASEAN countries are open economies active in international trade and have considerable internet economy gross merchandise value, they have started the process of digital economy regional integration. However, for each country, there can still be some specific aspects according to the development of their digital economy.

Indonesia

Similar to most other ASEAN countries, unevenly distributed infrastructure, especially logistics and ICT, are the most important obstacle to Indonesia's digital economy development. Therefore, to improve Indonesia's digital integration, more attention should be paid to ICT infrastructure, logistics, internet governance to ensure the free flow of information, and the free flow of cash through FinTech.

Due to its large population, Indonesia has the largest internet economy gross merchandise value and the most internet users. This makes it easier for Indonesia to accumulate digital transaction-related experiences, as well as consumer and business participation-related experience. Indonesia can thus actively engage in the development of regional integration framework related to cross-border transactions.

Malaysia

Although Malaysia's digital ecosystem is still in its early stage, with low levels of adoption amongst SMEs and individuals, its internet and ICT development is amongst the fastest in the ASEAN region. Therefore, to improve Malaysia's digital integration, more attention should be paid to smooth cross-border networking, as well as coordinated information, logistics and cash flow connectivity.

Philippines

The Philippines is relatively behind the other selected ASEAN countries in the development of e-commerce, logistics and e-payment. However, its trade in digital goods is rising very fast. Its share of ICT goods in total exports is the highest amongst our selected ASEAN countries. Therefore, the Philippines can promote its regional integration in the trade of digital goods initially and improve its infrastructure related to the digital economy at the same time.

Singapore

As the leading ASEAN country in digital integration, Singapore has already signed two digital economy-related international agreements. Therefore, Singapore can contribute more to the regional integration of the digital economy in terms of the emerging trends and technologies, development of international standards and conformity assessment for digital trade.

Thailand

Thailand's ICT infrastructure and e-markets are also amongst the fastest-developing in the ASEAN region. However, there are still challenges for Thailand's digital economy, including uneven internet access, an unreliable seller-screening mechanism and inadequate and inefficient e-marketplace laws. Therefore, Thailand can pay more attention to these areas to promote its regional integration in the digital economy.

Viet Nam

Although Viet Nam is an open economy with 85% of its gross domestic product (GDP) based on trade, it is still in the process of transforming its growth model from a centrally planned economy to a market economy. Therefore, the regulatory framework is still the most important barrier to connectivity amongst domestic and regional enterprises and to regional value chains. Viet Nam can pay special attention to its regulatory framework for information flow, e-business, logistic connectivity, cash flow and e-government.

5. Conclusions

As gaps amongst ASEAN Member States remain significant, with respect both to overall development and in the digital economy, it is unrealistic to expect simultaneous advancement in regional integration of the digital economy. Individual ASEAN countries will need to craft their own strategies and implementation measures. More developed members could take steps to lead the way in more advanced areas, while lending a helping hand to other member states. Meanwhile, less-developed countries could gain understanding from the experience of others and adapt it to its own circumstances.

References

- Association of Southeast Asian Nations (ASEAN) (2016), 'Master Plan on ASEAN Connectivity 2025', <https://asean.org/storage/2016/09/Master-Plan-on-ASEAN-Connectivity-20251.pdf> (accessed 11 April 2021).
- Boston Consulting Group (2020), 'Southeast Asian Consumers Are Driving a Digital Payment Revolution', <https://www.bcg.com/en-sea/publications/2020/southeast-asian-consumers-digital-payment-revolutions> (accessed 11 April 2021).
- de Souza, R. et al. (2019), 'Logistics Barriers in ASEAN, The Logistics Institute Asia Pacific White Papers Series', https://www.tliap.nus.edu.sg/wp-content/uploads/2019/04/08-Jun-SCT03_Logistics-Barriers-in-ASEAN.pdf (accessed 11 April 2021).
- Google, Temasek, and Bain & Company (2020), 'e-Conomy SEA 2020: Resilient and racing ahead', <https://economysea.withgoogle.com/> (accessed 11 April 2021).
- Organisation for Economic Co-operation and Development (OECD) Development Centre (2020), 'Economic Outlook for Southeast Asia, China and India 2020',

https://www.oecd-ilibrary.org/development/economic-outlook-for-southeast-asia-china-and-india_23101113 (accessed 11 April 2021).

OECD (2020), 'OECD Digital Economy Outlook 2020',

https://www.oecd-ilibrary.org/science-and-technology/oecd-digital-economy-outlook-2020_bb167041-en (accessed 11 April 2021).

United Nations (2014), 'Regional Connectivity for Shared Prosperity', Economic and Social Commission for Asia and the Pacific,

https://www.unescap.org/sites/default/files/Regional%20Connectivity%20for%20Shared%20Prosperity_fulltext.pdf (accessed 11 April 2021).

United Nations (2019) 'UNCTAD B2C E-Commerce Index 2019',

https://unctad.org/system/files/official-document/tn_unctad_ict4d14_en.pdf (accessed 11 April 2021).

World Bank (2019), 'The Digital Economy in Southeast Asia: Strengthening the Foundations for Future Growth, Digital Development Partnership',

<http://documents1.worldbank.org/curated/en/328941558708267736/pdf/The-Digital-Economy-in-Southeast-Asia-Strengthening-the-Foundations-for-Future-Growth.pdf> (accessed 11 April 2021).

ERIA Discussion Paper Series

No.	Author(s)	Title	Year
2021-23 (no. 390)	Christopher FINDLAY, Hein ROELFSEMA, and Niall VAN DE WOUW	Feeling the Pulse of Global Value Chains: Air Cargo and COVID-19	July 2021
2021-22 (no. 389)	Shigeru KIMURA, IKARII Ryohei, and ENDO Seiya	Impacts of COVID-19 on the Energy Demand Situation of East Asia Summit Countries	July 2021
2021-21 (no. 388)	Lili Yan ING and Grace Hadiwidjaja	East Asian Integration and Its Main Challenge: NTMs in Australia, China, India, Japan, Republic of Korea, and New Zealand	July 2021
2021-20 (no. 387)	Xunpeng SHI, Tsun Se CHEONG, and Michael ZHOU	Economic and Emission Impact of Australia–China Trade Disruption: Implication for Regional Economic Integration	July 2021
2021-19 (no. 386)	Nobuaki YAMASHITA and Kiichiro FUKASAKU	Is the COVID-19 Pandemic Recasting Global Value Chains in East Asia?	July 2021
2021-18 (no. 385)	Yose Rizal DAMURI et al.	Tracking the Ups and Downs in Indonesia’s Economic Activity During COVID-19 Using Mobility Index: Evidence from Provinces in Java and Bali	July 2021
2021-17 (no. 384)	Keita OIKAWA, Yasuyuki TODO, Masahito AMBASHI, Fukunari KIMURA, and Shujiro URATA	The Impact of COVID-19 on Business Activities and Supply Chains in the ASEAN Member States and India	June 2021
2021-16 (no. 383)	Duc Anh DANG and Vuong Anh DANG	The Effects of SPSs and TBTs on Innovation: Evidence from Exporting Firms in Viet Nam	June 2021

2021-15 (no. 382)	Upalat KORWATANASAKUL and Youngmin BAEK	The Effect of Non-Tariff Measures on Global Value Chain Participation	June 2021
2021-14 (no. 381)	Mitsuya ANDO, Kenta YAMANOUCHI, and Fukunari KIMURA	Potential for India's Entry into Factory Asia: Some Casual Findings from International Trade Data	June 2021
2021-13 (no. 380)	Donny PASARIBU, Deasy PANE, and Yudi SUWARNA	How Do Sectoral Employment Structures Affect Mobility during the COVID-19 Pandemic	June 2021
2021-12 (no. 379)	Stathis POLYZOS, Anestis FOTIADIS, and Aristeidis SAMITAS	COVID-19 Tourism Recovery in the ASEAN and East Asia Region: Asymmetric Patterns and Implications	June 2021
2021-11 (no. 378)	Sasiwimon Warunsiri PAWEENAWAT and Lusi LIAO	A 'She-session'? The Impact of COVID-19 on the Labour Market in Thailand	June 2021
2021-10 (no. 377)	Ayako OBASHI	East Asian Production Networks Amidst the COVID-19 Shock	June 2021
2021-09 (no. 376)	Subash SASIDHARAN and Ketan REDDY	The Role of Digitalisation in Shaping India's Global Value Chain Participation	June 2021
2021-08 (no. 375)	Antonio FANELLI	How ASEAN Can Improve Its Response to the Economic Crisis Generated by the COVID-19 Pandemic: Inputs drawn from a comparative analysis of the ASEAN and EU responses	May 2021
2021-07 (no. 374)	Hai Anh LA and Riyana MIRANTI	Financial Market Responses to Government COVID-19 Pandemic Interventions: Empirical Evidence from South-East and East Asia	April 2021
2021-06	Alberto POSSO	Could the COVID-19 Crisis Affect	April

(no. 373)		Remittances and Labour Supply in ASEAN Economies? Macroeconomic Conjectures Based on the SARS Epidemic	2021
2021-05 (no. 372)	Ben SHEPHERD	Facilitating Trade in Pharmaceuticals: A Response to the COVID-19 Pandemic	April 2021
2021-04 (no. 371)	Aloysius Gunadi BRATA et al.	COVID-19 and Socio-Economic Inequalities in Indonesia: A Subnational-level Analysis	April 2021
2021-03 (no. 370)	Archanun KOHPAIBOON and Juthathip JONGWANICH	The Effect of the COVID-19 Pandemic on Global Production Sharing in East Asia	April 2021
2021-02 (no. 369)	Anirudh SHINGAL	COVID-19 and Services Trade in ASEAN+6: Implications and Estimates from Structural Gravity	April 2021
2021-01 (no. 368)	Tamat SARMIDI, Norlin KHALID, Muhamad Rias K. V. ZAINUDDIN, and Sufian JUSOH	The COVID-19 Pandemic, Air Transport Perturbation, and Sector Impacts in ASEAN Plus Five: A Multiregional Input–Output Inoperability Analysis	April 2021

ERIA discussion papers from the previous years can be found at:

<http://www.eria.org/publications/category/discussion-papers>