



Economic Research Institute  
for ASEAN and East Asia

# E-commerce Connectivity in ASEAN

By Lurong Chen and Fukunari Kimura





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Edited by Lurong Chen and Fukunari Kimura





## **E-commerce Connectivity in ASEAN**

Published by  
Economic Research Institute for ASEAN and East Asia (ERIA)  
Sentral Senayan 2, 6th floor  
Jalan Asia Afrika No. 8  
Central Jakarta 10270  
Indonesia

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Published in April 2020.

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Cover Art by Atmosphere  
Book Design by Ranti Amelia

National Library of Indonesia Cataloguing-in-Publication Data  
ISBN: 978-602-5460-24-1

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# Acknowledgements

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A key part of ERIA's serial project on 'Digital Economy, Innovation and Asia's Competitiveness in Global Value Chains (GVCs)', this editorial volume, E-Commerce Connectivity in ASEAN, brings together 14 chapters that collectively provide a major statement on how ASEAN can improve digital connectivity to facilitate e-commerce development and digital transformation.

Strong encouragement and invaluable advice from Professor Hidetoshi Nishimura, the President of ERIA, has been critical for the completion of this project.

Various forms of support from our colleagues, in particular Hank Lim, Shujiro Urata, Koji Hachiyama, Taizo Hara, Izuru Kobayashi, Shigeki Kamiyama, Stefan Wesiak, Fadriani Trianingsih, Chrestella Budyanto, Rachmadea Aisyah, Lydia Ruddy, and Tyagita Silka Hapsari, is gratefully acknowledged.

Yuanita Suhud and Meilawati provided excellent research assistance throughout the compilation of the book.

Last but not least, we are indebted to all the contributors to this book. Their enthusiasm has been unwavering, from their involvement in the initial research projects and throughout the subsequent dialogues to complete this book.

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# Overview

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Lurong Chen  
Fukunari Kimura

## 1. Introduction

Electronic commerce (e-commerce) has been radically altering our society. Economic activities using tools of the Internet or new information and communications technology (ICT) to purchase goods or services or conduct business online are rapidly expanding. Global cross-border e-commerce has become increasingly important in the international economy. Various factors have laid a solid foundation for the booming cross-border e-commerce, such as high-speed Internet, the use of smartphones, the facilitation of online payments, the changes in consumer behaviour, services sector liberalisation, and so on. Global retail e-commerce sales have been growing faster than traditional retail sales since 2014.

Asia is benefiting more than any other region in the world when cross-border e-commerce has introduced new dynamics to international trade (Chen, 2017). The next Asian miracle of growth could be born with the region's digital transformation to the new era, whose new ideas, new technologies, new mindset, new tools, and new businesses are changing the way of people's living, work, and study. E-commerce is disruptive to the traditional wholesaling and retailing not only by bringing business from offline to online but, more importantly, by introducing new digital tools, such as artificial intelligence, cloud computing, big data, and machine learning, into the business. To the end users, the most obvious distinction between e-commerce and the traditional business mode is that e-commerce activities involve fewer intermediate links between sellers and buyers. It has higher requirements on services, especially those on information, payments, and logistics. The digital platform can also pool all the related services for market matching.

The Association of Southeast Asian Nations (ASEAN) member states Singapore, Malaysia, and Indonesia have been amongst the world's top markets with the highest online shopping penetration rate. In the next 5 years, an increasing share of private consumption increments will come from global e-commerce growth.

The sustained growth of online shoppers provides the solid base of e-commerce consumption. Overall, the scale of digital economy in ASEAN is projected to increase by 5.5 times by 2025 (Think with Google, 2016).

Digital connectivity is the cornerstone that will make the changes feasible and smoothen the transformation. This book aims to provide related insights from the regional perspective. It is composed of 14 chapters (including this introductory chapter) that discuss the improvement of regional connectivity for digitalisation from various aspects and combined deliver a positive message on the region's progress in digital transformation.

## 2. Structure and Chapter Synopses

**Chapter 2** by Lurong Chen, 'Improving Digital Connectivity for E-commerce: A Policy Framework and Empirical Note', proposes a policy framework of promoting digital connectivity to support the development of e-commerce. Using this analytical framework for ASEAN economies, the chapter suggests that to narrow the development gaps in ICT-related infrastructure, either cross-border or within a country, there is a need for policy effort to improve (i) data connectivity from the aspects of network coverage, speed of Internet connection, affordability, online content, and cybersecurity; (ii) logistics for the free flow of goods and services; (iii) connectivity to facilitate cash flows; and (iv) seamless links between the cyberspace and the physical parts of the e-commerce network.

Improving institutional connectivity and service development play a significant role in all these aspects. Looking forward, digital connectivity is essential for the digital-friendly ecosystem that will facilitate digital transformation in the region, which will affect not only e-commerce but also the nation's overall economic performance.

**Chapter 3** by Kalamullah Ramli, 'Indonesia on the Move: Improving Connectivity to Support E-commerce', is an overview of Indonesia's national vision and general policy environment in preparing to be 'the digital energy of Asia'. It highlights the challenges faced by Indonesia in developing its digital economy and analyses the government's efforts to solve these problems.

Ramli's discussion focuses on three aspects: ICT connectivity, trade facilitation, and e-commerce regulations. He suggests that the government establish and complete an agile and flexible regulatory framework to support the digital economy in Indonesia by limiting the scope of law to basic principles at higher-level legislation but leaving more detailed technical

rule setting to lower-level legislation. Given the diversity across Indonesia's different regions, it would be helpful if the central government could allow governments at different levels some more flexibility in 'exercise[ing] constitutionally assigned legislative and executive responsibilities' to find solutions to meet the local needs to improve connectivity.

Arkadiusz Kawa in **Chapter 4**, 'Improving Logistics Connectivity of E-commerce in the ASEAN Region', highlights the importance of logistic connectivity and points out that capacity and performance significantly vary in ASEAN. It is not rare to see poor infrastructure limiting logistics efficiency and, therefore, a country's competitiveness. Kawa's study suggests that, in addition to further enhancing air, land, and maritime connectivity, ASEAN needs more interoperability to facilitate data flow and exchange. In particular, it is important to improve the efficiency of e-commerce logistics services to consolidate and further develop supply chains. At the micro level, competing companies should be encouraged to create partnerships enabling the exchange of knowledge and experience and sharing of resources to carry out specific tasks.

**Chapter 5**, 'Prospects and Challenges in Improving E-commerce Connectivity in Malaysia', prepared by Noor Azina Ismail and Muhammad Mehedi Masud, assesses the readiness of Malaysian small and medium-sized enterprises to participate in e-commerce based on the four aspects of connectivity that Chen (2017) proposed. Malaysia evidently has a large potential in developing e-commerce, and the country has made substantial progress in improving connectivity.

Ismail and Masud point out that Malaysia's largest challenge is the rather weak link between the physical and virtual parts of e-commerce network. Another problem is the uneven development across urban and rural areas, especially in aspects such as e-banking, e-fulfilment, and consumer protection. The establishment of Digital Free Trade Zone will help Malaysia accumulate experience on how to overcome challenges and strengthen its competitiveness in the digital economy through regional or subregional cooperation.

In **Chapter 6**, 'How Can E-marketplaces Turn Thailand into a Distributive Economy?', Nuttawut Laksanapanyakul emphasises the market mechanism and explores the ways to unleash the potential of e-marketplace development and transform Thailand into a distributive economy, with emphasis on income inequality issues. It analyses the structure and performance of online marketplaces in Thailand, in an attempt to assess whether the development of e-commerce could help narrow the country's income inequality.



## E-commerce Connectivity in ASEAN

The study shows that although digitalisation could help reduce income inequality, in Thailand, most of such ‘pro-equality’ effects seem to be cancelled out by factors such as uneven access to the Internet, lack of trust of online business, and the backlog of the legal system. To overcome these obstacles, it needs joint effort by the government and the private sector.

**Chapter 7**, ‘Policy Environment for E-commerce Connectivity in Viet Nam’, uses Chen’s (2017) framework of digital connectivity to evaluate the progress of economic digitalisation in Viet Nam, with particular emphasis on the country’s e-commerce-related regulatory system. For each layer, Dang Thi Phuong Hoa and Lurong Chen analyse both Viet Nam’s achievements and the still-existing challenges in connectivity.

Experience in Viet Nam shows that the uneven paces of digitalisation across cities and provinces could also be due to differences in the local governments’ implementation of policy set by the central government. As for the solution, a critical step is to switch the mindset of the administration in policymaking from state centred (supporting the business in the way that the state wants) to market centred (supporting those that the market asks for).

Sanjay Kumar Mangla, Sanjaya Kumar Lenka, and Rohit Singh in **Chapter 8**, ‘Enabling India’s E-commerce Connectivity with ASEAN: E-payment in India – Problems and Prospects’, investigate the status quo of e-commerce-related connectivity in India as well as that between India and ASEAN, specifically in the aspect of ICT and logistics. It further provides insights on India’s development of online payments.

Making India a cashless society is a government priority. But at this stage, e-payment penetration is still low, especially in rural areas and amongst small businesses. Therefore, it is necessary to have a continuous effort on improving ICT and logistics infrastructure, inducing transparency of regulation, and establishing an e-commerce-friendly environment with thoughtful consideration on related issues such as cybersecurity and data privacy, financial inclusion, online dispute resolution, and digital literacy.

In **Chapter 9**, ‘A Threshold for Tariff and/or Tax Exemption’, Inkyo Cheong points out that the lack of information and the burden of a tariff are amongst the typical impediments of cross-border e-commerce for ASEAN member states. Cross-border e-commerce is evidently not only limited by physical infrastructure but is also under the restrictions of tariff exemption. The regime of ‘express shipments’ applied by the Korea–United States Free Trade Agreement (FTA) has turned out to be effective in facilitating the shipments of low-value trade goods

(value less than US\$200). That four-fifths of world online-traded goods are with a value lower than US\$200, including the provision of *de minimis* for duty-free shipments in a region-wide free trade agreement, such as the Regional Comprehensive Economic Partnership (RCEP), could be a good way to introduce such a regime in regional trade in Asia and promote the development of e-commerce, especially that of cross-border e-commerce.

**Chapter 10** by Arkadiusz Kawa, ‘Network Cooperation in Cross-border E-commerce: A Conceptual Model of a Logistics Platform’, highlights the problem existing in cross-border deliveries and demonstrates how this could be an obstacle to the development of online business. The chapter further develops a conceptual model of a logistics platform to integrate the whole logistics chain and increase the efficiency of the network of cross-border cargo delivery. The model requires increasing interoperability amongst all participating parties. It is recommended that policymakers in ASEAN work together to push forward the process of regulations harmonisation, promote non-cash transactions, improve logistics infrastructure, and encourage multiple stakeholders’ partnerships.

**Chapter 11** by Jin Young Hong and Ha Neul Han, ‘Reconfiguring ASEAN and East Asian Global Production and Logistics Networks under the Global E-commerce Environment’, discusses the increase of logistics efficiency with concerns on global value chains. The authors first use data published by the Universal Postal Union to assess the general performance of the postal electronic service in the region, especially that related to online purchasing delivery. The study suggests that ASEAN increase the efficiency of the postal system by promoting competitive neutrality, which could help expand rural connectivity and markets without conflict between private and public services. Countries should particularly attend to the improvement of last-mile logistics, regional logistics hub, and business centres for training and business service.

**Chapter 12**, ‘E-commerce Development in the Lao PDR: Some Policy Concerns’ by Leeber Leebouapao, Phonesavanh Sittideth, Keokhuanchay Douangpaseuth, and Yuanita Suhud, introduces the economic landscape of online business in the Lao People’s Democratic Republic (Lao PDR). They argue that less-developed countries, like the Lao PDR, have also detected the opportunity to develop the digital economy. After reviewing the government policy framework for e-commerce and the country’s recent development in ICT infrastructure and connectivity, the authors detect some barriers existing in the country and accordingly provide the policy suggestions, including those related to legislation, Internet access, shipment, or payment. In addition to improving connectivity, building up human skills seems to be a more critical issue in developing online business in the country.

## E-commerce Connectivity in ASEAN

In **Chapter 13**, ‘An Integrated E-commerce Platform for the ASEAN Tourism Industry: A Smart Tourism Model Approach’, Meghdad Abbasian Fereidouni and Hossein Nezakati Alizadeh propose the establishment of an integrated e-commerce platform based on the model of Smart Tourism Destination Platform to promote the use of ICT tools in the development of the tourism sector in ASEAN. Using the fuzzy Delphi method with a group of nine experts, the authors identified 17 key components, ranging from Internet speed to security and safety, that would need particular attention, and suggested that national tourism organisations set the priority to overcome the challenges in these areas.

In **Chapter 14**, ‘Connectivity and the Healthcare Market in Myanmar’, John Walsh presents a case study conducted in Myanmar investigating how digitalisation helps improve healthcare access for people living in the remote areas, and how better Internet connectivity can make this feasible and effective. The chapter identifies the different uses of ICT in improving connectivity in healthcare in Myanmar, i.e. healthcare provision, use of medical laboratories, import of healthcare equipment, pharmaceutical distribution, and hospital management, featuring the surveys conducted in the urban centre of Mandalay and in rural areas.

Walsh’s study shows that digitalisation could help improve social inclusiveness by empowering people’s access to information. This is evident by how the fast increase of mobile telephone penetration and the popular use of social media have affected the changes in the healthcare market in Myanmar, although it is still at a formative stage. Looking forward, there is a need to improve the connectivity (i.e. to overcome the unevenness), the service (i.e. more reliable online information), and the use of tools to promote healthcare information to the public.

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# Improving Digital Connectivity for E-commerce: A Policy Framework and Empirical Note

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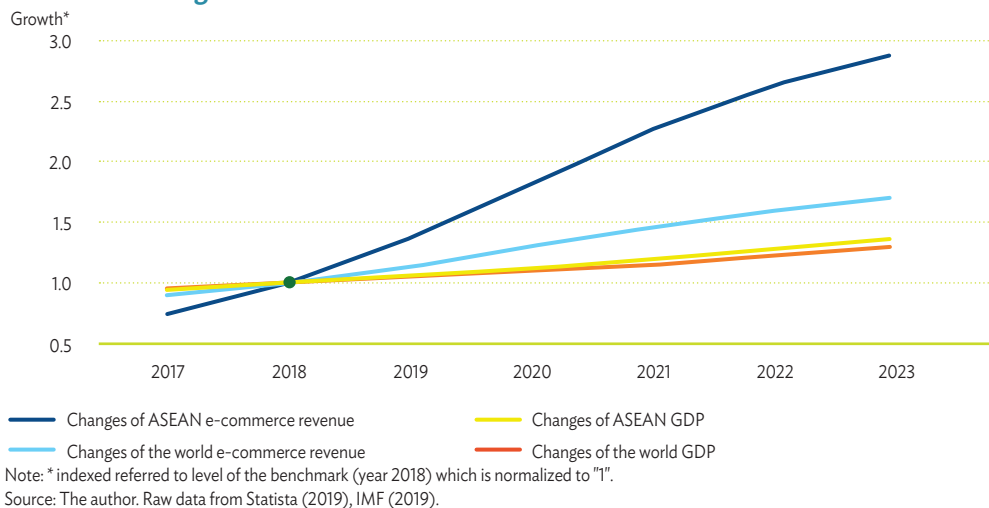
Lurong Chen

## 1. Introduction

Digital transformation is a global trend. Globally, e-commerce revenue reached US\$1.6 trillion in 2018 and is expected to grow to US\$2.7 trillion by 2023. The Association of Southeast Asian Nations (ASEAN) and East Asia together has the world's fastest-growing online market, with an existing Internet user base of over 350 million users and an overall market size of US\$72 billion in 2018. E-commerce is the most dynamic sector in the region. In the next 5–10 years, the regional e-commerce market is projected to grow at an average rate of 25%–35% per year. By 2025, e-commerce will represent a market exceeding US\$100 billion, increasing from US\$20 billion in 2017 (Google and Temasek 2019, Statista 2019).

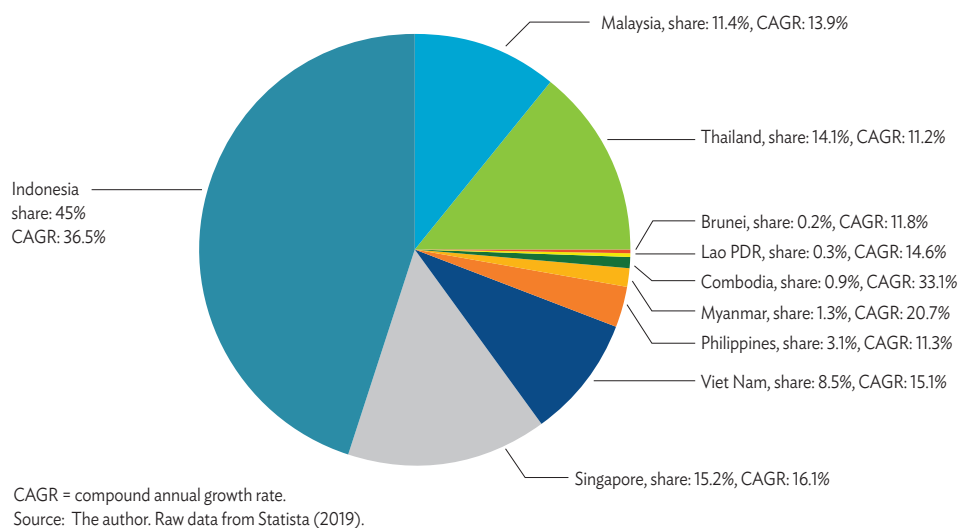
Using 2018 as the baseline year, Figure 2.1 shows the (projected) changes of e-commerce revenue and gross domestic product (GDP) for both the world and ASEAN. From 2018 to 2023, the annual growth of e-commerce revenue in ASEAN is projected to be four times as much as that of the regional GDP, whilst during the same period, global e-commerce revenue worldwide is projected to be twice as much as that of the world GDP. The total e-commerce revenue of ASEAN will increase by almost 200%. Together with China and India, i.e. via free trade and market integration, the region could be part of the world's epicentre of e-commerce by 2023, taking over 40% of the world's e-commerce market.

**Figure 2.1: The Growth of E-commerce Revenue and GDP**



E-commerce in ASEAN member states is projected to achieve a double-digit average rate of growth. Indonesia has the largest and the fastest-growing market (Figure 2.2). In 2018, Indonesia contributed to nearly 45% of regional e-commerce revenue. This figure is projected to increase to be over 60% within 5 years, as the Indonesian e-commerce market is booming at the rate of over 30% per year. Singapore, Thailand, and Malaysia also owned a double-digit market share, and their markets all expect high-speed, double-digit growth in the following years. By 2023, their combined market size will double, although the combined share in the regional market<sup>1</sup> will be less than 30%, down from 40% in 2018.

**Figure 2.2: Country Share in the Regional Market**



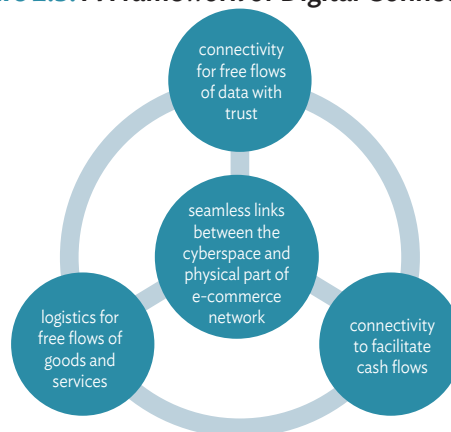
<sup>1</sup> The regional market that includes ASEAN, Japan, Republic of Korea (henceforth Korea), China, Australia, New Zealand, and India.

To create the opportunity to realise the potential of fast growth, there are needs for a digital-friendly ecosystem to facilitate digital transformation in the region. Above all, improving connectivity to support e-commerce is a priority. As the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2019) argue, digital connectivity needs ‘efforts to promote the benefits of online participation while mitigating the potential downsides’. Accordingly, broadband adoption should be ‘not just available, accessible, relevant and affordable, but also safe, trusted, empowering users and leading to positive impact’ (ITU and UNESCO 2019: ix).

Extensively, digital connectivity will affect not only e-commerce but also a nation’s overall economic performance. From the global perspective, Baldwin (2016) explains the economic logic of the way digitalisation (the development of information and communications technology) could lead to the new pattern of globalisation (‘third unbundling’) characterised by the new type of international division of labour, which would create new strategies for national development, as Kimura (2018) illustrates. Kimura and Chen (2018) further develop the policy framework and apply it to analyse the development strategy of Indonesia’s economy. Empirically, the World Bank (2009) estimates that at the national level, on average a 10% increase of fixed broadband penetration would increase GDP by 1.2% to 1.4%, depending on the country’s stage of development.

According to Chen (2017, 2019), the region needs to facilitate cross-border e-commerce and digital trade along four aspects: (i) data connectivity, (ii) logistics to facilitate the free flow of goods and services, (iii) financial connectivity to facilitate cash flows, and (iv) seamless links between cyberspace and the physical parts of the e-commerce network (Figure 2.3).

**Figure 2.3: A Framework of Digital Connectivity**



Source: The author.

### 2. Data Connectivity

In the digital age, the Internet is the main carrier of data and information. Above all, the development of e-commerce needs good quality Internet connection. In ASEAN, the general quality of regional Internet infrastructure looks satisfactory compared with that of the world average. However, the development of ICT-related infrastructure in individual Asian countries is uneven. There still exist gaps of development in ICT infrastructure across and within countries. For instance, the entry-level broadband connection in Singapore is much faster than that in the CLM countries – Cambodia, Lao PDR, and Myanmar. The average Internet connection speeds in the region range from 20.3 megabits per second (Mbps) in Singapore, ranked seventh globally, to 5.5 Mbps in the Philippines, ranked 100th. The peak Internet connection speed in the region ranges from over 180 Mbps in Singapore, the world's number 1, to 42 Mbps in the Philippines, number 97. In many countries, getting connected to the Internet in rural areas or remote villages is not as easy as in urban areas.

ICT technology is evolving rapidly. As of this writing, fibre-optic cables are still the most efficient media to 'carry' data despite the rise of satellite use. The connection between mobile phones and the nearest cell phone tower is wireless. Metadata are carried over terrestrial or subsea fibre-optic cables or both. Fundamentally, fibre network building is a crucial part of the needed infrastructure of the digital economy. Compared with the traditional fields of infrastructure, fibre technology is progressing rapidly. Building, maintenance, and upgrade of the fibre networks require sustained input capital, technology, and managerial efforts. This matter poses some common challenges to all countries. But emerging Asian countries face some extra difficulties due to highly dispersed geography and large population. Additionally, there is always a 'budget problem' to solve, especially among capital-scarce countries.

Typically, five groups of factors should be considered in improving data connectivity: (i) network coverage, (ii) speed of Internet connection, (iii) affordability, (iv) contents, and (v) cybersecurity.

#### 2.1. Network Coverage

According to World Bank (2019) data, the Internet penetration in ASEAN countries, measured as the number of Internet users as a percentage of total population, ranges between 22% in the Lao PDR and 81% in Singapore (Table 2.1), indicating the existence of gaps in Internet access across countries. A large number of people and/or households in ASEAN, especially in the less developed countries, still do not have Internet access.

ASEAN's fixed-line broadband subscriptions are generally low. Even in Singapore, the number of subscriptions per 100 inhabitants to fixed-line broadband is lower than that in the Republic of Korea (henceforth Korea) (42) or Japan (32). More people choose to

access the Internet using their mobile phones, thanks to the technology progress in wireless connection. In ASEAN member states, the 3G/4G network has already covered the majority of the population. With mobile phones supporting 3G technology (technically the minimum requirements of mobile Internet use), over 60% of people in the CLM can access the Internet.<sup>2</sup> Despite so, some gaps in network construction still exist across countries. While most countries already have the 4G network with full or almost-full coverage of its population, i.e. 100% in Singapore and 98% in Thailand, CLM countries will need to catch up more quickly with the construction of the 4G network.

Meanwhile, these countries also need to develop a network for electricity access. The coverage of Internet access in a country is limited by the lower value of either network coverage or electricity access. The urban–rural gaps in electricity access seem even wider (Table 2.1). In Cambodia, although all urban residents have access to electricity, 80% of its population still live in the rural areas where less than two-fifths have electricity access. A similar wide urban–rural gap also exists in Myanmar, which needs to further increase its urban electricity access as well. In these countries, including the Lao PDR, an urgent task is to resolve the problems in electricity supply in the rural areas.

**Table 2.1: ASEAN Access to the Internet**

Country	Internet penetration (users as percentage of population) <sup>i</sup>	Fixed-line subscriber penetration (per 100 inhabitants) <sup>i</sup>	Mobile subscriber penetration (per 100 inhabitants) <sup>i</sup>	Mobile connection (% of population) <sup>i</sup>		Electricity access <sup>ii</sup>		
				3G	4G	Urban (% of urban population)	Rural (% of rural population)	Share of rural population
Brunei	94.9	9.6	126.6	92.7	90.0	100.0	100.0	22.5
Cambodia	34.0	0.8	126.3	83.9	57.5	100.0	36.5	79.1
Indonesia	32.3	2.3	173.8	93.8	90.4	100.0	94.8	45.5
Lao PDR	25.5	0.4	54.1	78	9.0	97.4	80.3	60.3
Malaysia	80.1	8.5	133.9	96.2	92.0	100.0	100.0	24.6
Myanmar	30.7	0.2	89.8	90.5	75.1	89.5	39.8	65.4
Philippines	60.1	3.2	110.4	93.0	80.0	96.9	86.3	55.7
Singapore	84.4	25.8	148.2	100.0	100.0	100.0	0.0	0.0
Thailand	52.9	11.9	176.0	98.0	98.0	99.9	100.0	48.5
Viet Nam	49.6	10.8	125.6	95.0	95.0	100.0	100.0	65.8
China	54.3	28.0	104.6	98.0	98.0	100.0	100.0	43.2
India	34.5	1.3	87.3	88.0	88.0	98.4	77.6	66.9

Notes: (i) raw data from World Bank, (ii) raw data from ITU (2019b).  
Source: The author.

<sup>2</sup> Based on the value of the indicator of ‘Mobile subscriber penetration (100%)’ published by GSMA Intelligence.



### 2.2.Speed of Network Connection

The quality of the network connection is another important factor of digital connectivity. To the end users, good quality means faster, more stable, and more secure connection. Table 2.2 compares the network quality across ASEAN countries based on their bandwidth capacity and the average speed of Internet connection.

**Table 2.2: Speed of Fixed-line and Mobile Connection**

Country/Group	Fixed-line connection		Mobile connection		Bandwidth capacity	
	Average upload speed (Mbps)	Average download speed (Mbps)	Average upload speed (Mbps)	Average download speed (Mbps)	Total bandwidth (Gbps) <sup>i</sup>	Per Internet user (Kbps)
Brunei	n.a.	n.a.	n.a.	n.a.	~44	~108.2
Cambodia	16.4	13.0	8.6	7.4	102 ~ 174	19 ~ 32
Indonesia	9.9	15.6	8.4	9.5	1784 ~ 2072	21 ~ 25
Lao PDR	n.a.	n.a.	n.a.	n.a.	~32.2	~18.4
Malaysia	15.2	21.9	9.1	16.7	1078 ~ 1424	43 ~ 56
Myanmar	9.6	8.8	14.4	22.7	83 ~ 92	6 ~ 7
Philippines	15.7	15.2	6.5	11.7	1101 ~ 2534	19 ~ 44
Singapore	170.9	132.2	31.7	76.0	4522 ~ 4544	954 ~ 959
Thailand	25.3	48.8	9.9	15.4	1764 ~ 4364	48 ~ 120
Viet Nam	31.9	29.5	7.7	14.3	4038 ~ 6100	91 ~ 137
China	27.7	84.4	18.1	42.2	10993 ~ 20785	15 ~ 28
India	16.8	20.7	3.9	8.2	6185 ~ 10248	16 ~ 26

Note: (i) calculated by per Internet bandwidth per user multiple by the total number of Internet users.

Gbps = gigabits per second, Kbps = kilobits per second, Mbps = megabits per second.

Source: The author. Based on EUI (2019), ITU (2019) and World Bank (2019).

There are big gaps in the countries' bandwidth capacity. While on average each user in Singapore can get almost 1 Mbps bandwidth, a user in Myanmar can only get a 'quota' of as little as 6.2 Kbps. Accordingly, fixed-line connection in Singapore is on average 15 to 16 times faster than that in Myanmar. When using the same phone to download information from the Internet, the speed in Singapore is 10 times as fast as that in Cambodia. Except Singapore, the average speed of Internet connection in ASEAN is slower than that in China.

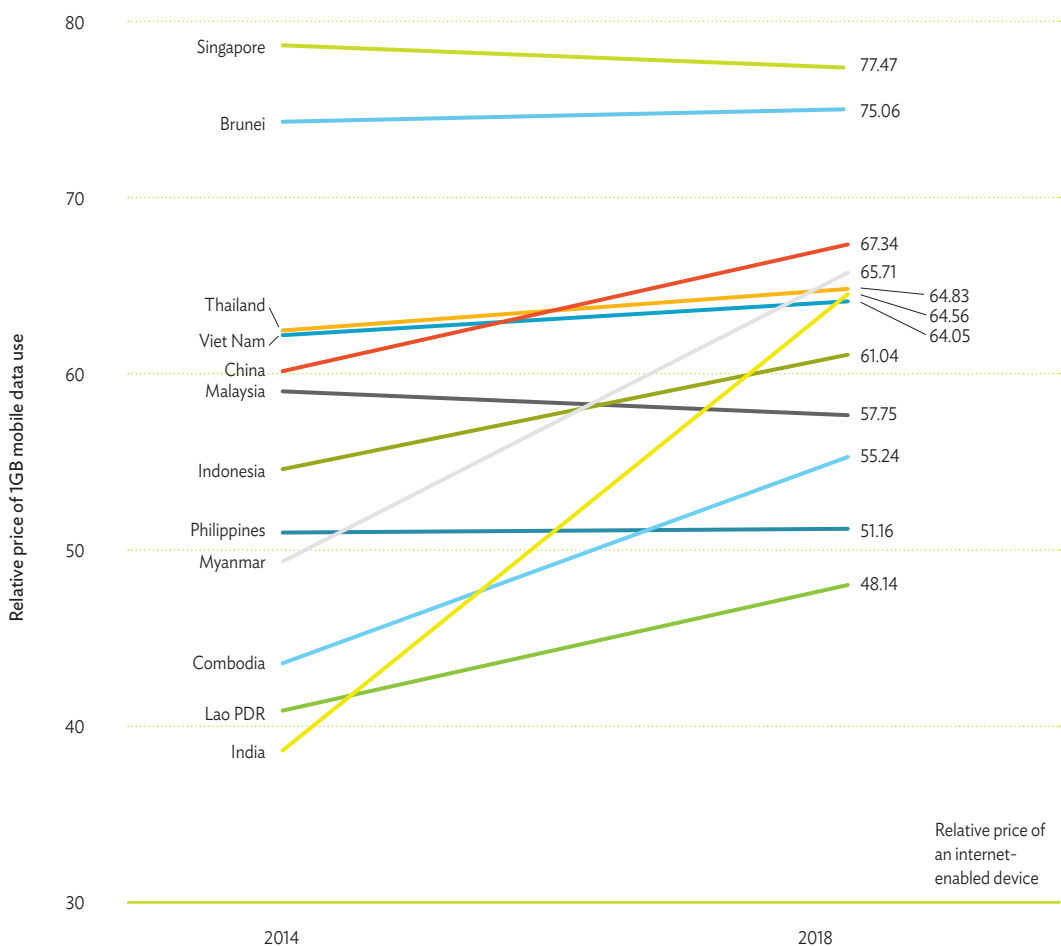
Despite so, one should not deny the fast ICT development in the region. In general, the overall network speed already reaches the level that allows countries to use new ICT tools, cloud computing, for example. According to the definition<sup>3</sup> of Cisco (2019), Internet speed in almost all countries, including that in the CLM, has met the minimum requirements for advanced cloud applications (apps).

<sup>3</sup> Cisco (2019) defines the requirements on Internet speed for business and consumer cloud service into three categories: (i) basic cloud apps (the low level), (ii) intermediate cloud apps (the middle level), and (iii) advanced cloud apps (the high level). For advanced cloud apps, the speed of download and upload of the network needs to be higher than 2.5 Mbps and 1 Mbps, respectively, and the network latency must be less than 100 millisecond (ms).

### 2.3. Affordability of Internet Access

From the supply side, another important factor worth considering is the affordability of using the Internet. With technology progress and market competition, in general, the cost of Internet access, especially that with mobile connection, has been dramatically driven down in recent years. The GSMA (2019) has included ‘affordability’ as a main component indicator of its mobile connectivity index; and as for mobile connection, South Asia has some of the best levels of affordability worldwide. For instance, in early 2010s, ordinary people in India could not afford to surf online using mobile phones. But today, 10 years later, the price of mobile data in India has been lower than that in China,<sup>4</sup> making access to the Internet through mobile connection much more affordable (Figure 2.4).

**Figure 2.4: Affordability of Mobile Connection, 2014 vs. 2018**



Note: (i) Relative price of 1 GB mobile data use = the price of 1 GB mobile data use / monthly gross national income (GNI) per capita, (ii) Relative price of an internet-enabled device = Average price of an Android Internet-enable device / monthly GNI per capita  
GB = gigabyte.

Source: The author. Raw data from GSMA (2019).

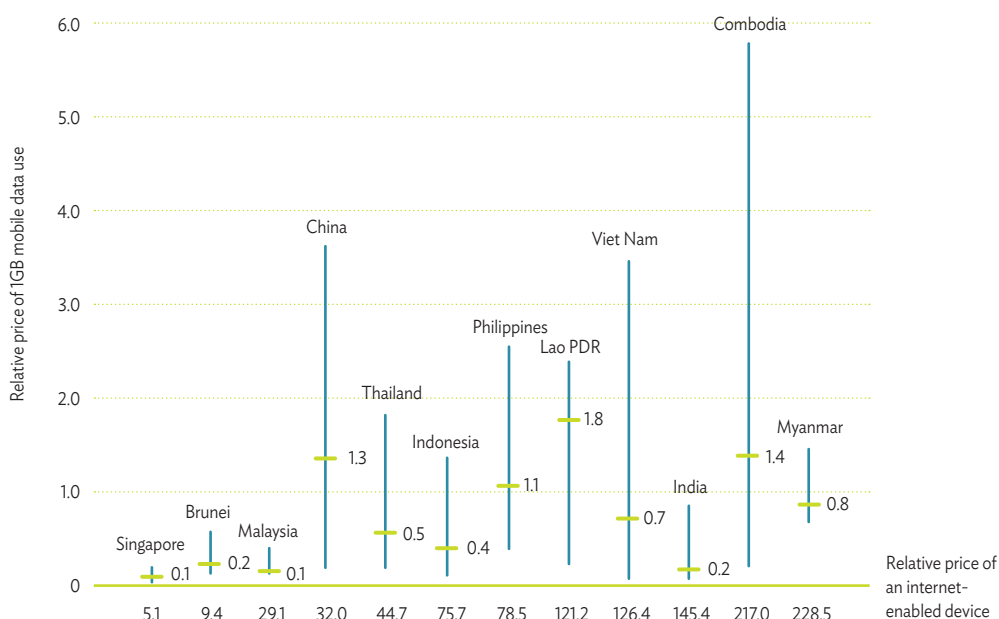
<sup>4</sup> More details are shown in Figure 2.4.

## E-commerce Connectivity in ASEAN

CLM countries also substantially improved from 2014 to 2018. Using mobile connection to access the Internet has now been more affordable in Myanmar than in other ASEAN member states, except Singapore and Brunei Darussalam. In comparison, affordability of mobile Internet access in Malaysia and the Philippines does not seem to improve. Region-wise, the gap across countries has been narrowed.

Figure 2.5 reveals more details on the price of 1 gigabyte (GB) of mobile data use relative to the country's monthly gross national income (GNI) per capita (indicated by the vertical axis) and the relative price of an Android Internet-enabled device (indicated by the horizontal axis).

**Figure 2.5: Relative Price of Smartphone and Mobile Data**



Note: (i) Relative price of 1 GB mobile data use = the price of 1 GB mobile data use / monthly gross national income (GNI) per capita, (ii) Relative price of an internet-enabled device = Average price of an Android Internet-enabled device / monthly GNI per capita  
GB = gigabyte.

Source: The author. Raw data from [www.cable.co.uk](http://www.cable.co.uk), [www.idc.com](http://www.idc.com), and the World Bank.

The vertical axis in Figure 2.5 shows the price of mobile data relative to monthly income. In countries like Malaysia or Singapore, the price of 1 GB of mobile data use is equivalent to only 0.01% to 0.03% of monthly GNI per capita while the cost of using the same amount of data in Cambodia, the Lao PDR, the Philippines, or Viet Nam is much higher. Especially in the countryside, it is very expensive to access the Internet using mobile phones partially because of the backlog in network building in the rural areas.

To further drive down the cost of mobile data, improving ICT infrastructure and increasing competition among Internet service providers are needed. Some policy interventions will be useful to mitigate the potential market failure in these areas.

## 2.4. Content and Services

In addition to the physical infrastructure, how well the Internet can attract users depends on the information and services it can provide. The more content people can get online, the more they will use the Internet, and the more time they will spend on it. To many users, access to the Internet is indeed access to online resources. And very often, it is not the raw data or resource but the processed information that will be most useful.

Although it is hard to measure and compare the content of online services across countries quantitatively due to its wide variety and the limited available data, the EIU (2019) conducts the survey and qualitatively rate the development of countries' e-finance, e-health, and e-commerce content (Table 2.3).

The results of the survey show that basic information in the local language already exists in all countries. As for e-finance, there is not much significant difference across countries. Qualitatively, all get the highest rating of two (best) except Indonesia, which gets one. In terms of e-health, five countries (Malaysia, Myanmar, Singapore, Thailand, and Viet Nam) get higher ratings than the others. Relatively, finance and healthcare are close to people's daily life, and users desire to be able to find more relevant content on the Internet. If it could only be domestically sourced, the richness and variety of the information tend to be limited by the development of the country's financial and healthcare sectors. It is therefore important to promote cross-border data flows and information sharing. For instance, Walsh (2019) shows that many people in Myanmar use their mobile phone to access online healthcare information provided by Thai or Vietnamese doctors.

**Table 2.3: Content of the Internet, Qualitative Rating and Score**

Country	basic information in the local language (0-2, 2=best)	e-finance content (0-2, 2=best)	e-health content (0-3, 3=best)	e-commerce content (0-100, 100=best)
Cambodia	2	2	2	29
Indonesia	2	1	2	36
Malaysia	2	2	3	77
Myanmar	2	2	3	23
Philippines	2	2	2	40
Singapore	2	2	3	90
Thailand	2	2	3	68
Viet Nam	2	2	3	50
China	2	2	2	60
India	2	2	2	44

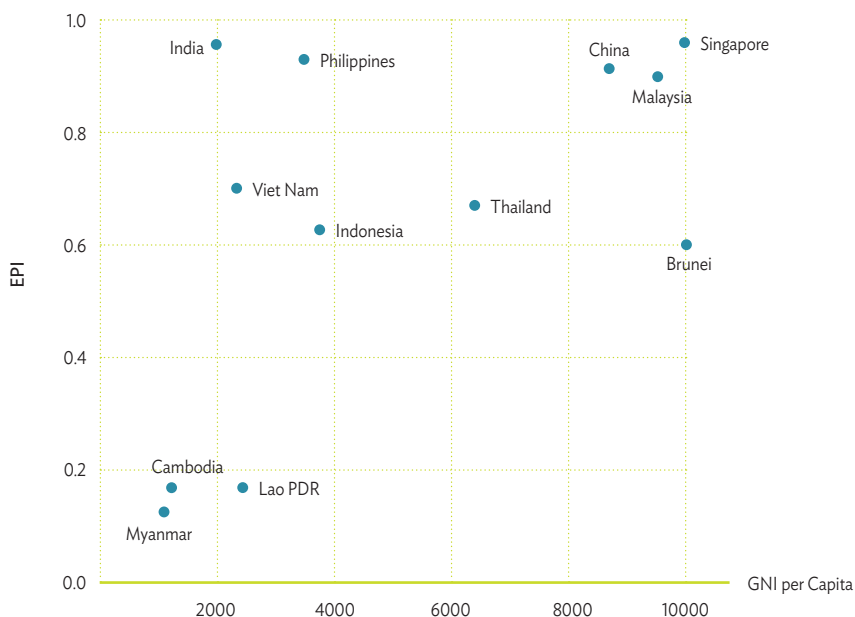
Note: Data for Lao PDR and Brunei Darussalam are not available in the source.  
Source: EIU (2019)

## E-commerce Connectivity in ASEAN

For e-commerce, Cambodia and Myanmar seem to lag behind, while Singapore and Malaysia have rich online content compared to other ASEAN member states. In between, most interviewees in Indonesia and the Philippines are not satisfied with the accessible e-commerce content; and the opinions of those in Viet Nam are equally divided. A better-developed e-commerce market needs more and better e-commerce content.

Online public services and e-government are also important content of the Internet. Figure 2.6 uses the UN E-Participation Index (EPI) to compare the well-being of the government's use of online services in providing information to its citizens as well as their interaction with stakeholders and involvement in decision-making processes. The value of the index ranges between 0 and 1. The country with the best performance will get the highest normalised value of the index '1', and the scores of the other countries will be relative to this benchmark value.

**Figure 2.6: E-participation**



EPI = E-participation Index, GNI = gross national income.  
Source: The Author. Raw data from UN (2019) and the World Bank.

Relatively, CLM countries are still lagging behind in promoting online public services and citizen engagement. The CLM's average score of EPI is 0.15, lower than the world average value (0.57) and that of the other ASEAN member states (0.77). It is rather urgent for the CLM to narrow the gap in providing information to its citizens, interacting with stakeholders,

and engaging in decision-making processes.<sup>5</sup> (UN, 2019). However, low income of the country and limited resources or capacity of the government should not be the main obstacle since there is no solid correlation of low income and low e-participation. For instance, India and Viet Nam have similar GNI per capita but have much higher EPI scores. Most important is to change the mindset of both the government and the public. On the one side, e-participation helps increase the awareness of policies and regulations and facilitate their implementation and enforcement. On the other side, prompt feedback from the wider public helps policymakers make decisions and take actions more quickly in response to the public needs.

## 2.5. Security and Reliability

Measures on cybersecurity are necessary to ensure the free flow of data with trust. Possible cyberthreats include theft (of identity, personal data, secrets); infringement of intellectual property rights; denial of service; leakages of private information; and the disruption of critical infrastructure. The level of organisation and sophistication of cyberthreats has been significantly increasing (OECD, 2012). As for digital connectivity, it is important to improve the security in cyberspace and prevent users from disturbing through malicious cyber activity.

Table 2.4 shows Asian emerging economies' scores and global rankings in the Global Cybersecurity Index (GCI) and National Cyber Security Index (NCSI). The GCI indicates the level of the cybersecurity commitment of countries with regard to legal measure, technical measure, organisational measure, capacity building, and cooperation. The NCSI measures a country's preparedness to prevent cyberthreats and manage cyber incidents based on security implemented by the central government on the aspects of legislation in force, established units, cooperation formats, and outcomes and products.

Based on the available data, Malaysia, Singapore, and India seem to be better prepared for cyberthreats than the others. Most of the countries show a high level of commitment to implement cybersecurity measures but the CLM countries are lagging behind. From the regional perspective, the unbalanced development in cybersecurity would hinder data flows region-wise and increase the cost and risk of doing business online. The improvement of national capabilities in the adoption and integration of cybersecurity will need effort law enforcement, education, intra-state cooperation, and public-private partnerships.

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<sup>5</sup>According to UN (2019), e-participation consists of enabling participation by providing citizens with public information and access to information without or upon demand (e-information), engaging citizens in contributions to and deliberation on public policies and services (e-consultation), and empowering citizens through co-design of policy options and co-production of service components and delivery modalities (e-decision-making).

**Table 2.4: Cybersecurity: Preparedness and Commitments**

Country/Group	NCSI		GCI		
	Score	Ranking (/100)	Score	Ranking (/175)	Level of commitment
Brunei	38.96	54	0.62	64	medium
Cambodia	n.a.	n.a.	0.16	131	low
Indonesia	19.48	83	0.78	41	high
Lao PDR	16.88	86	0.19	120	low
Malaysia	72.73	11	0.89	8	high
Myanmar	n.a.	n.a.	0.17	128	low
Philippines	31.17	63	0.64	58	medium
Singapore	57.14	32	0.89	6	high
Thailand	n.a.	n.a.	0.79	35	high
Viet Nam	n.a.	n.a.	0.69	50	high
China	38.96	53	0.83	27	high
India	50.65	39	0.72	47	high

GCI = Global Cybersecurity Index, n.a. = not available, NCSI = National Cyber Security Index.

Source: The author. Based on ITU (2019b).

### 3. Logistics

While e-commerce allows people to trade online, it still needs logistics to deliver the traded targets with goods or services. To this point, the role of logistics for e-commerce will not be much different from that for traditional wholesale or retail. Good logistics can save costs of doing business online and offline, and vice versa. Moreover, it is not only about trade cost but also about safety, security, reliability, transparency, flexibility, and efficiency. Indeed, e-commerce has higher demands on speed and transparency, posing additional challenge to storage, parcel delivery, and express postal services. From the aspect of logistic suppliers, this means additional efforts to improve both physical connectivity and trade-supporting services.

According to a survey conducted by the WEF (2017), Singapore and Malaysia are among the countries with the highest quality of overall infrastructure while others are either at or below the world average level. There are big gaps in logistics infrastructure across countries. As for the region, the development still faces obstacles from poor quality of roads, incomplete road and railway networks, inadequate ports, and low service capability (Table 2.5).

Indeed, the issue of logistics has been the bottleneck of economic development in emerging Asia. It is critical to avoid the contagion from logistics gaps to digital divide. Figure 2.7 illustrates Asian countries' logistics performance using World Bank (2019) data on Logistics Performance Index (LPI). Overall, the scores of the CLM and the Philippines are lower than the world average's while Singapore has the highest score in the LPI. Except for the Lao PDR and Myanmar, there are not so many problems existing in ASEAN when considering ease of arranging competitively priced shipments and frequency with which shipments reach consignees within the scheduled or expected time.

**Table 2.5: Quality of Logistics Infrastructure**

Country	Overall infrastructure	Roads	Railroad	Air transport	Port
Brunei	4.14 (67)	4.70 (41)	2.07 (88)	4.08 (84)	3.67 (87)
Cambodia	3.43 (95)	3.38 (93)	1.62 (98)	3.85 (99)	3.85 (76)
Indonesia	3.79 (80)	3.86 (75)	3.82 (39)	4.52 (62)	3.91 (75)
Lao PDR	3.74 (81)	3.42 (91)	n.a.	3.77 (100)	2.01 (132)
Malaysia	5.48 (19)	5.46 (20)	5.06 (15)	5.70 (20)	5.44 (17)
Myanmar	2.42 (135)	2.33 (136)	1.79 (96)	2.62 (132)	2.62 (123)
Philippines	3.04 (112)	3.07 (107)	1.97 (89)	3.25 (116)	2.92 (113)
Singapore	6.39 (2)	6.28 (2)	5.74 (5)	6.85 (1)	6.66 (2)
Thailand	4.03 (72)	4.21 (60)	2.52 (77)	4.95 (42)	4.18 (65)
Viet Nam	3.63 (85)	3.47 (89)	3.15 (52)	4.06 (86)	3.84 (77)
China	4.55 (43)	4.77 (39)	5.07 (14)	4.81 (49)	4.59 (43)
India	4.45 (51)	4.43 (51)	4.48 (23)	4.49 (63)	4.53 (48)
World	4.06	4.05	3.38	4.41	4.04

Note: Numbers in the brackets indicate a country's global ranking.

Source: The author. Raw data from WEF (2017) Executive Opinion Survey 2016.

Relatively speaking, more problems exist in (i) competence and quality of logistics services, (ii) efficiency of customs clearance process, and (iii) quality of trade and transport-related infrastructure. That is, compared to physical infrastructure, Asian countries need to pay more attention to develop the software of infrastructure – services.

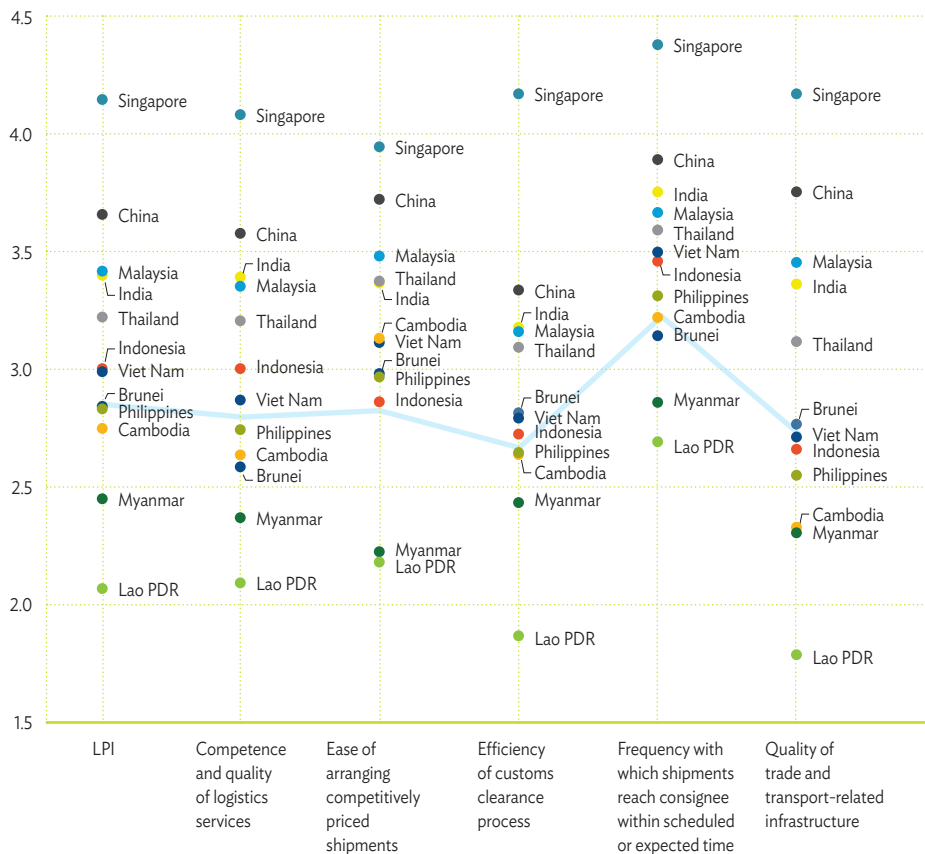
This has particular implications for e-commerce. As Chen (2017, 2019) points out, the role of services is vital to both the physical and cyber connectivity to support e-commerce. Improving services is at least equally important as building infrastructure in many aspects – from speed and accuracy to transparency and reliability. As for e-commerce, service efficiency will save trade cost, increase credibility and reliability, and therefore promote online business activities.

Technically, to most end users, the quality of Internet access relies more directly on services provided by Internet service providers compared to the undergoing capacity of fibre-optic cables or the number of Internet exchange points. Moreover, in the digital era, consumers tend to be more 'demanding of information' on logistics services – they want to be able to track their goods from shipment preparation to the last-mile delivery, get updated on matters when anything unexpected occurs, and receive solutions or plans to solve the problems.

To facilitate online business and e-commerce, not only the establishment of logistic facilities – such as mega e-fulfilment centres, parcel sorting centres (hubs), local parcel distribution centres for last-mile supply chains, local city logistics depots, and returns centres – is needed but also service development, which is a key to improve the efficiency of the regional distribution networks.



Figure 2.7: Logistics Performance



Note: the blue line stands for the world average value of the index.  
 LPI = Logistics Performance Index.  
 Source: The author. Raw data from World Bank (2019).

## 4. Financial Connectivity

Payment is the vital link that can bridge the cyber and the physical parts of e-commerce. For e-commerce, the minimum requirement is to have a means of payment for goods and services bought online, regardless of whether the money transactions are conducted online or offline. Currently, various payment solutions for online business coexist in the Asian market, such as cash on delivery, prepaid, credit cards, debit cards, e-banking, mobile payment, smartcard, e-wallets, etc. Such variety gives users more options in paying for online business. This thus promotes the growth of e-commerce considering that in many Asian counties, the development in the banking and finance sector still lags behind. Problems such as low coverage of banking network, the premature personal and/or household credit system, and the lack of an efficient capital market also prevail.

According to the World Bank (2019), by the end of 2017, a significant number of adults aged 15 and above still do not have a bank account (Figure 2.8). In this regard, e-commerce development could, as an externality, accelerate the adoption of financial innovation, such as e-payment and Internet financing, and provide alternative lower cost (and easier-to-use) solutions to the market.

In the long term, the e-payment system<sup>6</sup> that can support the high efficiency and convenience of e-commerce is desirable. E-payments and other financial alternatives can be either complementary to or independent of the traditional banking and financial architecture. Even traditional financial service providers have become eager to adopt these new models (Chen, 2017).

In Asia, e-payments have been rising along with the growth of e-commerce and the adoption of smartphones. Total transaction value of digital payments by ASEAN in 2018 had reached US\$73 billion. The size is expected to double by 2023 (Figure 2.9).

By 2023, over 460 million, or two-thirds of users will use digital payments, increasing from about 260 million in 2017 and about 300 million in 2018. Payments over the Internet, i.e. using online credit and/or debit card payment or e-wallet, are the major means. But mobile point of sale (POS) payments are becoming more popular over time. According to data published by Statista (2019),<sup>7</sup> in 2017, less than one-fifth of ASEAN e-payment users made mobile POS payments. The group of users is projected to be expanding at the rate of nearly 15% per year. By 2023, as over one-fourth of e-payment users will choose payments via mobile POS, the value of mobile POS transactions will reach around US\$9 billion, accounting for over 6% of total transaction value of digital payments.

Similar to the other aspects of connectivity, there are wide gaps of countries' readiness to adopt and use. Table 2.6 shows the values of the APEC E-payment Readiness Index of ASEAN countries as well as their scores in each sub-index based on available data.<sup>8</sup> Singapore comes out as best positioned in e-payment development, with the value of 59.6, while Viet Nam scores 22.9 at the other end. The wide dispersion of e-payment readiness exists mainly in the pillar of regulatory and policy environment and of innovative products and services.

When looking forward, Internet financial innovations come with opportunities and challenges. In general, financial technology or fintech tends to be a market changer and creates new opportunities for leap-forward development. The process can be market driven and self-enforced. Secure and reliable e-payment systems will increase financial inclusiveness and make digitalisation more beneficial to the middle- and low-income households.

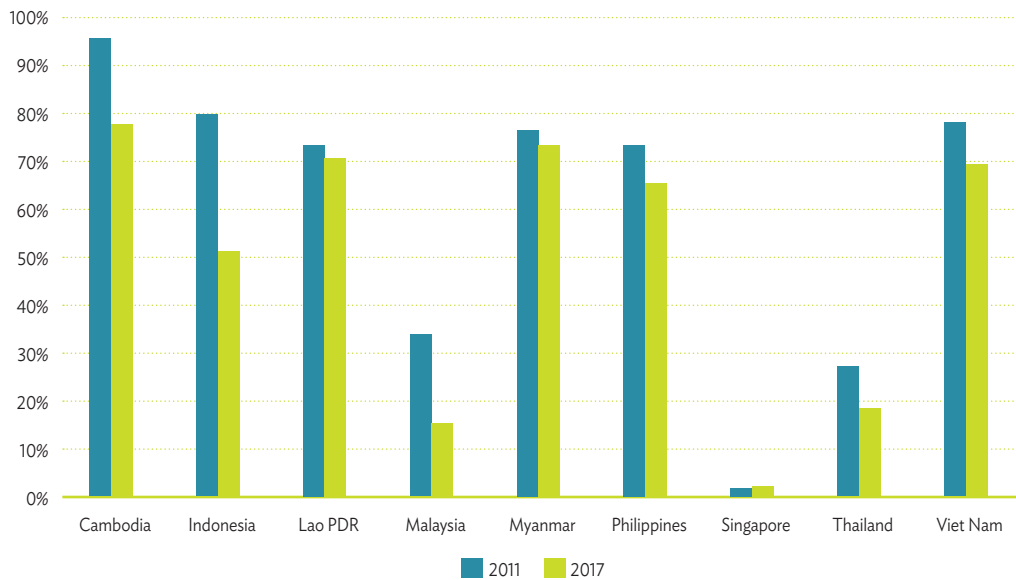
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<sup>6</sup>The European Central Bank defines e-payments as payments initiated, processed, and received in the form of digital information.

<sup>7</sup>The data do not include those of B2B payments and e-banking transactions.

<sup>8</sup>No data available for Cambodia, the Lao PDR, and Myanmar.

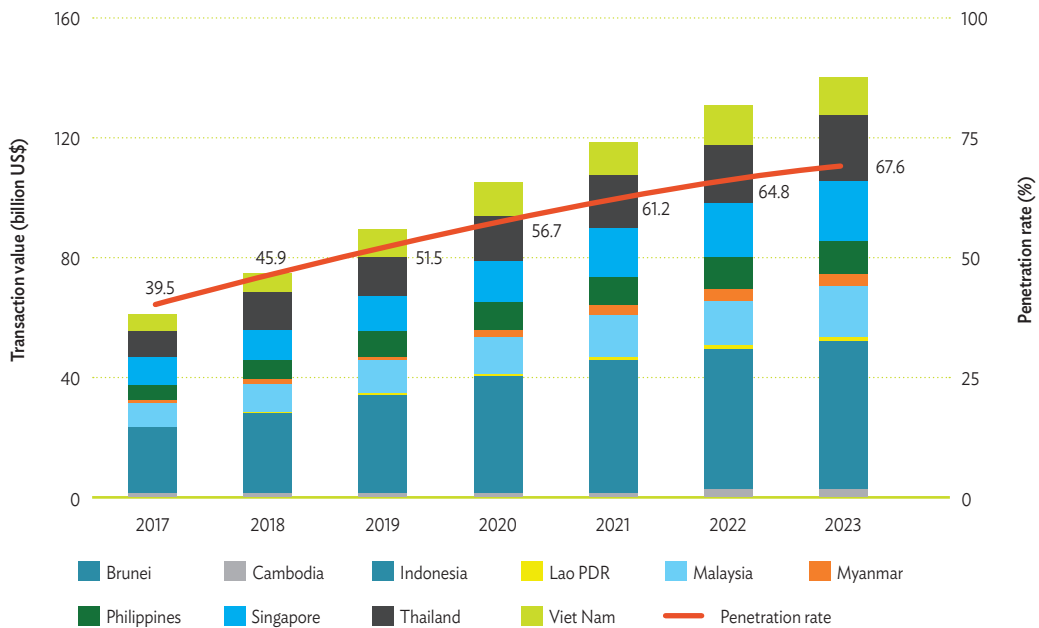
**Figure 2.8: The Share of Adults Without a Formal Account (as % of all adults age 15+)**



Note: Data for Myanmar are for 2014 and 2017.

Source: The author. Raw data derived from the World Bank's Global Findex database.

**Figure 2.9: E-payment Transaction Value and Penetration**



Source: The author. Raw data from Statista database.

However, e-payment is more likely a service platform, rather than a payment network, that can ensure transaction security, trace credit records, and offer consumer protection. Security, privacy, creditability, reliability, and efficiency are among the factors to be considered as well. In this regard, building and maintaining the e-payment system is a resource-intensive (i.e. capital, technology, human capital) project, which could be a challenge to countries whose domestic banking and financial sectors are still at the early stages of development. Moreover, difficulties in mindset changes and policy resistance could also be the main obstacles to digital adoption. Policy efforts at the regional level, such as establishing industrial standards and harmonising regulations, could help the industry realise the scale of economy and support its development (Chen 2019, Chen et al., 2019).

**Table 2.6: E-payment Readiness**

		ERI	Regulatory & Policy Environment	Infrastructure	Demand	Innovative Products & Services
Cluster 1: advanced e-payment ecosystems	Singapore	59.6	93.9	59.7	37.9	57.4
Cluster 2: transitioning e-payment ecosystems	Malaysia	44.5	80.7	41.6	27.4	38.2
	Brunei	37.2	46.6	42.4	37.4	19.6
Cluster 3: Nascent e-payment Ecosystems	Thailand	29.7	33.1	37.5	23.8	23.5
	Indonesia	28.8	43.4	29.2	17.8	29.9
	Philippines	26.4	32.8	31.4	20.5	21.2
	Vietnam	22.9	28	28.3	20	14
(Degree of dispersion)		12.8	25.8	10.9	8.3	14.7

ERI = E-payment Readiness Index

Source: RMIT and TRPC (2015)

## 5. Integrating Connectivity

Extra effort is needed to smoothen connections between networks of different countries and coordinate the interactions among the three functioning networks (information, logistics, and cash flows) cited earlier. Seamless links between the virtual and physical parts are vital to the functioning of the whole digital ecosystem of economy. The establishment of international rules and regulations will enhance the market drivers and strengthen such connectivity. This calls for multilayer cooperation, including public–private partnership, inter-institutional cooperation, subregional cooperation, and coordination among different duty departments of the government.

Table 2.7 lists some government strategy policies that have been published or drafted by ASEAN countries. Many common targets of ICT development – such as telecommunication infrastructure for high-speed Internet, higher Internet coverage, high level of Internet access and affordability, and higher human capacity – can provide the solid foundation of regional cooperation in promoting digital connectivity.

**Table 2.7: National ICT Authority and Plan**

	Ministry/Regulatory authority	Key plan/policy
Brunei	<ul style="list-style-type: none"> <li>The Ministry of Communications</li> <li>The Authority of Info-communication Technology Industry (AITI)</li> <li>The Brunei Darussalam National IT Council (BIT Council)</li> </ul>	<ul style="list-style-type: none"> <li>Wawasan Brunei 2035</li> <li>National Broadband Blueprint (2014)</li> <li>National ICT Manpower Masterplan (2016)</li> </ul>
Cambodia	<ul style="list-style-type: none"> <li>The Ministry of Posts and Telecommunications (MPT)</li> <li>Telecommunication Regulator of Cambodia (TRC)</li> </ul>	<ul style="list-style-type: none"> <li>The Law on Telecommunications 2015</li> <li>Policy for the Development of Telecommunication/ ICT 2020</li> </ul>
Indonesia	<ul style="list-style-type: none"> <li>The Ministry of Communication and Information Technology (MCIT)</li> <li>The Indonesian Telecommunication Regulatory Authority (BRTI)</li> </ul>	<ul style="list-style-type: none"> <li>Long-Term National Development Plan 2005-2025</li> <li>Indonesia Broadband Plan</li> </ul>
Lao PDR	<ul style="list-style-type: none"> <li>The Ministry of Posts and Telecommunications (MPT)</li> <li>Lao Telecommunication Regulatory Authority</li> </ul>	<ul style="list-style-type: none"> <li>Telecommunications law (2011)</li> <li>2<sup>nd</sup> 5-Year Development Plan of Posts and Telecommunications Sector 2016-2020</li> <li>ICT Vision 2030</li> </ul>
Malaysia	<ul style="list-style-type: none"> <li>The Ministry of Communication and Multimedia</li> </ul>	<ul style="list-style-type: none"> <li>National Broadband Implementation Strategy (National Broadband Initiative – NBI, 2010)</li> <li>The Malaysian Public-Sector ICT Strategic Plan 2016-2020</li> </ul>
Myanmar	<ul style="list-style-type: none"> <li>The Ministry of Transport and Communications</li> <li>Myanmar Communications Regulatory Commission</li> </ul>	<ul style="list-style-type: none"> <li>Telecommunications law (2013)</li> <li>Telecommunications Master plan (draft)</li> <li>Universal Service Strategy for Myanmar 2018-2022 (draft)</li> <li>Myanmar e-Governance Master Plan 2016-2020</li> </ul>
Philippines	<ul style="list-style-type: none"> <li>The Department of Information and Communication Technology (DICT)</li> <li>National Telecommunications Commission (NTC)</li> </ul>	<ul style="list-style-type: none"> <li>RA 10894 - Dept. of Information and Communications Technology (DICT) Act of 2015</li> <li>RA 10929 Free Internet Access in Public Places Act</li> <li>The Philippine Digital Strategy Transformation 2.0 (2011)</li> <li>National Broadband Plan (2017)</li> <li>E-Government Master Plan 2.0 (2016-2022)</li> </ul>
Singapore	<ul style="list-style-type: none"> <li>Info-communications Media Development Authority</li> <li>Smart Nation and Digital Government Office</li> <li>Government Technology Agency (GovTech)</li> </ul>	<ul style="list-style-type: none"> <li>Telecommunications Act (2000)</li> <li>Infocomm Media 2025 (2015)</li> <li>Digital Government Blueprint (2018)</li> </ul>
Thailand	<ul style="list-style-type: none"> <li>The Ministry of Digital Economy and Society (MDES)</li> <li>The National Broadcasting and Telecommunications Commission (NBTC)</li> </ul>	<ul style="list-style-type: none"> <li>The 12th National Economic and Social Development Plan 2017-2021</li> <li>Thailand Digital Economy and Society Development Plan</li> <li>National Broadband Policy</li> </ul>
Viet Nam	<ul style="list-style-type: none"> <li>The Ministry of Information and Communication (MIC)</li> <li>The Authority of Telecommunications</li> </ul>	<ul style="list-style-type: none"> <li>National Telecommunications Development Plan</li> <li>Master Plan of Broadband Infrastructure Development to 2020</li> </ul>

Source: The author. With references to ITU (2019a, 2019b), EIU (2019) and the official websites of ASEAN member states.

Many of them have established a special authority unit under the ministry to regulate the development of ICT. The possible direct partnerships between these national authorities could increase the efficiency of cooperation in various areas related to the improvement of cross-border digital connectivity, from Internet infrastructure to rule setting for regulations. Moreover, coordinating sectoral bodies, such as the ASEAN Coordinating Committee of E-Commerce, the ASEAN Coordinating Committee of Connectivity, and the ASEAN Coordinating Committee of Small and Medium Enterprises, could facilitate collaboration amongst member states from the dimension of regional institution.

At the regional level, ASEAN leaders have signed the E-ASEAN Framework Agreement in 2000 and announced the strategic goal to promote a productive ASEAN ‘e-space’ via (i) enhancing ICT sector competitiveness, (ii) reducing the digital divide within and amongst individual ASEAN member states, (iii) promoting partnerships between the public and the private sectors, and (iv) trade and investment liberalisation in ICT goods and services (ASEAN Secretariat, 2000: Article 3). The ASEAN Economic Community (AEC) Blueprint 2025 further highlights ICT development to be ‘a key driver in ASEAN’s economic and social transformation’ (ASEAN Secretariat 2015: Articles C2, C3, and D1). The ASEAN Digital Integration Framework and the ASEAN Agreement on e-Commerce<sup>9</sup> were signed in October and November 2018, respectively. In October 2019 during the 18th AEC meeting, ministers ratified the completion of the 2019–2025 Digital Integration Framework Action Plan.<sup>10</sup>

However, implementing these agreements and action plans will have challenges. For instance, a most fundamental issue is how to govern data flows, especially those of personal data. ASEAN countries have no common position in regulating cross-border data flow, and are taking different speeds in domestic rule setting. Indonesia, Malaysia, the Philippines, and Singapore have recently passed new laws; Thailand is considering such rules; and Brunei and the CLM have no personal data protection laws and regulations.

While countries like Singapore are strongly against data localisation, many others, such as Indonesia, Malaysia, and Viet Nam, have adopted or are considering laws that require data generated locally on their citizens and residents to be kept within their geographic boundaries and to remain subject to domestic law. For instance, the cybersecurity law that came into effect in Viet Nam in early 2019 allows the government to regulate data processing methods of technology companies that operate in the country and restrict the Internet connections of users who post ‘prohibited’ content online. Improving regional digital connectivity needs countries to change mindset and adopt a more open policy on data.

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<sup>9</sup> The ASEAN Agreement on e-Commerce covers a wide range of topics and is composed of 17 articles.

<sup>10</sup> The ASEAN Digital Integration Framework Action Plan will emphasise (i) trade facilitation, (ii) data protection for digital trade, (iii) digital payment, (iv) digital workforce, and (v) digital entrepreneurship.

All in all, as for digital connectivity, the region needs substantial effort on (i) rules and regulations to support digital connectivity, (ii) policy action plans to let new technologies and business models serve for inclusiveness, and (iii) the combination of countries' national strategies and regional cooperation.

### 6. Policy Suggestions

Improving digital connectivity to support e-commerce development needs multiple efforts. Most importantly, ASEAN and East Asian countries are recommended to (i) increase the supply of public goods to improve connectivity infrastructure in both physical world and cyberspace, (ii) establish rules and regulations to ensure dynamics and competition of online marketplace, (iii) improve connectivity-derived services to generate more value added, (iv) prioritise smartphone economy and Internet financial innovation, and (v) collaborate in regional rule-setting for digital connectivity.

First, better connectivity will increase the supply of public goods in both quantity and quality, and reduce the likelihood of digital divide. The public sector should lead in building infrastructure, but the private sector's involvement will be equally important to make the development sustainable. For ASEAN and East Asia, the improvement of infrastructure and connectivity to support growth and development has been widely discussed. Broadly, all related policy instruments will apply to strengthen digital connectivity, such as public-private partnerships, intergovernmental cooperation, foreign investment, and so on.

A particular issue to highlight is capacity. As for digital infrastructure, obstacles may come from capacity and resource limits, either capital or technology or both. Enhancing regional cooperation will provide a solution. For instance, when Japanese and Chinese construction companies compete in exploring overseas markets, both governments are willing to provide low interest rate loans or other forms of financial assistance to the host country in support of infrastructure projects with their companies' participation.

Second, in addition to physical infrastructure, the online marketplace needs rules and regulations to ensure the free movement and accuracy of information; the fairness to access to information; the protection of consumers and producers; the security of payment, free trade, and investment, and thus market dynamics and fair competition. The related regulations will cover traditional trade issues (i.e. tariffs and non-tariff measures, trade facilitation, consumer protection, intellectual property rights, etc.) as well as new issues (i.e. cross-border information flow, privacy protection, data localisation, source codes disclosure, etc.).

Asian countries are active in pushing forward World Trade Organization (WTO) talks on digital trade. For instance, at the 11th WTO Ministerial Conference in Buenos Aires in December 2017, Australia, Japan, and Singapore, with the support of 67 other WTO members, launched the E-Commerce Joint Statement Initiative. On 25 January 2018, 76 WTO members including China agreed to commence e-commerce talks. However, reaching agreements on some core issues about e-commerce will never be an easy task. It will have to balance the interests of the economy, society, national security, as well as the long-term gains and short-term costs. This again calls for collaboration among governments, especially involvement of the private sector in rule setting.

Third, improving services is equally important as building physical infrastructure in various aspects of connectivity – from speed and accuracy to transparency and reliability. For instance, service is a key determinant of the overall efficiency of distribution networks. Online consumers could be more demanding, particularly regarding information. Such users' demand motivates supply chain operations to create a greater focus on near-sourcing, omnichannel, and faster transport solutions (Inbound Logistics, 2014).

Meanwhile, connectivity-derived service can generate extra value added. It tends to have extensive implications on regional development because of its externality to the economy. First, development of the services sector can create more jobs to absorb labour. Second, service efficiency will save trade cost, increase reliability, and therefore promote e-commerce activities. Third, the resulting increase in government revenue will then provide additional resources to further improve connectivity. This could make the development of e-commerce-supporting services a self-enforcing process.

Fourth, Asian countries should focus on new technologies that can provide new solutions to improve regional connectivity, especially smartphone economy and fintech. Smartphones and mobile applications (apps) provide a powerful new platform for e-commerce growth. A smartphone today can replace many other devices and integrate their functions by simply adding apps to its memory chip. More people now use it as their daily companion, not just as phone but also as 'personal assistant in the pocket'. Google and Temasek (2019) state that 90% of Southeast Asians connect to the Internet primarily through their smartphones, which represent the primary gateway to search information, social media and messaging applications, and music and video entertainment. The so-called 'M-commerce' (e-commerce based on smartphone and related mobile devices) tends to provide the solution that will be cheaper, more convenient, more user-friendly, and global in scope for the digital economy.



## E-commerce Connectivity in ASEAN

E-payments and fintech are also active components of the digital economy. In particular, e-payments are flourishing in many newly developed and developing countries and are reducing transactions costs as a strong substitute of traditional payment system. Various forms of fintech are also developing rapidly. How to incorporate these new digital services in the traditional system of monetary and financial regulations is an important urgent topic for many countries.

Finally, in a broader picture, the development of e-commerce needs a suitable environment that covers both the physical world and the cyberspace. When e-commerce goes international, it is subjected to almost all issues that apply to other forms of international trade. Particularly, restrictions on cross-border data flows may damage cross-border e-commerce since trade protectionism harms international trade. Asian countries shall eliminate this potential threat to free trade and collaborate in the region-wide e-commerce-supporting environment.

Finally, from a broader picture, the development of e-commerce needs a suitable environment that covers both the physical world and the virtual cyberspace. When e-commerce goes international, it is subjected to almost all issues that apply to other forms of trade. Restrictions on data flows may damage cross-border e-commerce since trade protectionism harms international trade. Asian countries shall eliminate this potential threat to free trade and collaborate in the region-wide e-commerce-supporting environment.

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# Indonesia on the Move: Improving Connectivity to Support E-commerce

Kalamullah Ramli

## 1. Introduction

The development of the digital economy is an integral part of the United Nations' Sustainable Development Goals (SDGs). ASEAN economies pay strong attention to economic digitisation, as highlighted in the ASEAN Economic Community Blueprint 2025 and the ASEAN Socio-Cultural Community Blueprint 2015.

Indonesia is hampered by unevenly distributed infrastructure, especially logistics and information and communications technology (ICT) infrastructure, which worsens the price disparity of food, goods, and Internet access, particularly in remote regions such as eastern Indonesia.

This chapter shows how Indonesia is preparing to become a 'digital energy' as envisioned by President Joko Widodo. Comprehensive connectivity is a vital aspect of the digital economy. Indonesia's strategy to become a 'digital energy' includes, amongst others, developing ICT infrastructure, implementing a national logistics plan, establishing Internet governance to ensure the free flow of information, and encouraging the free flow of cash through financial technology or fintech.

This chapter also describes the country's problems, highlights the government's and other stakeholders' efforts to solve them, and recommends ways to improve the quality of rules and regulations in the ASEAN framework to improve the free flow of trade, information, and money. The recommendations consider fast-changing information technology and the growing trend to adopt new services and businesses.

### 2. National Vision and General Policy Environment for Development

In 2016, President Joko Widodo asserted his vision to make Indonesia ‘the digital energy of Asia’ (Mastel, 2016). The government then fast-tracked a digital-economy platform driven by micro, small, and medium-sized enterprises (MSMEs), which are the backbone of the economy. They make up 99% of all enterprises in Indonesia, have created 107.6 million jobs in Southeast Asia’s largest economy, and contribute 60.6% to the gross domestic product (GDP) (Indonesia Investments, 2016).

The government set up a well-defined and objective-driven strategy to accelerate digitisation of small and medium-sized enterprises (SMEs) by outlining the following milestones:

- i. Initiate a strategic plan focused on SMEs to encourage their participation in building the national economy.
- ii. Develop a roadmap of e-commerce synchronising 31 strategic initiatives across eight ministries to ensure that technopreneurship achieves about US\$130 billion in e-commerce transactions by 2020.
- iii. Establish friendly foreign direct investment policies to attract techno-based investment and strengthen the domestic base of venture capital.
- iv. Facilitate access to funding and enable digitisation of SMEs and rapid growth of quality start-ups through
  - a. subsidised soft loans (Kredit Usaha Rakyat) and
  - b. reformed venture capital regulations to incentivise greater capital seeding.
- v. Provide an attractive and easy exit strategy by deepening capital market liquidity for technology companies.
- vi. Adopt pro-innovation policies such as
  - a. the national programme to create 1,000 digital technopreneurs and
  - b. ‘safe harbour’ regulations to protect e-commerce players.

The government is also initiating policies to foster strong, sustainable, balanced, and inclusive growth. New measures include improving the national logistics system, channelling ultra-micro credit for micro and small businesses through non-bank financial institutions, and requiring that, under the 2017 State Budget Law, all regional administrations earmark at least 25% of their budget to build infrastructure.

The policy environment consists of issues or matters of concern to the public, the media, and/or influential pressure groups, which may influence the government’s decisions or

performance. The government faces existing rules and regulations, socio-economic factors, and other issues such as culture and national security.

Two regulations have sparked heated debate amongst stakeholders: Law 14 of 2008 on the freedom of information, and Government Regulation 82 of 2012 on localising data centres.

Regulations that may influence the free flow of trade and goods are Presidential Regulation 26 of 2012, the national logistics blueprint; Law 16 of 2009, taxation procedure; Law 36 of 2008, income tax; Law 42 of 2009, value-added tax; and Law 17 of 2016, customs procedure.

Other relevant regulations that may affect the free flow not only of information and but also of data are Law 44 of 2008, against pornography; Law 33 of 2009, business and services related to film and cinema; Law 28 of 2014, copyright; and Government Regulation 20 of 2017, control of import and export of goods resulting from intellectual property infringement, delivered through the Internet cloud. Law 9 of 1999, on consumer protection, impacts broader sectors, including trade, financial services, ICT services, and transportation and logistics.

### 3. ICT Connectivity

The Organisation for Economic Co-operation and Development (OECD) (Atkinson, 2015) stated, 'The free flow of information and data is not only a condition for information and knowledge exchange, but a vital condition for the globally distributed data ecosystem as it enables access to global value chains and markets'. Therefore, ensuring ICT connectivity throughout the country is crucial to support the free flow of information locally and regionally. More importantly, ICT connectivity is a key enabling element and the backbone of the digital economy. Presidential Decree number 96 of 2014 on the Indonesia Broadband Plan (IBP [Rencana Pitalebar Indonesia]) is a strategic plan to develop broadband connection across the archipelago by 2019. ICT connectivity is critical for the country's competitive edge.

Broadband connectivity is developed using the integrated broadband ecosystem approach, which starts from infrastructure and goes on to services, content, manufacturing, and capacity building. The IBP also underlines the distribution of responsibility amongst government, the private sector, and communities. The IBP had two main goals by 2019: improve the Internet's speed and coverage and reduce service fees.

The IBP targets bringing broadband infrastructure to up to 30% of the total population and up to 71% of urban households, with a maximum speed of 20 Mbps. In rural areas, the plan aims

## E-commerce Connectivity in ASEAN

to reach up to 6% of the population and 49% of households, with a maximum speed of 10 Mbps (Thayyiba, 2015; Bappenas, 2014). The Palapa Ring Project is an important part of the IBP as the ring aims to complete fibre-optic backbone connectivity to all districts.

### 3.1. Palapa Ring Project

The ambitious project, designed to reach all of the main islands and districts, consists of seven smaller interlocking fibre-optic rings in Sumatra, Java, Kalimantan, Nusa Tenggara, Papua, Sulawesi, and Maluku.

The project represents a big step towards a public-private partnership (PPP) in telecommunications. In 2016, it was included amongst the government's national priority projects, marked by a cooperation agreement signed by the Ministry of Finance and the Ministry of Communication and Information Technology.

The project is expected to play an important role in connecting the unconnected in Indonesia by 2019. It will deliver inexpensive high-speed connectivity to all 514 districts, facilitating better competition for new entrants, especially in remote areas. In 2015, only 74% of all districts could access the fibre-optic network (Tayyiba, 2015).

### 3.2. Funding Providers and Developers

Indonesia Infrastructure Finance (IIF) provides rupiah loans to the Palapa Ring Project. IIF expands lending to domestic projects, strengthening their credit ratings and arranging financial products for public-private partnerships. The private financing company released Re1.5 trillion (US\$109.5 million) in June 2016. In 2011–2015, 21% of IIF funding or Re5.5 trillion (US\$401.5 million) was lent to telecommunication projects.

The private sector is increasingly interested in the project because of its solid financial banking. The project covers three regions (west, central, east) and has been completed and inaugurated by President Joko Widodo in late 2019.

The tender of Palapa Ring West, released by the Ministry of Communication and Information Technology in March 2016, comprises all of Riau and Riau islands of Sumatra and was won by the Palapa Ring consortium. It is led by Mora Telematika Indonesia (Moratelindo) and submarine-cable layer Ketrosden Triasmitra. The fibre optic was completed in mid-2019 and stretches about 2,000 km .

Bank Mandiri signed off on Re875 billion (US\$63.9 million) for Palapa Ring West on July 2016, making clear that the government banking sector supported the deal. The contract

is unique because the Re1.7 trillion (US\$124.1 million) concession will be remunerated based on the availability scheme. Based on PMK No. 260/2016, the Availability Payment Scheme is defined as ‘periodical payment made by Minister/ Head of Agency/ Head of Local Area to the Implementing Enterprise for Infrastructure Services delivery based on the quality and/or criteria as decided in PPP Agreement’. In Indonesia, the Availability Payment Scheme is applied to projects that are not ‘financially self-sustainable’, thus the support from government and/or the government contracting agency is essential to increase the project attractiveness for the private sector.

The consortium passes on fees charged for access to the fibre-optic connection and receives guarantee payments from the government during the concession as long as the consortium executes the project as agreed.

Under the same scheme, the state-owned LEN Telekomunikasi Indonesia was awarded the second development package, valued at Re4 trillion (US\$292 million). LEN Telekomunikasi is a consortium composed of fibre-optic deployer Sufia Technologies, investment firm Teknologi Reset Global Investama, shipping company Bina Nusantara Perks, and IT service provider Multi Control Nusantara. The consortium is obligated to connect 17 cities in Kalimantan, Sulawesi, and Maluku Utara with around 2,700 km of land and subsea fibre-optic cable. LEN Telekomunikasi was awarded the project 5 days after the Palapa Ring West tender was approved.

Palapa Ring East, which will connect Nusa Tenggara Timur, Maluku, Papua Barat, and Papua, is the most challenging. The winner of the tender, announced in July 2016, is a consortium of Moratelindo–IBS Smart Telecom. The business entity is Palapa Timur Telematika. Due to geographic circumstances, the project will take the most time to map the most efficient route. About 80% of the new cable has to be installed offshore because, unlike in west Indonesia, the area has little onshore fibre backbone.

The central and eastern sections are considered more important than the western part for evenly distributing ICT access and alleviating poverty. The central and eastern sections, particularly the far eastern part, have the lowest Internet penetration and highest poverty rates. Better Internet connection could solve problems such as poor healthcare and education. Establishing ICT infrastructure could lead to improved local governance.



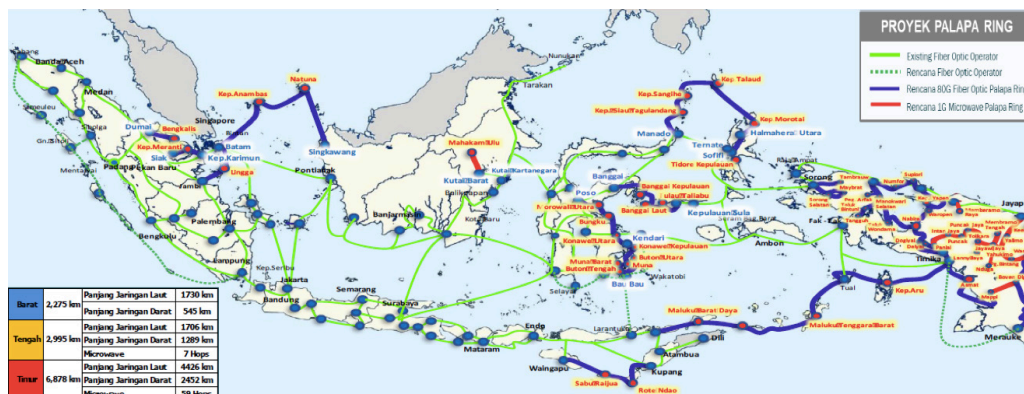
### 3.3. Deployment Progress

The central section of the Palapa Ring was 75.74% completed by the first quarter of 2018 and reached 99% in November 2018 (Hutabarat, 2018). The eastern section, however, is just 80% complete, so it will be difficult to complete it before the second quarter of 2019.

In the meantime, the western part of the Palapa Ring has been 100% deployed. The Palapa Ring Project deployment is depicted in Figure 3.1.

The IBP encourages better use of capital assets. Some strategies for infrastructure efficiency include sharing passive infrastructure, open access, and greater multimodal access (for fibre, frequency spectrum, and satellite).

**Figure 3.1: Palapa Ring Project Deployment in 2018**



Source: BAKTI (2018).

## 4. Free Flow of Goods

The explosive growth of e-commerce and expansion of intra-regional markets favour the logistics industry. However, logistics costs in Indonesia are extremely high, comprising 24% of GDP (GBGIndonesia, 2016). In Malaysia, however, they comprise only 8%, and even less in Singapore.

The government has intensified infrastructure development and regulation and bureaucratic reform to lower transportation and logistics costs, which are 2.5 times higher than in other countries due to illegal levies and prolonged processes, amongst other reasons. The government has promised to solve the chronic logistics and maritime problems through regulatory reform and heavy investment in infrastructure. The target is to reduce logistics costs to around 19% of GDP by 2024.

Improving logistics will support inclusive and strong growth. Making logistics more effective and efficient will help reduce inequality amongst regions and increase trade competitiveness.

### 4.1. Logistics Issues

In archipelagic Indonesia, logistics are of the utmost importance and represent one-fourth of the economy (World Bank, 2018). The sea can be either a cohesive factor or a cause of fragmentation and isolation. Logistics are crucial for reliable, cost-effective delivery of products.

Clearance and cargo release at ports, for example, are obstructed because of, for example:

- i. sluggish service and permit processing by ministries and agencies involved in import and export activities;
- ii. numerous ministry and agency requirements, which result in inefficiency; and
- iii. unsystematic and fragmented risk management at ministries and agencies.

#### 4.1.1. *Extreme Administrative Inefficiencies*

Logistics problems are due mainly to large inefficiencies. Transport, inventory, and warehousing costs are much higher (25% of manufacturing sales) than in Thailand (15%) or Malaysia (13%) (World Bank, 2016). Inventory expenses are even higher due to the unreliable and unpredictable logistics chain. For example, shipping a container from Shanghai to Jakarta is cheaper than from Jakarta to Padang in West Sumatra, even though the distance between Shanghai and Jakarta is six times longer than between Padang and Jakarta (Winosa, 2017). Around two-thirds of manufacturers in Indonesia manage in-house, not outsourced, logistics, which indicates the lack of trust in local logistics service providers (World Bank, 2016).

The logistics chain in Indonesia could be modelled by Figure 3.2. It is divided into three sectors: the port sector, the logistics sector, and the trading sector. First, goods are shipped by producers to port. The shipment is handled by a logistics service provider. If the sender is from a foreign country, upon the arrival, the imported materials must be off-loaded at the port to be verified as conforming to Indonesian regulations. No fewer than 12 ministries and agencies and multiple inspections might be involved in this phase. When the products are cleared, trucks take the containers to warehouses from which the consignment to the final goal is arranged. A third-party logistics service provider may arrange delivery.

Those inefficient port procedures cause delays in trade facilitation that hurt manufacturing productivity, both internationally and within Indonesia.

### 4.1.2. *Poor Port Infrastructure*

Poor port infrastructure across the country also weakens the country's competitiveness, as confirmed by detailed research on 18 ports throughout Indonesia by the World Bank (World Bank, 2018). Under-investment in port infrastructure is mainly caused by the vague roles of the port operator and the port landlord, creating uncertainty as to who should lead the infrastructure development.

### 4.1.3. *Lack of Competition in Logistics Service*

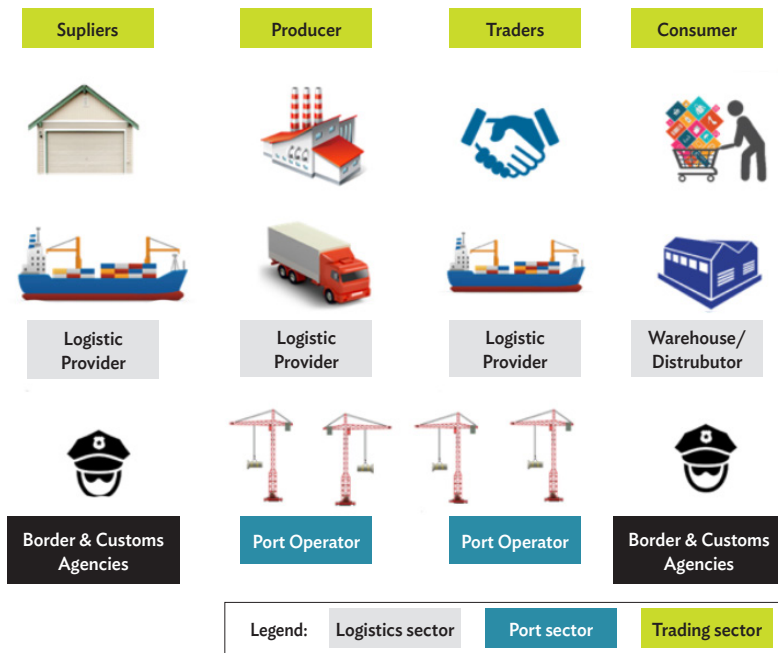
Another obstacle in developing the logistics sector is the lack of competition. Amongst 44 countries surveyed by the OECD (World Bank, 2018), Indonesia is the most restrictive one. Restrictions include burdensome licensing specifications, restrictions on location of operations, barriers on minimum capital qualifications, and limits on foreign ownership as reflected in the negative investment list.

### 4.1.4. *Burdensome Regulations*

Burdensome regulatory specifications and inefficient methods further weaken the trade-processing link in the logistics chain. In Doing Business 'Trading Across Borders' (World Bank, 2018), Indonesia ranked far behind most Southeast Asian comparators – 105 amongst 189 economies. The document filing process for imports takes 144 hours in Indonesia compared to only 10 hours in Malaysia and 4 hours in Thailand, resulting in Indonesia's low world ranking in the World Bank's Logistics Performance Index (LPI). With respect to some indicators, however, such as international shipments, Indonesia leaves behind other neighbours such as Thailand, Viet Nam, the Philippines, and Cambodia, ranking 71 amongst 160 countries.

At the core of the country's logistics problems are inefficient port procedures, uncompetitive logistics services, and rambling trade procedures. Ports are often a bottleneck mostly because of defective infrastructure, even though other factors such as burdensome trade processing and investment regulations and low labour productivity play a role, too.

**Figure 3.2: A Model of Logistics Chain in Indonesia**



Source: Author.

## 4.2. National Logistics Blueprint (Sislognas)

The national logistics system is important to ensure the effective and efficient flow of goods and to improve competitiveness. Indonesia’s vision for its national logistics system is ‘locally integrated and globally connected’.

The National Logistics Blueprint (Sislognas) is designed to actualise the long-term economic vision for 2025 to reach a per capita GDP of US\$14,250–US\$15,500: ‘self-sufficient, advanced, just, and prosperous Indonesia’. Sislognas takes into account existing national, regional, and global logistics, as well as logistics business best practices in developed countries.

The national logistics system is a framework to develop an IT-enabled, effective, efficient, and integrated logistics system based on synchronised, integrated, collaborative stakeholders, and on an effective organisational system. The system is expected to be supported by adequate and reliable infrastructure. The framework aims to ensure the flow of goods (commodities) under the paradigm of ‘ship follows trade’. However, due to Indonesia’s vast geographic span, causing limited access to remote areas, the ‘ship promotes trade’ paradigm is also introduced by the blueprint.

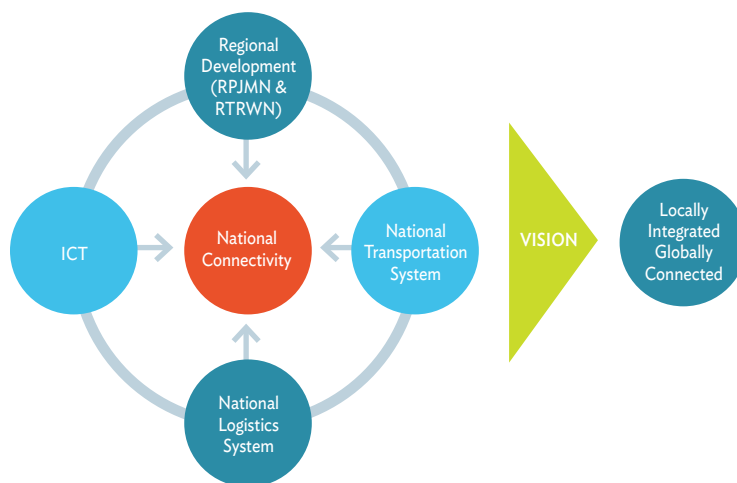
## E-commerce Connectivity in ASEAN

The National Logistics Blueprint has two missions. The first is to support effective and efficient flow of goods to fulfil public basic needs and to improve national competitiveness in domestic, regional, and global markets. The second is to create national logistics nodes, especially in remote and less connected regions, and to build connectivity between regions, islands, and international hub ports through a multi-stakeholder approach. Figure 3.3 shows Indonesia's National Connectivity Framework.

To accelerate the mission's achievement, the government has carried out policies and actions to (1) ensure the smooth flow of goods and service delivery in the region and (2) improve the competitiveness of logistics service providers.

The policy has been in force since 2017, improving the regional supply-chain mechanism for goods and services, and relaxing the minimum capital requirement for logistics service providers.

**Figure 3.3: Indonesia's National Connectivity Framework**



Source: Bahagia, Sandee, and Meeuws (2013); Master Plan for the Acceleration and Expansion of Economic Development of Indonesia (MP3EI).

Excessive prices, especially in more distant, less connected regions where poverty is more concentrated, could be reduced by efficient logistics. Decreasing prices in remote regions like eastern Indonesia could reduce poverty.

Indonesia's supply chain faces many obstacles, which are being overcome by

- i. improving ports' governance and operations,
- ii. facilitating a competitive business environment for logistics service providers, and
- iii. making trade mechanisms more efficient and transparent

### 4.3. Economic Policy Packages to Improve Logistics Efficiency and Promote Investment

The government endeavoured to cut logistics costs by launching the 15th economic policy package in June 2017. It focused on (1) strengthening the function of transportation insurance, (2) compressing costs for logistics service providers, (3) reinforcing the authority of the Indonesia National Single Window (INSW), and (4) lowering the number of banned and restricted goods.

The insurance sector is included because insurance companies are involved in shipping of goods, in the shipyard business, and in ship maintenance. The package is also intended to reduce costs for cargo licences, transport services, and investment in the port business. Amongst ways to reduce logistics service costs is to cut back costs of shipping agencies, freight forwarding, loading and unloading services, and port management.

#### 4.3.1. *Efficiency of Logistics Bureaucracy*

Port inefficiencies and poor port connectivity make many basic goods twice as expensive in eastern Indonesia as in Java. Consumers have no choice but bear the higher costs. Abbreviating long dwelling times and simplifying bureaucratic systems can help ports and businesses run more effectively and efficiently.

Amongst the policies to improve logistics efficiency are the following:

- a. Presidential Regulation 76 of 2014 established a dedicated agency to enhance INSW services; to deal with electronic customs clearance documents, permits, and other related export–import documents; and simplify national logistics and procedures. All ministries and agencies are involved.
- b. The 11th economic package, issued in 2016, provides for Indonesia Single Risk Management (ISRM) to accelerate the flow of goods in ports. It was targeted for full implementation by all ministries and agencies that deal with import and/or export permits, to bolster Indonesia’s compliance with the Trade Facilitation Agreement of the World Trade Organization to 70% by the end of 2017.
- c. The INSW and the ISRM also aim to support the 3.5-day port dwelling time.

#### 4.3.2. *Dwelling Time Reduction*

The dwelling time is measured from when the container is unloaded until it leaves the gates of the container terminal. Indonesian seaports had an extremely long cargo dwelling time due to inefficiencies, poor infrastructure, and illegal levies that led to steep logistics costs. In the country’s main seaport, Tanjung Priok, which handles over two-thirds of Indonesia’s

## E-commerce Connectivity in ASEAN

international trade, for example, the dwelling time was twice as long as in Malaysia and five times longer than in Singapore. Other Indonesian ports take much longer to shift containers in and out of the port.

From the start of his administration, President Joko Widodo has demanded that the dwelling time be reduced to around 2 days, especially in major seaports such as Tanjung Priok in Jakarta, Tanjung Perak in Surabaya, and Belawan in Medan.

The dwelling time in Tanjung Priok has been significantly reduced to 3.2 days, from 6–7 days in 2014, but it has not reached the 2-day goal. The dwelling time in Belawan (7–8 days) and Tanjung Perak (8 days) must be cut, too.

The government targets decreasing the dwelling time to 2 days, including 12 hours for pre-clearance, 1 day for customs clearance, and the rest for post-customs clearance. Amongst the ways to cut the dwelling time are operating seaports for 24 hours, deploying more personnel, and simplifying licensing.

### 4.3.3. *Other Efforts*

President Widodo repeats his instructions to integrate operations, reduce the dwelling time, and eradicate illegal levies. He has commanded the Indonesian Port Corporation (Pelindo II) to speed up efforts to increase port capacity. He has ordered the National Police Chief to examine any possible illegal levies at the North Sumatra port. The Transportation Ministry has asked that containers be moved out of the three main seaports.

## 5. Regulation to Support E-commerce

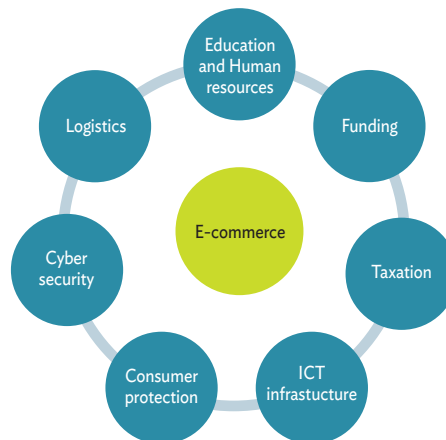
Indonesia has been developing e-commerce governance for the last 7 years (Rumata and Sastrosubroto, 2017). The Ministry of Trade issued Law 7 of 2014 on trade, requiring e-commerce service providers to provide relevant data or information, including detailed descriptions of products and qualifications of merchants; details of payment information; and delivery procedures (articles 65 and 66). For the system and infrastructure, the law refers to the Law No. 19 of 2016 on the Amendment to Law No. 11 of 2008 on Electronic Information and Transactions.

Presidential Regulation 74 of 2017 on the e-commerce roadmap for 2017–2019, guides government agencies in supporting and accelerating the development of e-commerce, and instructs the central, local, and regional governments to develop sector policies and programmes.

The roadmap consists of eight key interrelated areas (Figure 3.4): funding, taxation, customer protection, education and human resources, telecommunications infrastructure, logistics, cybersecurity, and coordination. These key areas are further divided into 26 programmes that have been carried out by government stakeholders from 2017 to 2019. Coordination is performed by a steering and management committee formed to make sure sectors move in the direction stated by the roadmap, to monitor progress, and to tackle inter-sectoral issues.

E-commerce is Internet-based selling and buying of goods and services delivered either online or offline. Goods can be tangible or digital. In the ASEAN Agreement on E-commerce discussion, customs duties are critical – how digital goods or goods transmitted by electronic means are not being taxed.

**Figure 3.4: Eight Key Interrelated Areas of Indonesia’s E-commerce Roadmap**



Source: The author. Based on Adhiarna (2017).

The world trade trend is shifting from conventional, physical goods to digital things that are transmitted electronically, including films, music, entertainment, games, software, applications, data, and designs.

At the Eleventh World Trade Organization’s Ministerial Conference held in December 2017 in Buenos Aires, Argentina, Indonesia requested that it be allowed to tax digital goods in order to:

- i. level the playing field for MSMEs,
- ii. provide more opportunities for latecomers to enter the competition,
- iii. avoid unrecorded transactions that may cause miscalculation of the balance of trade and potential state revenues, and
- iv. prevent e-commerce from being misused for crime.



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At the regional level, Indonesia also encourages ASEAN to promote fair online and offline trade and proposes that electronically purchased goods be subject to taxes and import duties.

If digital goods such as films, music, and software apps transmitted electronically are not subject to import duties and taxes as conventional or physical goods are, then a government could be regarded as treating trade partners unequally. This would create further asymmetrical and imbalanced competition between digital industries in developed countries and newly established digital MSMEs in developing countries. The playing field should be levelled between conventional and digital businesses, and between large, well-established multinational companies and small, new enterprises.

Regulators and policymakers should regularly review, adjust, and prepare for disruption from ICT. They need to maintain competition and ensure that the financial and ICT regulatory frameworks are suitable, whilst fulfilling social development goals. Competition benefits customers, results in competitiveness, and prevents efficient investment from being ruined by poor infrastructure.

At the Global Symposium for Regulators, the International Telecommunication Union recommended 10 characteristics of an agile and flexible regulatory framework (ITU, 2015)

- i. Charts a strategic direction.
- ii. Enhances market competitiveness.
- iii. Partners with industry.
- iv. Provides a sound framework for contractual services.
- v. Has multiple channels for redress.
- vi. Provides high-quality service and consumer experience.
- vii. Protects consumer privacy and data.
- viii. Empowers consumers.
- ix. Respects consumers' right to information.
- x. Redefines the role of regulators.

These ultimate goals will be to generate joint effort to accelerate the pace of (1) levelling the playing field; (2) protecting consumer privacy, data, and public interests; and (3) advancing society socio-economically and technologically.

First, there are needs to level the playing field for the digital economy. Regulations should encourage sustainable competition by opening markets in network industries and levelling the playing field by ensuring non-discrimination, access, and price regulation. Industry players should ensure transparency and accountability in business practices.

In principle, regulators will take responsibility is to make sure that information about services and products is timely, accurate, clear, transparent, and comparable to encourage rational decision-making. Regulations related to consumers must be practical and enforceable. Consumers have the right to receive regularly and consistently updated information. They should also be able to have more details about the service to receive, including the availability and quality of service, and how the prices (of service) are calculated. Moreover, in the free market, regulation should assure new entrants that they can compete on a level playing field.

Second, protecting consumer privacy, data, and interests deserves more attention. Governments should guarantee citizens' security at all levels by improving ICT and universal-access policies, as well as consumer protection legislation, cybersecurity, and cybercrime legislation. Governments should also ensure online protection of children, high quality of service, and electromagnetic exposure limits.

When necessary, regulators should redefine consumer rights and interests to include access to public information privacy, the right to file a complaint, personal data protection and confidentiality, and the right to opt out of features and services. Service providers should receive the same level of treatment regarding the storage and transmission of information because it is related to the enforcement of consumer protection laws.

On the one side, industry players must safeguard consumers' rights by protecting personal data, battling ambiguous as well as unfair mass advertising and spam, and protecting children online. Codes of practice for service and goods providers should be strengthened to ensure that content, promotion, and procedures comply with consumer protection regulations.

On the other side, customers should have not only the right to complain, but also to seek remedies. Demand is increasing for transparency in online contracts and their form and procedures (e.g., user identification, order confirmation, cancellation, termination). Complaint-handling methods that encourage consumers to first seek help from service providers can draw their attention to consumers' needs, rights, and responsibilities.

Moreover, users should be able to decide about the degree to which their data can be accessed by others and how third parties may use it. Service and goods providers, especially social media providers, should provide more transparent methods of data processing. They should obtain customers' consent through opt-in before sharing data and provide users with the option to make their communications public or private.

Generally speaking, legal and regulatory frameworks must be open, forward-looking, neutral, and adjustable so that users can benefit from emerging new technologies and innovative

services, including disruptive business practices. It is desirable that regulators are increasingly partnering with market players to advocate for consumers' rights so they can make decisions based on evidence and technical expertise, to continuously nurture market competitiveness, and socio-economic development.

It is therefore crucial to rethink the regulators' mandate to respond to the dynamic digital environment. On the one hand, regulators need to ensure that customers will benefit from dynamic markets without being constrained by outdated regulations. On the other hand, they need to keep in mind that markets are progressively interconnected and ensure that regulations encourage competition.

### 6. Policy Recommendations

As stated in Law No. 12 of 2011, on the establishment of laws and regulations, the hierarchy of legislation, from top to bottom, is as follows:

- i. 1945 Constitution (Undang-Undang Dasar 1945 or UUD'45)
- ii. Laws (undang-undang or UU) and government regulations in lieu of laws (peraturan pemerintah pengganti undang-undang or perpu)
- iii. Government regulations (peraturan pemerintah or PP)
- iv. Presidential regulations (peraturan presiden or perpres)
- v. Regional regulations (peraturan daerah or perda)

There are also presidential instructions (instruksi presiden or inpres), ministerial regulations (peraturan menteri or permen), ministerial decrees (keputusan menteri or kepmen), and circulation letters (surat edaran), which sometimes conflict with each other.

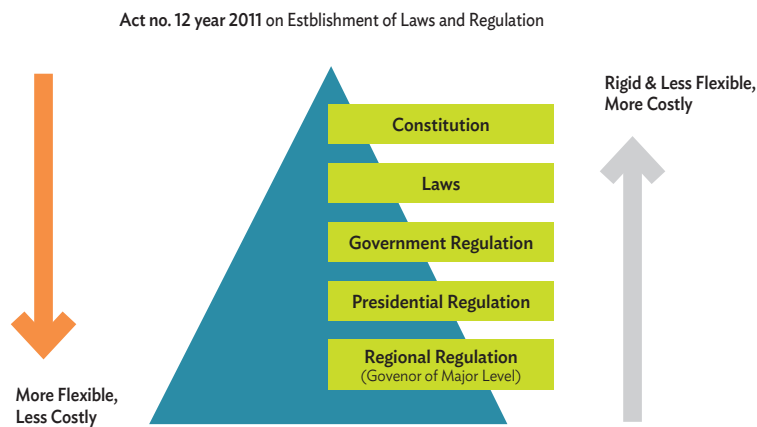
The higher the level of legislation, the harder it is to revise it. For example, to revise a law, the government must propose the change to the parliament or vice versa. The revision undergoes a lengthy bureaucratic internal process and a long discussion between government and parliament. It takes at least 3 years to complete one process cycle. The same process applies to a new law and usually takes 5 years. If the government and parliament fail to agree on a revised or new law within 5 years, the process is reset to zero for the next government and parliament, which are selected every 5 years.

A government regulation is less complicated to revise than a law but still needs close coordination between ministries and agencies. Coordination within government is a luxury because of the clash of egos, so it takes at least 2 years to revise a government regulation.

The lower the level of legislation, the simpler it is to modify it. Issuing or revising a ministerial regulation, for example, involves only the ministry and stakeholders. Figure 3.5 shows the relationship between legislation hierarchy, scope of legislation, and level of difficulty to develop or modify legislation.

Looking forward, there is a need for further policy effort to establish and complete an agile and flexible regulatory framework to support digital economy in Indonesia, mainly from the following three aspects.

**Figure 3.5: Hierarchy, Scope of Content, and Flexibility of Indonesia Legislation**



Source: Author, based on Act no. 12 year 2011 and own experience.

### 6.1. Limiting the Scope of Law to Basic Principles

Some basic principles related to public services are public and consumer protection (including data ownership), fair competition, general taxes, and related issues. More detailed technical rules such as licensing management and business entry requirements should be pushed to lower-level legislation.

### 6.2. Use the Lowest-level Legislation Possible to Ensure Agility and Flexibility

Due to fast-changing technology and social development, including the emergence of new types of business and public service, government regulation should be pushed to the lowest level of legislation as possible. The ministerial regulation is an option because the ministry is the closest to certain technology issues, and the regulation reduces the need to coordinate with other ministries and agencies. The governor or mayor-level regulation is a good option for local issues related to the unique character of a region, district, or city.

### 6.3. Segregate the Authority of Central Government and Local Government Regulations

The central government should allow local governments to manage their own issues. This would enable each level of government to exercise constitutionally assigned legislative and executive responsibilities according to specific local conditions. Local issues are in some cases not similar to national ones. With hundreds of districts, no one solution fits all problems: Indonesia has diverse issues and potentially variable solutions.

## 7. Conclusion

Companies in Indonesia have just embarked on their journey to e-commerce. A dynamic competition policy and a tough law regime levelling the playing field are therefore crucial. E-commerce is creating a dynamic market and brings not only opportunities but also challenges, including anti-competitive habits that might restrain innovation and business growth. In the long term, innovative businesses will be rewarded by the market, and the e-commerce playing field is expected to be levelled across national boundaries and expanded to the ASEAN Economic Community.

Established players might use customer data – a valuable source of market power – to obstruct the entry and expansion of newcomers. MSMEs have been sluggish in adopting e-commerce and a more supportive atmosphere is needed to push them.

The government should start building a more agile and flexible regulatory framework to encourage the growth of new entrepreneurs and technology-intensive ventures. These digital enterprises could form a strong backbone for the future digital economy. The country should transform from a natural resource-based economy into an innovation-driven one, where comprehensive connectivity – locally, regionally, and globally – provides the robust foundation for that transformation.

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# Improving Logistics Connectivity of E-commerce in the ASEAN Region

Arkadiusz Kawa

## 1. Introduction

E-commerce creates opportunities for competition and expansion on a larger scale for already existing entities and offers prospects for rapid development to emerging ones due to low entry barriers that have been encouraging more companies to sell their products on the Internet. In most cases, the Internet constitutes an additional source of sales for brick-and-mortar players. Only some companies are focused solely on e-commerce ('pure players'). The offline and online worlds increasingly permeate and complement each other, which is why an omnichannel strategy is being created to integrate multiple sales and distribution channels.

The dynamic development of e-commerce is driven not only by increased household access to the Internet but also by growing mobility and popularity of portable devices (e.g. smartphones, tablets), via which customers order goods and services at their convenience more frequently. Customers order not only things of great value but also, everyday products they want quickly.

E-commerce is increasing its share of the market and has great potential. Global online sales in 2017 grew by about 24.8% over 2016 and amounted to about US\$2.3 trillion (10.2% of total retail sales) (eMarketer, 2018). By 2021, global sales via the Internet are predicted to reach US\$4.9 trillion. E-commerce in Southeast Asia is estimated at US\$15 billion and it is only a tiny part of global e-commerce (0.7%) (Frost & Sullivan, 2016). For example, within a single day (Ali-double-11) Alibaba's merchants sold over \$25 billion worth of products; JD.com reported online orders worth US\$19 billion the same day (Chen, 2017b).

Asian Development Bank (ADB) (2017) research shows that the Association of Southeast Asian Nations (ASEAN) e-commerce market is in its nascent stage because of its underdeveloped digital payment infrastructure and weak logistics framework. Despite this, the region has great potential to develop e-commerce, thanks to its 640 million people, half



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of whom are under 30 (Sangwongwanich, 2017; Suhud, 2017). By the end of 2015, about 306 million people in ASEAN were active social media users, 273 million of whom accessed social media networks via mobile devices (We Are Social, 2017). Half of Thais and one third of Malaysians and Indonesians purchased products on the Internet directly via a social media channel (ADB, 2017).

ASEAN is one of the world's fastest-growing regions in e-commerce, despite the number of constraints affecting the region's ability to reap all the benefits. A recent google research carried out with Singapore-based Temasek Holdings shows that in ASEAN, Internet users will double to 600 million and e-commerce will reach up to US\$88 billion in 2025, or at least 6% of all retail sales (Sangwongwanich, 2017). This is supported by A.T. Kearney (2015), which projects the regional e-commerce value to surpass US\$67 billion and reach US\$89 billion in several years. Thailand and Indonesia display the biggest growth potential (ASEANup, 2018).

E-commerce assumes increasing importance as it enables these ASEAN countries to plug into the international trade networks more efficiently (Yean and Basu-Das, 2018b). Export opportunities for entrepreneurs in the ASEAN region would increase by as much as one-third if they started to use e-commerce solutions (Deloitte, 2017). However, further intensive development of e-commerce faces challenges. One challenge is logistics. Other challenges are countries' institutions, infrastructure, and implementation capacities.

The adequacy of infrastructure varies across countries. Fragmented roads and poor-quality railroads, maritime, and air transport infrastructure are the main problems in many ASEAN member states (Yean and Basu-Das, 2016). Relatively speaking, a major part of the region is still lagging behind in the progress digital infrastructure (broadband access to the Internet, e-payment penetration, access to information is about the logistics market) and standardisation (use of IT systems, loading units, consignment labels). Upgrading infrastructure and improving infrastructure are on top of the list of priority actions to promote e-commerce. For policymakers, the following issues deserve more attention: (i) the barriers to developing logistics connectivity, (ii) the ways to reduce impediments and inequalities in e-commerce logistics, and (iii) effort to share experience and apply best practices.

The objective of this chapter is threefold: (i) to identify impediments to logistics connectivity and inequalities in ASEAN e-commerce market, (ii) to highlight the best practices in logistics connectivity in e-commerce, and (iii) to propose policy recommendation on how to improve logistics connectivity to promote cross border e-commerce.

The structure of the chapter is as follows. Section 2 presents the definitions and meanings of logistics, then describes the logistics industry and its importance. Section 3 introduces

e-commerce logistics, especially different solutions supporting online businesses. Section 4 presents the three main components of logistics connectivity: physical, institutional, and people to people. Section 5 describes the impediments to and inequalities in logistics connectivity. Section 6 proposes policies, especially liberalisation and facilitation measures, to improve infrastructure, increase standardisation, and encourage cooperation. Section 7 summarises e-commerce logistics connectivity impediments and inequalities and recommends initiatives and policies to improve logistics connectivity.

## 2. The Importance of Logistics to ASEAN

Logistics is the process of planning, implementing, and controlling cost-effective flow and storage of things between the point of origin and the point of consumption to meet customers' requirements (Council of Supply Chain Management Professionals, 2018). Logistics is defined in a similar way by the US Coalition of Services Industries: 'the process of planning, implementing, managing and controlling the flow and storage of goods, services and related information from the point of origin to the point of consumption' (Sugie et al., 2015). The resources managed can include physical items such as materials, raw materials, in-process inventory, finished goods, as well as abstract items such as information. Apart from supporting the processes to manage the flow of goods, logistics integrates and interconnects business entities. Logistics has a twofold impact on national and regional economies. First, it is one of the major costs for enterprises, affecting and affected by economic activities. It enhances efficiency in supply-chain activities and lowers the transaction cost and time between producers or between suppliers and customers. Second, logistics supports the movement of economic transactions; it is an important aspect of facilitating the sale of goods and services (Grant et al., 2005). It connects business activities, links centres with peripheries, and helps distribute the benefits of economic growth regionally (Yean and Basu-Das, 2018a).

## E-commerce Connectivity in ASEAN

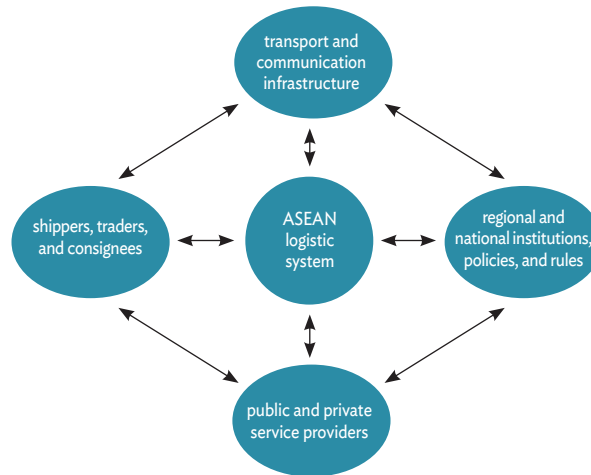
Logistics has an international character because it is related to cooperation between companies in different countries. It requires managers to understand resource capabilities and the complex environment in which government actors play a prominent part (Banomyong, Cook, and Kent, 2008). Logistics is especially important for export-dependent countries whose economic growth and sustainability rely on international trade (Tongzon and Cheong, 2014). Logistics is crucial to making countries competitive exporters: the export of logistics services that are currently and potentially internationally competitive can help promote overall export performance and improve the region's international competitiveness in the export of goods. The logistics service industry, especially, can be supported by policies to develop and improve its competitiveness. For example, logistics is considered a pillar of the ASEAN Economic Community (AEC), which is characterised by the free flow of goods and services across ASEAN members (Tongzon and Cheong, 2014).

Logistics enterprises provide transport, forwarding, and storage services; support logistics processes; take part in the exchange of things and information between market players; and contribute to value creation of company processes and products and to the development of supply chains by ensuring effective indirect links (Gadde, Huemer, and Håkansson, 2003). Logistics service providers are part of a network of relations where they usually play a supportive role (Skjoett-Larsen, 2000).

Logistics services allow goods to flow amongst market actors, help maintain or create workplaces, and significantly contribute to the gross domestic product (GDP). Logistics is 'the bloodstream' and basis of economic development (Huang et al., 2015). Logistics services play a coordinating and integrating role because they directly affect the object – the production of things. This industry is also referred to as the 'engine' of economic development, as logistics services increasingly create opportunities for and contribute to the development of many economic sectors such as courier, express, and parcel services, which have long helped develop distribution and retail businesses, especially online retailers. Without them, express delivery of products to different parts of the world would be impossible.

The logistics system in ASEAN is composed of four key elements - infrastructure, service providers, institutional framework, and shippers, traders and consignees, as shown in Figure 4.1. Their combined effort to a great extent reflect the level of integration of the ASEAN logistics system and will influence the general quality and therefore international competitiveness of ASEAN logistics services. (ADB, 2007; Banomyong, Cook, and Kent, 2008).

**Figure 4.1: A Framework of ASEAN Logistics System**



ASEAN = Association of Southeast Asian Nations.  
Source: The author. Based on Adhiarna (2017).

### 3. Logistics Support for E-commerce

The approach to logistics has considerably changed as a result of the emergence of Internet technologies in business (Yean and Basu-Das, 2018a; OECD and UNCTAD, 2017). On the one hand, the Internet has eliminated intermediary links in the supply chain and, on the other hand, new sales and distribution channels have been created. The central focus of interest has been moved to the final customer placing the order at any location and time. The route to the store has been replaced with home delivery. After online sales appeared, the customer became an integral part of the logistics process and, often for the first time, dealt with logistics services.

Initially, the Internet was mainly used for business-to-business (B2B) cooperation. At present, more people got to know about e-commerce because of the fast growth of business-to-consumer (B2C) transactions. The philosophy of the traditional sale is different from that of the online sale. In the first case, the retailer sells a product that is available on the shelf, whilst in the latter, a specific promise of order fulfilment is offered. Typically, online customers want not only the product itself but also real-time information about delivery, simplified and free returns of goods, and flexible and fast delivery (Chen, 2017c). If the product fails to arrive on time or is damaged, or the driver's service is inadequate, the customer may not buy from the store again. Logistics is therefore undoubtedly important for present-day enterprise. Apart from supporting the processes of planning, organising, and monitoring the flow of goods and information about them, logistics integrates and interconnects business entities.

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Different sales and distribution channels have helped create many ways to complete the whole order process – starting from product search, to purchase, payment, testing, collection, and return. Businesses are trying to combine all these channels so that traditional and electronic commerce can complement each other. This has given rise to omnichannel or multi-channel integrated trade. It is a response to the growing use of the Internet in everyday life and the customers' smooth 'switch' between the real and the virtual worlds. Within this concept, models of customer behaviour such as ROPO (research online, purchase offline) and ROTOPO (research online, test offline, purchase online) have been developed. In ROPO, the customer looks for a product on the Internet and then buys it from a brick-and-mortar shop. In reverse ROPO (research offline, purchase online), the customer first checks the product at a traditional outlet and then purchases it online. In ROTOPO, the customer searches for the goods on the Internet, then tests them (e.g. tries clothes on) in the shop or showroom, and finally buys them over the Internet.

Besides door-to-door delivery, the customer can pick up the shipment at a PUDO (pick up, drop off) point, a self-service terminal (e.g. parcel lockers), or a brick-and-mortar store. Purchased goods may be returned in a similar way. Payment for purchases can be made during the fulfilment of the order but also upon collection of the shipment from the courier (cash on delivery) or the self-service terminal. In most online shops, the buyer has a choice. The customer decides on the method of purchase, testing, reception, and payment, thus creating the value of his or her product. This has a major impact on the supply chains being set up, which are more and more often configured for individual transactions. If this is combined with fast-growing cross-border trade, where consumers around the world buy billions of products from different countries every day, a complex network of links is created. Each of us can thus be the creator of logistic processes (Kawa and Zdrenka, 2016).

### 4. Logistics Connectivity

Connectivity is the cornerstone of e-commerce development (Chen, 2017c). To ASEAN, creating seamless connections to support e-commerce development is still a big challenge.

By definition, connectivity is related to the quality, state, or capability of being connective or connected (Merriam-Webster Dictionary, 2018). The World Trade Organization defines connectivity as a construct that relies on various dimensions that can be grouped into three categories: geography, infrastructure, and cost-effectiveness (including marginal costs and weight-to-value issues) (OECD and UNCTAD, 2017). This term is often used in documents such as the ASEAN Economic Community Blueprint 2025 (ASEAN, 2015a), the ASEAN

Strategic Transport Plan 2011–2015 (ASEAN, 2010), the ASEAN ICT Masterplan (ASEAN, 2015b), and, especially, the Master Plan on ASEAN Connectivity 2025 (ASEAN, 2016). It is worth noting that connectivity is not merely about roads, bridges, or other transport routes but also about a larger canvas that consists of physical, institutional, and people-to-people components (Das 2016) (Table 4.1).

**Table 4.1: Three Components of Logistics Connectivity**

Physical	Institutional	People to People
<ul style="list-style-type: none"> <li>• Hard framework' for transport, warehousing, distribution, etc.</li> <li>• Air, road, rail, maritime (including inland waterway) industries</li> <li>• Logistics service facilities (e.g. maritime, inland, dry ports)</li> <li>• Information and communication technology</li> <li>• Inter- and multimodal infrastructure and transport</li> </ul>	<ul style="list-style-type: none"> <li>• 'Soft framework' for transport, warehousing, distribution, etc.</li> <li>• Rules and regulations on imports and exports</li> <li>• Customs procedures</li> <li>• Registration and licensing of logistics service providers</li> <li>• Border management capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Labour market</li> <li>• Formal and informal relations</li> <li>• Promotion of deeper social and cultural understanding</li> <li>• Educational opportunities</li> <li>• People mobility</li> </ul>

Source: The author, based on Das (2016).

All elements of these three components are critical to e-commerce development because they influence its value chain, especially value for the customer. E-commerce connectivity has four parts (Chen, 2017a):

- smooth exchange of data and information (information flow),
- delivery of goods and services (logistics),
- payment (cash flow), and
- seamless links between the virtual and physical part of the e-commerce network.

Logistics is crucial to e-commerce connectivity, as confirmed by the AEC Blueprint 2025 (ASEAN, 2015a) and other aforementioned ASEAN documents, which identify logistics as a priority for integration. Because logistics cuts across multiple sectors in terms of the types of services needed and the four different modes of transportation (road, rail, air, sea), integrating logistics is difficult and long term (Yean and Basu-Das, 2016). The links between all those components can help make the ASEAN region more competitive, inclusive, and cohesive. Greater connectivity allows more support for the political-security, economic, and socio-cultural pillars of an integrated ASEAN community (ASEAN, 2016).

Wei and Sheng (2018) point out that connectivity is changing the face of business in Asia and the rest of the world. It is evident that efficient logistics can enhance competitiveness and increases a country's capability to liberalise its market. For example, a 20% faster clearance of imports and exports can increase ASEAN's cumulative GDP growth rate from 0.2% to 1.5%, and a 10% improvement in customs clearance and logistics competencies can raise

intra-ASEAN trade by 15%. A 10% improvement in domestic competition and government efficiency can lead to 24% growth in intra-ASEAN trade (Yean and Basu-Das, 2016).

ASEAN prioritises logistics integration in the Roadmap for the Integration of Logistics Services (RILS) signed in 2008 as part of its effort to promote regional connectivity. However many planned measures remain in progress because of the loose time lines for logistics facilitation and the noncommittal language used in the roadmap (Yean and Basu-Das, 2016). For example, the nine protocols of the ASEAN Framework Agreement on the Facilitation of Goods in Transit are in varying stages of ratification. In the other cases, ratification has not started because domestic laws have not yet been enacted to support it. The ASEAN Framework Agreement on the Facilitation of Inter-State Transport has been ratified by Cambodia, the Lao PDR, the Philippines, Thailand, and Viet Nam, whilst the ASEAN Framework Agreement on Multimodal Transport has not yet been ratified by Cambodia, Myanmar, the Lao PDR, the Philippines, Thailand, and Viet Nam. The ratification problem is linked to many other issues, such as the different stages of development of ASEAN members, their different attitudes towards change, amongst others. The next sections are devoted to these issues.

### 5. Impediments to and Inequalities in Logistics Connectivity

In doing business, logistics companies need access to public infrastructure such as roads, railroads, ports, airports, and telecommunications. Without good quality and interconnected infrastructure, it will be difficult to provide efficient and effective delivery service, even for the very well organised companies.

In e-commerce, the time and cost of delivery are crucial. Transport services, which move goods from the seller to consumer sites, must be cost-effective, reliable, and quick. Some of the biggest impediments are fragmented roads. For example, the Trans-Asian Highway is still under construction and whilst some parts of it have been built, critical links are missing (Cottrill and Singh, 2011). Development of highway systems has lagged although the number of vehicles has doubled over several years in countries such as Indonesia and Viet Nam. Rail, maritime, and air transport infrastructure is of poor quality (Yean and Basu-Das, 2016). Unsuitable infrastructure is a major reason for inefficient and uncompetitive logistics (Tongzong and Cheong, 2014).

In general, the ASEAN logistics industry is fragmented and immature, when compared to those in the European or the United States markets. Internationally the market is normally led by big foreign logistics service providers with experience and worldwide reach, but

domestically it is also populated by many local transport and forwarding companies that are in their infancy and do not have much resources. When the delivery takes long time (due to problems such as low speed transportation and frequent traffic jams), operations cost gets higher (because of the compensation for longer working hours and various informal charges) (Cottrill and Singh, 2011). The delivery cost of a product ordered online differs significantly by country. For example, delivery of a medium-sized parcel (2 kilograms, 30 x 20 x 10 centimetres) from Yogyakarta to Medan in Indonesia (1,800 kilometres in a straight line) costs IDR76,492 (US\$5.74) but BND36.92 (US\$27.86) from Seri Begawan to Seria in Brunei (75 kilometres in a straight line) (DHL, 2018). A 40-foot dry container in Indonesia in 2012 cost US\$415 but only US\$178 in Singapore (Anas, 2016).

Policy formulation and implementation are difficult, often due to different transportation modes and many subsectors governed by many ministries and agencies. For example, Myanmar and Cambodia have several government agencies responsible for developing policy for logistics companies – the ministries of trade and entrepreneurship, foreign investment boards, customs, and others (Yean and Basu-Das, 2016).

Another problem is that data about logistics infrastructure and industry in the ASEAN countries is lacking, incomplete, or obsolete, particularly about the number of enterprises, their turnover, market structure, performance, costs, and employment (Yean and Basu-Das, 2016). Data banks in most ASEAN member countries are not centralised and the methods used to collect and present data are not standardised, which makes comparisons impossible.

Infrastructure development varies across the ASEAN region, as well, as demonstrated by the logistics performance index (LPI),<sup>1</sup> an interactive benchmarking tool created by the World Bank (2019) to help countries identify the challenges they face in trade logistics and what they can do to improve their performance. Data was collected from surveys of logistics professionals who were asked about the foreign countries where they operated. The studies were carried out in 2007, 2010, 2012, 2014, 2016, and 2018 (Figure 4.2). The LPI from 2018 included scores of 167 countries in the aforementioned dimensions (World Bank, 2019).

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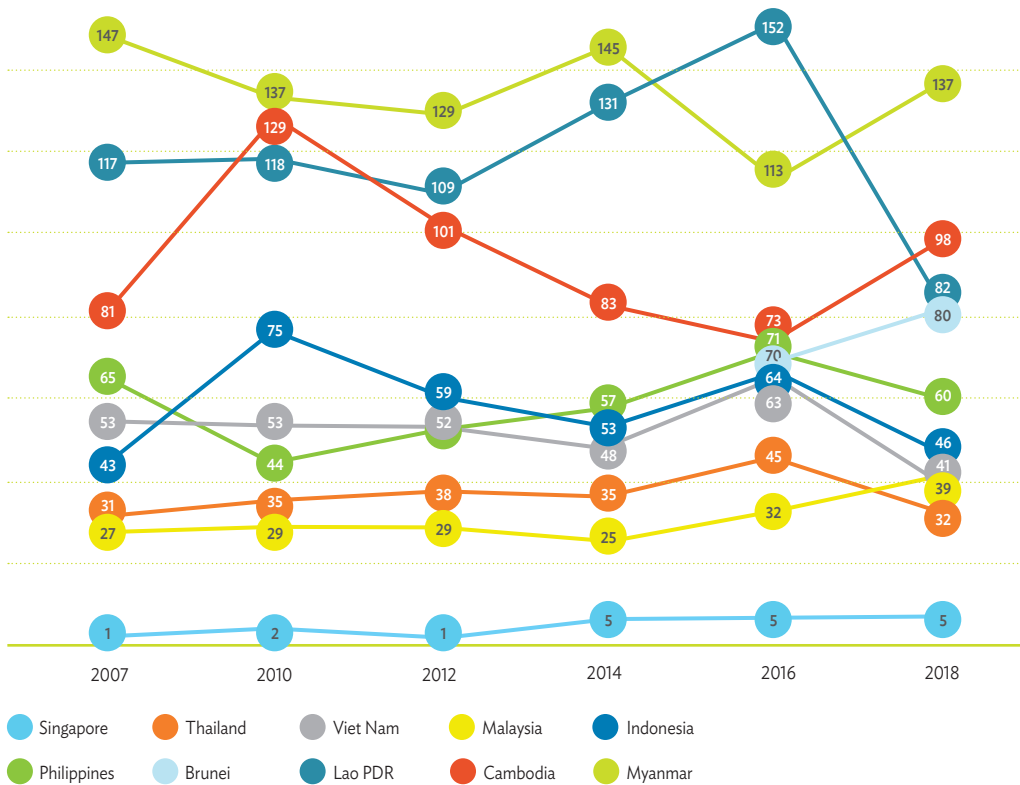
<sup>1</sup>The LPI consists of such components as the following: (i) Customs (efficiency of the clearance process by border control agencies), (ii) Infrastructure (quality of trade- and transport-related infrastructure), (iii) International shipments (ease of arranging competitively priced shipments), (iv) Logistics competence (competence and quality of logistics services), (v) Tracking and tracing (ability to track and trace consignments), and (vi) Timeliness (shipments reach destination on schedule).



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Singapore is a strong leader in logistics (World Bank, 2019). It ranks 5th in the LPI amongst 167 countries, meaning it has an efficient clearance process, very good quality of trade- and transport-related infrastructure, competent logistics services, and timely shipments. Thailand is also relatively well developed (ranked 32nd). The worst logistics infrastructure is in Myanmar (ranked 137th) (Table 4.2). Countries have unequal logistics quality as well as varying commitment to liberalisation. They often use protectionist policies that constrain business, and often treat information and communication technology (ICT) as less important infrastructure and do not invest in its development.

**Figure 4.2: Logistics Performance Index Ranking in ASEAN Countries, 2007–2018**



ASEAN = Association of Southeast Asian Nations.

Source: Author, based on World Bank (2019); logistics performance index ranking for Brunei since 2016.

**Table 4.2: Logistics Performance Index Ranking and Its Components of ASEAN Countries, 2018**

Country	LPI Rank	LPI Score*	Customs*	Infra-structure*	Inter-national shipments*	Logistics competence*	Tracking and tracing*	Timeliness*
Singapore	5	4.00	3.89	4.06	3.58	4.10	4.08	4.32
Thailand	32	3.41	3.14	3.14	3.46	3.41	3.47	3.81
Viet Nam	39	3.27	2.95	3.01	3.16	3.40	3.45	3.67
Malaysia	41	3.22	2.90	3.15	3.35	3.30	3.15	3.46
Indonesia	46	3.15	2.67	2.89	3.23	3.10	3.30	3.67
Philippines	60	2.90	2.53	2.73	3.29	2.78	3.06	2.98
Brunei	80	2.71	2.62	2.46	2.51	2.71	2.75	3.17
Lao PDR	82	2.70	2.61	2.44	2.72	2.65	2.91	2.84
Cambodia	98	2.58	2.37	2.14	2.79	2.41	2.52	3.16
Myanmar	137	2.30	2.17	1.99	2.20	2.28	2.20	2.91

\*Rated from 1 (very low or very difficult) to 5 (very high or very easy).

ASEAN = Association of Southeast Asian Nations; LPI = logistics performance index.

Source: Author, based on World Bank (2019).

Table 4.2 shows the disparities in levels of logistics connectivity amongst ASEAN members. The World Economic Forum studied the infrastructure competitiveness of the ASEAN members and revealed great differentiation between them. It would be worthwhile to find out the reasons for these differences. Many ASEAN countries still suffer from poor infrastructure quality. Another issue is efficiency of clearance by border control agencies.

Table 4.3 shows the main problems related to logistics connectivity and strategic plans or actions to reduce these problems, based on an in-depth review of reports and articles.

**Table 4.3: Logistics Connectivity in ASEAN Countries – Problems and Actions**

Country	Problems	Plans / Actions
Brunei	<ul style="list-style-type: none"> <li>Only focuses on transport (especially land) without master plan for logistics</li> <li>No domestic containers (freight is carried in break-bulk form)</li> <li>Relatively little data on logistics service industry</li> </ul>	<ul style="list-style-type: none"> <li>Land Transport Master Plan</li> </ul>
Cambodia	<ul style="list-style-type: none"> <li>No domestic containers (freight is carried in break-bulk form)</li> <li>Inefficient investment licensing system, weak rule of law and regulatory weakness, and poor infrastructure that deters foreign investment</li> <li>Only 10% of roads are paved (the least amongst all ASEAN countries)</li> <li>Very low quality of railroad infrastructure (only two lines, in very poor condition, with trains operating at about 20 km/h)</li> <li>Low quality of maritime transport (constrained port capacity; only two main ports can handle international shipments)</li> <li>Lack of pure air freighter services</li> <li>Lack of professionals and management staff with relevant international experience</li> <li>Limited ability of local companies to offer higher value-added services such as track-and-trace and inventory management</li> </ul>	<ul style="list-style-type: none"> <li>National Logistics Council set up in 2018 to formulate the country's first-ever national logistics blueprint, as well as coordinate government ministries, agencies, institutions, and industry players</li> <li>Upgrade inter-provincial traffic routes between the capital and other main cities, and cross-border road links from Phnom Penh to Bangkok in Thailand and Ho Chi Minh City in Viet Nam</li> <li>Prioritise improvement of connectivity between urban and rural areas</li> </ul>

## E-commerce Connectivity in ASEAN

Country	Problems	Plans / Actions
Indonesia	<ul style="list-style-type: none"> <li>• Low integration at the local and national levels (between islands)</li> <li>• Relatively high logistics cost due to archipelagic geography</li> <li>• Lack of clarity over the most important commodities</li> <li>• Poor state of infrastructure</li> <li>• Poor human capacities in the logistics industry</li> <li>• Limited use of information and communication technology</li> <li>• Regulatory barriers and lack of institutional coordination and capacity</li> <li>• Shortage of trained professionals and lack of on-the-job training in small and medium-sized enterprises (SMEs) in the logistics industry</li> </ul>	<ul style="list-style-type: none"> <li>• Indonesian National Logistics Blueprint as a roadmap for industry development by government, local and provincial authorities, and the private sector</li> <li>• Develop and expand logistics infrastructure, capacity building for actors and providers of logistics services to connect the national logistics system to the ASEAN logistics network</li> <li>• Strengthen the national logistics system and connect it to the global logistics network</li> </ul>
Lao PDR	<ul style="list-style-type: none"> <li>• Sole landlocked and least developed country in ASEAN</li> <li>• Low quality of roads, railroads, and air infrastructure</li> <li>• Difficulty in re-investing due to financial limitations of transport and logistics companies</li> <li>• Lack of transport and logistics hub</li> <li>• Inadequate resources for infrastructure investment and maintenance</li> <li>• Weak logistics coordination mechanism</li> <li>• Limited logistics statistical data</li> <li>• Poorly integrated regional logistics</li> <li>• Low quality of institutions (political instability, corruption, weak rule of law, difficulty in doing business)</li> <li>• Lack of pure air freighter services</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on dry-port development and land connectivity with neighbouring countries</li> </ul>
Malaysia	<ul style="list-style-type: none"> <li>• Congested road network</li> <li>• Track and trace only partly implemented</li> <li>• Poor customs service (inefficient clearance process by border control agencies)</li> </ul>	<ul style="list-style-type: none"> <li>• Third Industrial Plan for 2006–2020, including logistics as a priority industry to improve infrastructure, allow in foreign shipping companies and logistics service providers, encourage domestic industry to participate in global supply chains by applying new technology, create an efficient and competitive logistics industry</li> </ul>
Myanmar	<ul style="list-style-type: none"> <li>• Low investment in licensing system, weak rule of law and regulatory weakness, poor infrastructure deterring foreign investment</li> <li>• Low quality of institutions (political instability, corruption, weak rule of law, difficulty in doing business)</li> <li>• No domestic containers (freight is carried in break-bulk form)</li> <li>• Shortage of trained professionals and lack of on-the-job training in SMEs in the logistics industry</li> <li>• Lack of pure air freighter services</li> </ul>	<ul style="list-style-type: none"> <li>• National Transport Master Plan</li> <li>• Scheduled improvement of rail links from Yangon to Mandalay with Japanese financial assistance</li> <li>• Improve maritime connectivity with China, India, and the Indochina region through foreign direct investment in port development</li> <li>• Implement new investment law drafted with the assistance of the World Bank</li> </ul>
Philippines	<ul style="list-style-type: none"> <li>• Poor customs service (inefficient clearance process by border control agencies)</li> <li>• Low quality of infrastructure</li> <li>• Partly implemented track and trace</li> <li>• Unsafe and unpunctual delivery of goods during the rainy season</li> <li>• Heavy traffic</li> <li>• Limited cargo capacity of provincial airports</li> <li>• High logistics costs</li> <li>• Low logistics performance</li> </ul>	<ul style="list-style-type: none"> <li>• National Logistics Masterplan to improve competitiveness by reducing logistics costs and enhancing the country's ranking in the World Bank's annual logistics performance index</li> <li>• Increase infrastructure spending as a priority</li> <li>• Focus on increasing investment to modernise airports, seaports, and a roll-on-roll-off maritime transport system to improve connectivity between the numerous islands</li> </ul>
Singapore	<ul style="list-style-type: none"> <li>• Relatively insufficient international shipments</li> <li>• Management of logistics sector spread across multiple agencies</li> <li>• Inadequate urban logistics ensuring smooth and efficient operations</li> <li>• Continuously grappling with increasing overheads, driver shortages, and need for timely delivery by logistics companies</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity Roadmap of Transport and Logistics Industry; Land Transport Master Plan 2030; Air Transport Industry Transformation Map 2025; Maritime Plan; Smart Nation Initiative with transport as one of the focus areas</li> <li>• Upgrade and modernise infrastructure, especially using ICT services</li> </ul>

## Improving Logistics Connectivity of E-commerce in the ASEAN Region

Country	Problems	Plans / Actions
Thailand	<ul style="list-style-type: none"> <li>• Domination of land transport by road network</li> <li>• Relatively small role of rail in freight services</li> <li>• High logistics costs due to the cost of transport</li> <li>• Decentralised and fragmented government administration (each agency pays attention to its own priorities and tends to lack a cohesive and strategic framework)</li> <li>• Lack of regulatory coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Strategy on Logistics for the Kingdom of Thailand</li> <li>• Thailand's Eleventh National Economic and Social Development Plan to improve infrastructure and transport systems, connectivity between Bangkok and the provinces and with neighbouring countries, strengthen transport efficiency through investments in hardware and software, develop and finance improvements in infrastructure and logistics systems through public-private partnerships</li> <li>• Promote rail transport, including improvement of infrastructure and reorganisation of the State Railway</li> </ul>
Viet Nam	<ul style="list-style-type: none"> <li>• Low quality of infrastructure</li> <li>• Lengthy customs processes</li> <li>• Inadequate transport infrastructure</li> <li>• User-unfriendly logistics facilities such as warehouses and container freight stations (often stand-alone and far from ports and manufacturing plants)</li> <li>• Congestion causing delivery delays and increasing transportation costs</li> <li>• Shortage of trained professionals and lack of on-the-job training in SMEs</li> <li>• Lack of central coordinating agency</li> <li>• No domestic containers (freight is carried in break-bulk form)</li> <li>• Lack of pure air freighter services</li> </ul>	<ul style="list-style-type: none"> <li>• Master Plan to develop logistics sector over the next 8 years</li> <li>• Prioritise improvement of connectivity with production centres; improve road safety and quality</li> <li>• Enhance internal connectivity with production centres</li> </ul>

ASEAN = Association of Southeast Asian Nations.

Source: Author, based on ADB (2017); Banomyong (2010); Ernest (2018); ESCAP (2013); HKTDC (2015); JII (2018); Phandanouvong (2016); Portcalls (2017); Raza (2014); Wagner and Bode (2009); Yean and Basu-Das (2016, 2018a, 2018b).

The presented e-commerce logistics connectivity impediments and inequalities can be divided into public infrastructure, logistics industry, economic and non-economic differences, and standardisation (Table 4.4).

**Table 4.4: Main Impediments to Logistics Connectivity in ASEAN**

Aspect	Main Impediments
Public infrastructure	<ul style="list-style-type: none"> <li>• Low quality of roads, railroads, ports, airports, and telecommunications</li> <li>• Non-interconnected infrastructure</li> </ul>
Logistics industry	<ul style="list-style-type: none"> <li>• Dominated by foreign logistics service providers</li> <li>• Local transport and forwarding companies without enough resources</li> <li>• Service price disparities</li> <li>• Incomplete and obsolete market data</li> </ul>
Policy development	<ul style="list-style-type: none"> <li>• Red tape</li> <li>• Too many complex rules and regulations</li> <li>• Logistics services cutting across many ministries and agencies</li> <li>• Blurred responsibilities</li> </ul>
Economic and non-economic differences	<ul style="list-style-type: none"> <li>• Economic disparities (e.g. logistics and express delivery penetration, different currencies and level of bankability)</li> <li>• Non-economic disparities (e.g. cultural differences, social trends, generation gaps)</li> </ul>
Standardisation	<ul style="list-style-type: none"> <li>• Lack of interoperability (IT systems, loading units, consignment labels)</li> <li>• Lack of standardised interface specification to exchange data and to harmonise labelling</li> <li>• Lack of track &amp; trace services</li> </ul>

ASEAN = Association of Southeast Asian Nations.

Source: Author.

## E-commerce Connectivity in ASEAN

Individual ASEAN members try to deal with their low quality of logistics. For example, in 2015, the Malaysian government announced that it would improve its logistics performance index ranking from 25th to amongst the top 10 in 2020 and become the preferred logistics gateway to Asia (NST, 2015). This plan was highly ambitious but failed completely, with Malaysia falling to 32nd position in 2016 and 41st in 2018.

The low efficiency in some countries affects the region's overall efficiency, and especially has an impact on the more logistically advanced countries. Even well-developed national infrastructure cannot cope with poor logistics connectivity of the whole region. Some countries are attempting to improve the situation but it is difficult. For example, logistics service providers are amongst the most rapidly developing sectors in Singapore. But when Singaporean companies want to tie up with companies in neighbouring countries, governments are reluctant to allow capital flow.

Foreign investors could play a vital role in logistics connectivity. Recently, Chinese tech-related investments and initiatives have significantly changed Southeast Asian e-commerce. The big players such as Alibaba and JD.com provide capital and know-how, and overcame inequalities and logistical impediments, too.

Alibaba is the biggest stockholder in Lazada, a large Southeast Asian e-tailer consisting of more than 145,000 local and international sellers and 3,000 brands from Indonesia, Malaysia, Thailand, Viet Nam, and the Philippines (McDonald, 2018).<sup>2</sup> The Chinese giant will open a distribution hub in Thailand's Eastern Economic Corridor, which will be dedicated to products shipped to and sold in China (Ono, 2018). Another example of Alibaba's commitment to improving logistics connectivity is the Digital Free Trade Zone in Malaysia, a joint project between the Malaysian government and the municipal authorities in Hangzhou, China. The zone is intended to simplify cross-border e-commerce and put Malaysia's SMEs on the 'digital silk road' (Yean, 2018). Jack Ma, Alibaba's co-founder and executive chairman, advises the government on developing a virtual and physical economic space in Kuala Lumpur International Airport (Ono, 2018). Richard Liu, founder of the second biggest e-marketplace in China – JD.com – recently announced his goal of generating half of JD.com's revenue outside China within 10 years, and the Southeast Asian market is one of his main targets (Spencer, 2018). JD.com recently made a large investment in the Vietnamese B2C e-commerce platform – Tiki.vn (Harris, 2018) – which is known for its unique TikiNow service (2-hour delivery) (Tiki, 2018).

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<sup>2</sup> By the end of 2017, Alibaba held 83% of Lazada, increasing by US\$1 billion from the previous year. In 2018, it announced an additional increase of US\$2 billion (Choudhury, 2018).

The ASEAN e-commerce market is also propelled by local start-ups such as Go-Jek, Ninja-Van, Deliveroo, and aCommerce, which try to make online shopping easy by providing logistics services such as fulfilment, delivery, and solving the last-mile logistics problem (Sathirathai and Wan, 2018). Unquestionably, their activities and investments contribute to improving logistics connectivity and, consequently, can lead to cost reductions and improved service quality (Competition Commission Singapore, 2017). They also encourage other companies to expand their business or to enter this market (Balea, 2016). They observe each other's moves and power each other to expand further. Probably for this reason, Amazon signed a deal with the Vietnam E-Commerce Association (VECOM), a group of 140 local online businesses. Such cooperation with external merchants might be the precursor of Amazon's entry into the Vietnamese market with a full range of offers. The company has taken similar steps in Australia and Brazil. Amazon is also present in Singapore, where it has provided new services such as Amazon Prime since 2017 (Sathirathai and Wan, 2018).

## 6. Policy Recommendations

### 6.1. Liberalisation and Facilitation Measures

In the next few years, ASEAN should endeavour to liberalise and facilitate logistics integration. Many strategic plans support these initiatives but much still has to be done to fully implement the RILS. Air, land, maritime, including sustainable, transport should be integrated (Yean and Basu-Das, 2016) and the highest priority given to developing infrastructure and reducing bottlenecks (A.T. Kearney, 2015).

Above all, the region's complexity and diversity must be considered (Das, 2016). Singapore is different from Indonesia, the Philippines is different from Thailand and Myanmar, and so on. As members of the World Trade Organisation (WTO), all ASEAN countries must follow WTO rules, e.g. on customs valuation. Not all WTO valuation rules are implemented, however, and existing or planned best practices should be implemented under the RILS rather than additional, overlapping regulations created. Navigating complex regulatory environments and dealing with a range of authorities require financial and personnel resources from companies (Banomyong, Cook, and Kent, 2008).

The high cost of complying with institutional regulations and documentary processes is one of the biggest impediments to logistics efficiency. All ASEAN countries must prioritise reducing costs, especially for export processing. In the short term, ASEAN governments may lose revenue but facilitation measures eventually increase the volume (and the total value) of export transactions. The Economic and Social Commission for Asia and the Pacific (ESCAP, 2015) estimated that tariffs account for less than 10% of bilateral trade costs, whilst other policy-related trade costs (not tariffs) account for 60%–90%. In the long term, decreasing

export-processing costs will not only reduce total export logistics costs but also make ASEAN more competitive globally (Banomyong, Cook, and Kent, 2008).

Broadband Internet connection, access to the Internet, and advanced payment solutions are amongst the preconditions for full participation in e-commerce. The World Bank draws attention to the importance of the ‘middle mile’, which requires liberalising markets to build and operate backbone networks and encouraging open access. Developing these networks is contingent not only on soft infrastructure but also on hard infrastructure – roads, railways, and so on. Governments should therefore adopt comprehensive solutions that encourage entrepreneurs’ innovation. Harmonising regulations between ASEAN countries to boost cross-border e-commerce is especially crucial and can be achieved by utilising proposals and plans already developed in numerous ASEAN documents (Suhud, 2017).

E-commerce logistics services must become more efficient, and bottlenecks must be removed. A maritime connection, for example, requires efficient hinterland services. The complexity of connectivity needs to be considered to optimise the gains from investment in infrastructure. To avoid bottlenecks, particularly in landlocked countries (e.g. Lao PDR), and maximise the benefits requires coordination between neighbouring countries. Digitisation can reduce the costs of such coordination and promote better connections between different transport modes and regional logistics services (OECD, 2017). There is a strong positive correlation between infrastructure improvements and trade facilitation in neighbouring countries and greater value chain connectivity at home (Shepherd, 2015).

### 6.2. Infrastructure Improvement

Logistics and trans-shipment centres are a crucial segment of logistics connectivity. Such centres bring together interconnected companies that often compete but also cooperate with each other, as well as specialised suppliers and service providers. They are based on a hub-and-spoke system, which connects the logistics centre of a country or region with others. Improved connectivity generates income for the centres’ service providers as well as for domestic suppliers and customers, who benefit from more frequent and less costly services from and to overseas markets and providers (OECD and UNCTAD, 2017).

Maritime transport is an example of the use of the hub-and-spoke system. It is the most important mode of transport in international trade and accounts for 80% of volume and 70% of value, and even more for developing countries (UNCTAD, 2016). Goods are mostly shipped in standardised containers through a global network of regular shipping liner services.

Containerisation has been one of the most significant innovations in trade logistics (Bernhofen et al., 2016). Containers can be used in different modes of transport and facilitate and accelerate loading and unloading. ASEAN members should use containers

widely for internal freight transport. However, Brunei, Cambodia, Lao PDR, Myanmar, and Viet Nam do not have such domestic containers, and domestic cargo is transported in the form of break-bulk. The benefits of using containers, particularly in e-commerce logistics, should be demonstrated.

Railroads are one of the weakest links in ASEAN logistics infrastructure because of high access charges, excessive transit times, poor service, poor scheduling, and unreliability. Rail can be an efficient interface between maritime and land transportation, but improving rail is difficult and complex. It requires cooperation amongst stakeholders and the management of capacity, schedules, shipments, origins, and destinations. Policy guidelines should enable solving problems related to double tracks and dedicated track for freight services, centralised or advanced train control systems, trains longer than 50 wagons, and wagons capable of carrying more than 80 tons (Banomyong et al., 2008).

Roads are amongst the most frequently used modes of transport, particularly for domestic traffic. They are relatively easy to develop and less capital intensive. The quality of road infrastructure in ASEAN is uneven (section 5) and individual countries must harmonise and standardise their specifications. Not only paved roads but also multilane dual carriageways and highway networks are necessary to accelerate e-commerce development. The greatest problem is in Cambodia, Lao PDR, Myanmar, and Viet Nam (CLMV), where road infrastructure lags behind that of other ASEAN members. CLMV must not only invest in road development but also solve traffic jams, reduce exhaust emissions, and promote safety by reducing cargo and axle load limits, using articulated trucks, and enforcing roadworthiness certificates (Banomyong, Cook, and Kent, 2008).

Air transport connectivity is crucial to cross-border e-commerce. If customers want quick delivery, they should be ready to pay more. Air transport connectivity is characterised by point-to-point transport services: cargoes are directly delivered, minimising trans-shipment. Air transport combines cargo and passenger services. It is also the most expensive mode of transport (OECD, 2017). Pure players in air transport services are therefore not popular in ASEAN, particularly in CLMV. It is worth considering the development of existing airports to function as air freight hubs, as well. This would require many facilities such as on-site operations at airports and cargo villages; possibility of cold, dangerous storage; competitive ground handling; quick clearance and electronic data interchange for cargo manifests; and large pallet scanners that facilitate the examination of freight (Banomyong, Cook, and Kent, 2008).

The next key component of logistics connectivity is inland waterway transport. It serves mainly domestic traffic, particularly in countries through which the Mekong river passes. Waterway transport is relatively cheap and eco-friendly, but it is neglected. It requires a lot of investment in links to the main seaports, inland waterway port facilities, equipment, ICT systems, container vessels, and container-handling capability (Banomyong, Cook, and Kent, 2008).



## E-commerce Connectivity in ASEAN

Inland waterway multimodal shipping and container-handling capacity should be promoted through integrated logistics policy initiatives (ASEAN-US, 2018). The AEC Blueprint 2025 highlights the crucial need for transport infrastructure integration and inter-modal interconnectivity with principal airports, seaports, and inland waterway and ferry links (ASEAN, 2015a).

Integration and the proposed measures will bring not only challenges but also opportunities. ASEAN members can benefit each another and interact with outside countries. Most ASEAN countries could develop trade, especially e-commerce, with China more quickly. For example, China is Malaysia's number-one trading partner and better logistics connectivity could increase the exchange between them even more. Myanmar could strategically partner with China thanks to the Greater Mekong Subregion (Chua, 2015).

### 6.3. Increasing Standardisation

Hindering the seamless development of e-commerce is the relatively low level of standardisation: different loading units, IT systems, standard service contracts, and consignment labels. The solution is to create systems that allow independent companies to cooperate and enable different information systems to safely exchange data within a predefined structure and mutually use this data to further create information (Kawa, 2012). Many risks can be reduced by eliminating human error and putting in place adequate quality assurance processes. One solution, which improves interoperability, is to use a single, common label on parcels, based on open global standards (e.g. GS1). All handlers of parcels (senders, receivers, couriers, postal companies) would use the same label for all parcels and track their journey from the sender to the consumer (GS1, 2017).

Interoperable systems and harmonised labelling are particularly important for track-and-trace systems and are a prerequisite for a modern logistics system, allowing logistics service providers and their customers to monitor the companies' vehicles and better coordinate business operations. Track and trace can also get complete statistical information about the quality of the services provided and, if necessary, companies may raise their standards. Logistics service providers have a clearly defined system of accountability for delivery and know where the consignment is at every moment. Another huge advantage of transparency in the supply chain is reduced incentives and opportunities for corruption (OECD and UNCTAD, 2015). Unfortunately, only Singaporean and Thai logistics service providers offer full visibility of their freights. Malaysian and Philippine companies have partly implemented track and trace but other ASEAN member countries have not (Banomyon, Cook, and Kent, 2008).

ASEAN should promote the interoperable solutions, especially for e-commerce supply chains, which usually have to deal with a variety of IT systems. Standardised service contracts

are also particularly important. They are used consistently only in Singapore. Using service-level standards and basic rules in contracts will allow logistics service providers and their customers to cooperate more easily, not waste time establishing precise working conditions, and protect all parties (Banomyong et al., 2008).

### 6.4. Encouraging Cooperation

The importance of end customers in logistics will continue to grow. More and more solutions are emerging that allow configuration of the supply chain. Apart from choosing where they can pick their orders up, customers can also choose a convenient time to do so. Deliveries can be changed dynamically more and more often.

Besides technological challenges, there are organisational ones related to seamless cooperation between e-commerce stakeholders (e-tailers, logistics companies, Internet providers, banks) that provide expected value to e-customers. Capacity and resource limits are some of the biggest impediments to logistics connectivity. Enhancing cooperation between enterprises is one solution and is supported by the AEC Blueprint 2025, which calls for transport connectivity, efficiency, integration, safety, and sustainability (Kimura and Chen, 2017). Logistics service providers should share their transport, warehouse, and transshipment terminal networks to achieve economies of scale in the form of lower costs, and economies of scope in the form of richer offerings in accordance with the one-stop shopping concept. The largest logistics operators should form groups of partner companies operating under the same brand name.

The following can enhance opportunities for cooperation in e-commerce logistics:

- i. Promote joint ventures, clusters, and business networks between domestic companies and with international service providers, in addition to universities, research institutes, amongst others.
- ii. Encourage competing companies to create partnerships to exchange knowledge and experience and share their resources to carry out specific tasks.
- iii. Encourage logistics service providers to form international alliances and expand operations globally.

Cooperation in logistics has recently become fashionable through the sharing economy, which uses resources outside the logistics services industry with the participation of modern technologies. For example, cars belonging to other companies or private persons are used to transport consignments. Similarly, free storage space is made available. This concept assumes that 'access is better than ownership'. People possessing free resources, shoppers, and online shops all benefit. Customers can simultaneously use and offer services to other market players. These services are being developed mainly in larger cities where direct delivery is

carried out without loading bays. Over time, more advanced solutions may emerge, resulting in even greater community involvement in logistics processes.

It is possible to engage society (e.g. crowdsourcing) to improve logistics connectivity. GO-JEK, an Indonesian technology company, is an excellent example of the crowdsourcing model of logistics. It was established as a motorcycle ride-hailing phone service but has evolved into an on-demand mobile service. Today, it provides a wide range of services that include transportation, logistics, mobile payments, food delivery, and many other on-demand services. GO-JEK (2018) now operates in 50 cities across Indonesia, cooperating with 300,000 drivers. Such new services, however, are often not regulated and can meet opposition from conventional businesses such as taxi corporations. Governments should adopt comprehensive, adaptive solutions that will encourage entrepreneurs to innovate and, at the same time, ensure a sufficient level of regulation (Suhud, 2017).

Another challenge is to collect adequate data on the number of players, market size, industrial structure, trade performance, job creation, and the costs of moving goods. The data banks in ASEAN member countries should be centralised and measurement methods standardised to make comparisons possible.

## 7. Conclusion

E-commerce has not developed uniformly. The most mature markets are China, the US, and some European Union countries. ASEAN e-commerce is still in its infancy but the region has a relatively young population of 640 million, who use social media actively and purchase more and more products on the Internet. ASEAN could potentially be one of the fastest-growing e-commerce markets, whose value may even reach US\$89 billion in several years, but it encounters challenges. Apart from the smooth exchange of data and information and seamless payments, logistics is a crucial component of e-commerce.

In traditional trade, the retailer sells a product that the customer sees on the shelf, whilst in e-commerce, the seller offers a promise to fulfil the order. Operationally, e-commerce comes down to supplying e-shops, storing goods, picking, packing, shipping products to customers, and returning them. Logistics is a prerequisite of e-commerce. E-commerce without new logistics solutions would be limited. Neither door-to-door delivery nor PUDO points nor parcel lockers would be possible. The AEC Blueprint 2025 (ASEAN, 2015a) and other ASEAN documents identify logistics as a priority for integration, related to logistics connectivity, which comprises physical, institutional, and people-to-people components.

Thanks to logistics connectivity, e-commerce can work better and create additional value for customers. After all, logistics allows e-tailers not only to attract new customers (by

providing goods and different forms of low-cost delivery) but also to retain those who have already placed an order (by offering on-time delivery of the correct, undamaged goods). The customer has become an integral part of the logistics process and, often for the first time, has dealt with logistics services. E-customers do not want only the product itself but also real-time information about delivery, simplified and free returns of goods, and flexible and fast delivery. Those who win are companies that use new logistics solutions tailored to market needs.

Logistics connectivity is making slow progress in ASEAN and East Asia, mainly because countries have different institutions, infrastructure, and implementation capacities. Unsuitable infrastructure is a major factor behind logistics inefficiency and lack of competitiveness. The ASEAN region has many economic and non-economic differences as well as e-commerce logistics connectivity impediments and inequalities in public infrastructure, the logistics industry, and standardisation.

Some initiatives to improve logistics connectivity have been proposed. The most important ones are summarised in Table 4.5.

The research methods and data analysis initially confirm the proposed hypothesis. Further studies using quantitative methods are needed to test them. Future work will therefore involve empirical research, applying diagnostic surveys based on questionnaires.

**Table 4.5: Measures and Actions Related to Policy Recommendations**

Measures	Actions
Liberalisation and facilitation	<ul style="list-style-type: none"> <li>Support integration of air, land, maritime transportation, including sustainable, transport, and transport facilitation</li> <li>Follow the example of other dynamic economies that have integrated and developed common solutions (e.g. the EU)</li> <li>Liberalise markets to build and operate backbone networks and encourage open access to the Internet</li> </ul>
Infrastructure improvement	<ul style="list-style-type: none"> <li>Maritime. Use containerisation to facilitate and accelerate the process of loading and unloading the transported goods</li> <li>Rail. Use double tracks and dedicated tracks for freight services; centralise or upgrade train control systems</li> <li>Road. Reduce overload of cargo and axle load limits, use articulated trucks, and enforce roadworthiness certificates</li> <li>Air. Develop existing airports into air freight hubs; perform on-site operations at airports and cargo villages</li> <li>Inland waterways. Invest in links to main seaports, inland waterway port facilities, equipment, ICT systems, containerisation</li> </ul>
Increasing standardisation	<ul style="list-style-type: none"> <li>Encourage cooperation between separate and independent companies; create interoperable solutions</li> <li>Use a single, common label on parcels based on open global standards (GS1)</li> <li>Use service-level standards and basic rules in contracts</li> </ul>
Encouraging cooperation	<ul style="list-style-type: none"> <li>Promote joint ventures, clusters, and business networks amongst domestic companies and with international service providers, in addition to universities, research institutes</li> <li>Encourage exchange of knowledge and experience, and share resources to carry out specific tasks</li> <li>Engage society in improving logistics connectivity in the form of crowdsourcing</li> </ul>

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# Prospects and Challenges in Improving E-commerce Connectivity in Malaysia

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## 1. Introduction

Electronic commerce or e-commerce refers to a business or commercial transaction that involves an exchange of information through the electronic system or computer networks such as the Internet. E-commerce can cover a wide range of businesses due to its popularity and accessibility, made possible by the Internet. Without doubt, Internet connectivity is the spine of the industrial revolution. The production of manufacturing components across borders, real-time product maintenance, and online merchandise tracking all require a reliable and high-speed Internet connection. In recent years, Association of Southeast Asian Nations (ASEAN) members have taken steps to improve their Internet connectivity, but progress has been uneven. All ASEAN members have made steady progress in Internet connectivity and Singapore has broken the bar for 2 consecutive years (WEF, 2016). As the sub-indices deepen, progress is imbalanced. Malaysia, Singapore, and Thailand have steadily improved their digital infrastructure, with Thailand leading at 7.65% growth over 5 years, followed by Singapore with 2.31%.

Whilst individuals may be using the Internet for different purposes, their existence means that e-commerce might have a bright future in Malaysia. As e-commerce continues to grow, taking a big chunk of market share, it is important to understand why this growth is possible in the first place. One reason is convenience. Consumers can purchase physical goods and services from a website, in the comfort of their own homes, instead of visiting traditional stores, minimising travel expense and time. A website offers round-the-clock access, unlike physical stores, which are open 8–16 hours a day. An online business overcomes geographical limitations and can reach consumers all around the world, benefitting not only them but also the company's product and brand.

Whilst e-commerce offers many advantages, companies in Malaysia and in other countries are not immune to the challenges and setbacks of e-commerce. This chapter aims to

discuss the current situation of e-commerce connectivity in Malaysia, which has developed rapidly (section 2). This chapter then discusses e-commerce prospects and challenges, Alibaba's role, and how to overcome challenges, specifically through regional or sub-regional cooperation.

### **2. E-commerce Connectivity in Malaysia**

The Internet is easily accessible in most places in Malaysia. The development of the Internet and information communication technology (ICT) in Malaysia is amongst the fastest in the ASEAN region (Akamai, 2017; WEF, 2016). The Internet hosts a wide range of economic activities daily, from millions of paid downloads to billions of sales. The Internet accounts for a significant and growing portion of global gross domestic product (GDP) (Galgal, 2017). Considering the 24.5 million Internet users (76.6% penetration) in December 2016 (MCMC, 2017), the potential to expand e-commerce is unlimited. Internet users making online purchases have increased significantly, from 35.3% in 2015 to 48.8% in 2016.

In 2016, the Ministry of International Trade and Industry (MITI) Malaysia launched e-commerce initiatives involving other ministries and agencies to bring about 80% of small and medium-sized enterprises (SMEs) into the world of e-commerce (Table 5.1). Such SMEs are expected to reach more than 87 million customers in the ASEAN region and grow even more rapidly. Malaysia targeted half a million SMEs to register and become active on the e-commerce platform; 75% of retailers and 80% of manufacturers are expected to be involved in e-commerce by 2020 (MDEC, 2016).

According to Chen (2017) and Kimura and Chen (2017), fundamental of successful e-commerce includes (1) connectivity for information flow, (2) logistics connectivity, (3) connectivity for cash flow, and (4) integrated connectivity.

**Table 5.1: E-commerce Initiatives by Ministries and Agencies in Malaysia**

Ministry/Agency	Initiatives	Objective
Ministry of International Trade and Industry (MITI)	National eCommerce Council, comprising various ministries and agencies	Drive and coordinate programmes to increase Malaysia's e-commerce growth rate
	APEC Committee on Trade and Investment	Deliberate on trade and policy issues amongst APEC member economies
	APEC E-commerce Steering Group	
	APEC Economic Committee APEC Ad-Hoc Steering Group on Internet Economy	
	APEC SME Working Group	
	Connect and integrate national single window	Expedite cargo clearance
SME Corp	Business Acceleration Programme 2.0	Build SMEs' capacity to grow their business locally and abroad
	E-payment for SMEs and microentrepreneurs	Increase adoption of e-payment amongst micro-enterprises and SMEs
HDC	eHalal.com	Publish halal supplier and product information to buyers world-wide through eHalal.com's B2B portal and with partners' B2C portals
MATRADE	eTrade	Accelerate exports by SMEs through participation in international leading marketplaces: <ul style="list-style-type: none"> <li>• 11street</li> <li>• Dagang Halal</li> <li>• Alibaba.com</li> <li>• Tradeindia</li> <li>• eBay</li> <li>• Amazon</li> <li>• JinBaoMen</li> </ul>
MIDA	Principal Hub Incentive Domestic Investment Strategic Fund	Allow multinational corporations to enjoy benefits and incentives so they can establish their regional centre in Kuala Lumpur
MDEC	#YOUCANDUIT	Encourage Malaysians to generate income via digital platforms (education and training)
	#MYCyberSale#	Encourage SMEs to be part of e-commerce and generate online shopping demand
	#MYGlobalExport	Encourage SMEs to export their products via e-commerce (partnering with Amazon) and collaboration with MATRADE
MOF	ePerolehan	Government and related agencies adopt e-procurement
	Councils and committees	<ul style="list-style-type: none"> <li>• Income tax treatment under Income Tax Act</li> <li>• GST</li> </ul>
BNM	Electronic payment	Drive towards electronic payments
Customs	uCustoms	Provide fully integrated, end-to-end customs modernisation solution that delivers single window for goods clearance
	myCargo2U	Empower logistics players with a GST-ready comprehensive software to manage cargo and trade documentation, in collaboration with MITI/Dagang NeXchange
KPDNKK	eCommerce Laws	Establish regulation related to e-commerce such as <ul style="list-style-type: none"> <li>• Electronic Commerce Act 2006</li> <li>• Consumer Protection Act 1999</li> <li>• Consumer Protection (Electronic Trade Transactions) Regulations 2012</li> </ul>

## Prospects and Challenges in Improving E-commerce Connectivity in Malaysia

Ministry/Agency	Initiatives	Objective
	Malaysia Trustmark	Ensure e-commerce safety
	Virtual mall	Enable large retailers and SMEs to distribute products and services online
SSM	Online networking entrepreneurs (SSM-One)	Help entrepreneurs register their business and sell products online
MAMPU	myGovXchange	Serve as a gateway to government electronic submission and electronic payment
MOA	Agro Bazaar	Market agricultural products via online platform by FAMA
MOT	The Logistic and Trade Facilitation Master Plan	Build a strategic framework to improve the efficiency of transport and trade facilitation (steps to capitalise on Malaysia's strengths in resolving logistics bottlenecks)
Malaysian Rubber Export Promotion Council (MREPC)	MREPC Marketplace	Link buyers and sellers of rubber products
MTIB	eMall@MTIB	Build an online platform for e-books and merchandise
Cyber Security	Cyber 999	Help Internet users report or elevate computer security incidents
Malaysia Network Information Centre (MYNIC)	Business Online Bundle	Provide bundle package (domain, hosting, etc.) to SMEs to expand their business online

APEC = Asia-Pacific Economic Cooperation; B2C = Business to Customer; BNM = Bank Negara Malaysia (Central Bank of Malaysia); FAMA = Federal Agricultural Marketing Authority; HDC = Halal Industry Development Cooperation; KPDKK = Kementerian Perdagangan Dalam Negeri, Koperasi dan Kepenggunaan (Ministry of Trade and Consumer Affairs); MAMPU = Malaysian Administrative Modernisation and Management Planning Unit; MATRADE = Malaysia External Trade Development Corporation; MDEC = Malaysia Digital Economy Corporation; MIDA = Malaysian Investment Development Authority; MOA = Ministry of Agriculture and Agro-based Industry; MOF = Ministry of Finance; MOT = Ministry of Transport Malaysia; MTIB = Malaysian Timber Industry Board; SME Corp = Small Medium Enterprise Corporation; SSM = Suruhanjaya Syarikat Malaysia (Companies Commission of Malaysia).

Source: MITI website, <https://www.miti.gov.my>.

### 2.1. Connectivity for Information Flow

This section first discusses the background of the political and regulatory environment as well as the business environment, then looks into ICT infrastructure, and affordability and skills at the individual, business, and government levels. The Network Readiness Index (WEF, 2016) ranks Malaysia second to Singapore in connectivity in information flow in ASEAN. Malaysia is at or below the median in affordability and infrastructure compared with other upper-middle-income countries.

#### 2.1.1. Government Initiatives and Support

Malaysia has taken steps to spur e-commerce growth. With its open trade policy, Malaysia envisages vast opportunities in online business. Through the Malaysia Digital Economy Corporation (MDEC), with its more than 20 years' experience in advising the government on legislation, policies, and standards for ICT and multimedia operations, Malaysia hopes to play a leading role in the global digital revolution. In its 2018 budget, the government

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announced five initiatives to stimulate e-commerce growth. It allocated US\$19.7 million to construct the first phase of the Digital Free Trade Zone (DFTZ), which was launched by Dato' Seri Mohd Najib Tun Abdul Razak, former Prime Minister of Malaysia, together with Jack Ma, the founder and executive chairman of the Alibaba Group, on 22 March 2017. The DFTZ is Malaysia's first initiative to capitalise on the confluence and exponential growth of the digital economy and cross-border e-commerce. The DFTZ e-services platform will connect users with the government and other business providers in supporting cross-border trade. The DFTZ will facilitate seamless cross-border trade to enable SMEs, marketplaces, and mono brands to export their goods mainly through e-commerce. The growth rate of SMEs' goods exports via the DFTZ are expected double by 2025.

To help SMEs enter online business, the MDEC and the SME Corporation of Malaysia, a central coordinating agency that formulates policies and strategies for SMEs, developed Go e-commerce – an active learning platform and hub, providing comprehensive guidance to all Malaysian SMEs keen to explore and build their businesses via e-commerce. Go e-commerce aims to empower SMEs to expand and diversify digitally. It comes with a specially made SME Readiness Tool. Members can obtain information and find out their level in an instant. Go e-commerce is also programmed to help SMEs tailor solutions to their needs. The launch of the National E-commerce Strategic Roadmap in October 2016 is evidence that the government is serious about driving the national e-commerce agenda as it strives to double the e-commerce growth rate from the current 10.8% to 20.8% by 2020, and to elevate the e-commerce GDP contribution to more than RM170 billion by 2020.

The MDEC (2016) outlines the government's intervention in six thrust areas:

- (1) Accelerate adoption of e-commerce by sellers and help them increase the availability and range of their products through online channels.
- (2) Increase adoption of e-procurement by businesses since most transaction values are from business-to-business (B2B) e-commerce.
- (3) Lift non-tariff barriers, increase the adoption of e-payment, intensify the level of maturity of the national e-fulfilment sector, augment mass awareness of consumer protection, and facilitate cross-border e-commerce.
- (4) Re-align economic incentives to ensure product delivery to areas with higher possible multiplier benefits.
- (5) Invest strategically in selected e-commerce players.
- (6) Promote national brands to boost cross-border e-commerce by supporting domestic companies operating in strategic sectors.

The six thrust areas will allow buyers, sellers, government agencies, platform providers, payment providers, and logistics and fulfilment providers to contribute to the growth of e-commerce.

To ensure that the digital economy includes all of society, the MDEC has introduced programmes such as eUsahawan and eRezeki. eUsahawan was launched in 2015 and aims to encourage the use of digital economy amongst SMEs. eRezeki is a training course to assist low-income households by connecting them to digital income opportunities and matching individuals to suitable tasks or work. The MDEC is also pushing to integrate digital entrepreneurship knowledge into the curricula of higher education institutions.

Malaysia was the first ASEAN member to pass privacy legislation – the Personal Data Protection Act 2010. Previous acts, including the Electronic Commerce Act 2006 and the Electronic Government Activities Act 2007, were sources for e-commerce regulation. Malaysia introduced the Digital Signature Act 1997. To protect consumers against unfair practices and ensure their right to minimum product standards, which cover e-commerce transactions and general safety requirements, consumers can refer to the Consumer Protection Act, which was amended for the third time, in 2010.

### *2.1.2 Infrastructure, Skills, and Usage*

E-commerce development requires good Internet speed and connectivity. ASEAN countries, including Malaysia, have satisfactory Internet infrastructure (Akamai, 2017). Whilst the average Internet connection speed for Malaysia is slower than that of Singapore, it surpasses the world's average of 7.2 megabits per second (Mbps). The average Internet connection speed for Malaysia is 8.9 Mbps, with a year-to-year change of 40% (Table 5.2). The average peak connection speed is 64.1 Mbps, with a year-to-year change of 38%, exceeding the world's average of 28%. Whilst the broadband adoption rate is lower than the world's average, yearly growth is encouraging, with 10 Mbps adoption improved by 179% and 15 Mbps adoption by 339% within 1 year; 4 Mbps adoption, however, improved by only 5.6%.

An increase in domestic ICT consumption provides opportunities for SMEs in Malaysia to showcase their businesses and to reach a wider circle of customers. Although Malaysia has a satisfactory Internet speed compared with other emerging Asian countries, the broadband speed gap between ASEAN countries, including Malaysia, and developed countries is wide. Malaysia's urban and rural ICT infrastructure is developing unevenly, and Malaysia is still improving its ICT infrastructure to be at par with the world's frontiers (MOSTI, 2014).



**Table 5.2: State of Internet Connectivity for Selected Asia-Pacific Countries, First Quarter, 2017**

Country	Unique IPv4 Addresses	Average Connection Speed	Average Peak Connection Speed	% above 4 Mbps	% above 10 Mbps	% above 15 Mbps
Indonesia	3,201,102	7.2	66.1	76.0	18.0	5.0
Malaysia	2,036,612	8.9	64.1	72.0	32.0	14.0
Philippines	1,550,940	5.5	45.0	39.0	11.0	6.2
Singapore	1,882,779	20.3	184.5	94.0	72.0	51.0
Thailand	3,100,080	16.0	106.6	97.0	72.0	43.0
Viet Nam	8,791,007	9.5	59.0	86.0	37.0	11.0
China	116,682,392	7.6	45.9	81.0	20.0	5.0
India	15,327,977	6.5	41.4	42.0	19.0	10.0
World		7.2	44.6	82.0	45.0	28.0

Mbps = megabits per second.

Source: Akamai (2017).

Malaysia's online retail is dominated by the marketplace model. Business involvement in the online market dates to the 1990s when Lelong, an online auction and shopping website, was set up. It is one of the oldest and largest e-commerce sites in Malaysia. The two largest marketplaces are Lazada.com.my and 11street.my. Other platforms such as Mudah, Ebay, Taobao, and many others also exist. Besides selling their products through these popular marketplaces, many companies, especially SMEs, also use social media such as Facebook, Instagram, WeChat, and other platforms.

Social e-commerce is popular for several reasons:

- (1) It provides two-way interaction between sellers and buyers. Both parties often find it faster to respond through social media than email or other forms of communication. Sellers can easily help buyers with their concerns and enquiries before and after sales.
- (2) Buyers can read customers' reviews of specific products before deciding to buy.
- (3) Malaysians are still wary of online payment, and social media allow buyers and sellers to arrange other forms of payment.

Unfortunately, business-to-consumer (B2C) e-commerce sales account for just above 1% of total retail in Malaysia, despite Internet penetration being one of the highest in the region and despite several government initiatives to help businesses. This observation was confirmed by recent findings of yStats (2018), a Germany-based e-commerce business intelligence specialist.

Whilst ICT adoption amongst businesses, including SMEs, is low, amongst individuals it is one of the highest in the ASEAN region. MCMC (2017) reports that in 2016 there were approximately 24.5 million Internet users, or 76.9% of the total population. Their most popular activities were texting, visiting social networking sites, and getting information. Despite the huge number of Internet users, only 48.8% used the Internet to shop. Almost 80% of the MCMC survey respondents said they preferred to visit brick-and-mortar stores rather than shop online. Many preferred to see, try, and feel the merchandise before they bought. Malaysia has many mega stores that offer a wide array of choices such as high-street brands, luxury labels, and even local brands. Shoppers combine shopping with family outings, dining, and other activities. Of the non-online shoppers surveyed, 64.6% were concerned about e-commerce security and privacy and were not too keen to provide their personal information such as their full names, contact numbers, and full addresses to a third party. They were also concerned about the vulnerability of online banking services that facilitate online shopping.

### 2.2. Logistics Connectivity

Logistics is crucial to Malaysia's e-commerce boom. A World Bank (2016) study shows that Malaysia ranked 32nd out of 160 countries in the Logistics Performance Index, which measures countries' challenges and opportunities based on trade logistics. The components analysed in the index were chosen based on recent theoretical and empirical research and also on the practical experience of the logistics professionals involved in international freight forwarding (Table 5.3). Two areas desperately needing improvement are customs and border management clearance and the delivery system.

**Table 5.3: Logistics Performance Index, Malaysia, 2016**

	Score (1–5)	Rank/160
<b>Overall</b>	<b>3.43</b>	<b>32</b>
The efficiency of customs and border management clearance	3.17	40
The quality of trade- and transport-related infrastructure	3.45	33
The ease of arranging competitively priced shipments	3.48	32
The competence and quality of logistics services – trucking, forwarding, and customs brokerage	3.34	35
The ability to track and trace consignments	3.46	36
The frequency with which shipments reach consignees within scheduled or expected delivery times	3.65	47

Source: World Bank (2016).

Undeniably, poor logistics connectivity is a reason for SMEs' low participation in B2C e-commerce (A.T. Kearney, 2017). Malaysia was rated low for warehousing and order management, flexible pickup and delivery, payment on delivery, and returns management; and moderate on real-time track and trace and reliable delivery over speed. Delivery service should take into account the nature of working households. Most deliveries are made during office hours when many working people may not be at home to receive their parcels. This wastes time and effort. Another impediment to e-commerce is the lack of proper rural addresses, which is a huge challenge for delivery agents. To enable comprehensive e-commerce coverage, the MCMC and Pos Malaysia created Address for All, which provides many rural homes with a complete premise address. In March 2017, approximately 30,000 rural premises in Kemaman, Hulu Terengganu, Pulau Pangkor, Pulau Langkawi, Kota Belud, and Lundu were provided complete addresses (MCMC, 2017).

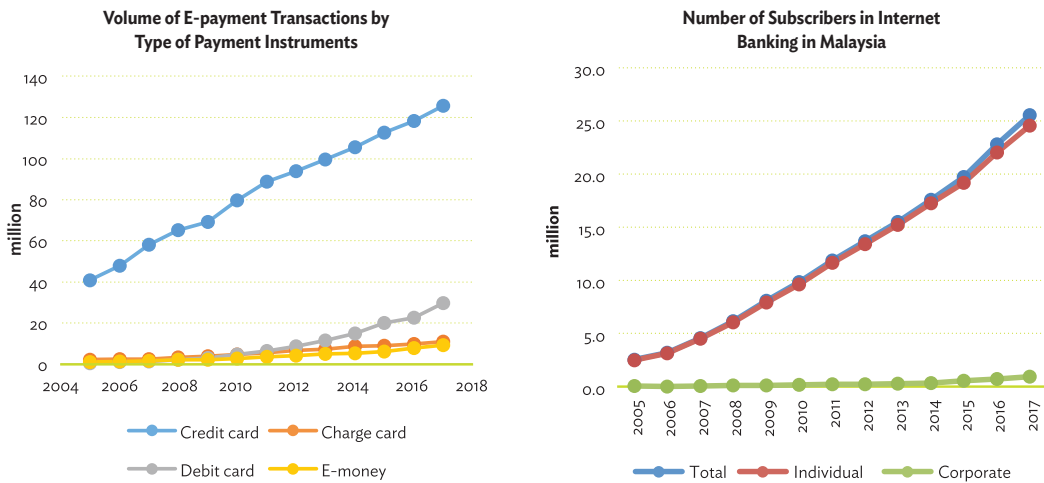
### 2.3. Connectivity for Cash Flow

Connectivity for cash flow ensures safe and transparent e-payment, which is the vital bridge between the physical and virtual part of e-commerce and can be done using credit cards, debit cards, online banking, cash on delivery, and PayPal, or by paying at any 7-Eleven outlet within a given time (MDEC, 2016). The Bank Negara Malaysia (BNM) says the country has a healthy e-payment system, and many regulations and policies provide reliable and secure e-payment infrastructure.

The volume of e-payment by e-money has increased dramatically since 2010. E-money has monetary values stored electronically and is usually held in cards, servers, or devices. Malaysians use e-payment regularly. Meanwhile, subscription in Internet banking has been also increasing dramatically since 2006. (Figure 5.1).

BNM has taken several initiatives to encourage the use of e-payment. With BNM's help, commercial banks have begun formulating an e-payment roadmap to increase the adoption of e-payment, decrease e-payment barriers, and improve the overall efficiency of the payment system, which will have a positive impact on the economy (BNM, 2019). BNM announced that from 1 July 2018, there would be no transfer fee for online banking. The CIMB Bank stopped charging transfer fees for online banking before other banks did. The Association of Banks in Malaysia imposes a charge of RM0.50 to process cheques, to increase the use of e-payment. The Malaysian Employees Provident Fund (EPF) is cooperating with BNM, domestic banks, and the Malaysian Electronic Clearing Corporation Sdn Bhd ('MyClear') to encourage e-payment and reduce the use of cash and cheques amongst employers, in line with the EPF's efforts to minimise dependence on counter services. Whilst

**Figure 5.1: E-payment and E-banking in Malaysia**



Source: Bank Negara Malaysia (2019).

the e-payment system has been improved, e-commerce will have to offer more innovative payment products, encourage the adoption and use of e-payment by SMEs and customers, and improve e-payment service (MDEC, 2016). Some e-commerce SMEs have the option to pay in instalments.

In principle, the e-commerce platform must meet the requirements to ensure e-payment security, consumer protection, tracking of credit records, privacy, credibility, reliability, and efficiency. Building and maintaining an e-payment system is resource intensive, requiring technology, capital, and human capital. Since some Malaysian banks also operate in several ASEAN countries, the Malaysian banking and financial sectors are advanced in this system. Malaysia has an advantage over other ASEAN countries in building and maintaining an e-payment system.

#### 2.4. Integrating Connectivity

The physical and virtual parts of the e-commerce network must be unified. (Chen, 2017) Successful e-commerce connectivity needs networks of different countries or regions to better coordinate interactions, information connectivity, logistics connectivity, and e-payment. Malaysia and other ASEAN countries must bridge the rural–urban development gap.

Cross-border e-commerce has gained momentum around the world, particularly with the advancement of e-banking, e-fulfilment, and consumer protection. Of online shoppers in Malaysia, 75% buy locally whilst 20.3% make local and cross-border purchases and only

## E-commerce Connectivity in ASEAN

4.7% conduct cross-border transactions (MCMC, 2017). Providing affordable high-speed Internet connectivity would encourage more people, including in rural and underdeveloped parts of the country, to subscribe to the Internet and engage in e-commerce. The few service providers in Malaysia offer affordable and competitive rates: 100 Mbps for RM329 or less than US\$100 per month maximum for household use, and slightly higher for business use but not more than US\$100 (Table 5.3). These findings are corroborated by MCMC (2017) and the International Communication Union (ITU, 2017).

The government has taken various e-commerce initiatives through MDeC. It works with the Malaysia External Trade Development Corporation (MATRADE) in collaborating with various global e-trade players. BNM helped introduce the framework to encourage e-payments (MIDF, 2016). Some private sector organisations have been proactive in promoting e-commerce: United Business Media (UBM) Asia, for example, has partnered with e-commerce giant, Alibaba, by expanding its commercial programmes outside of China. Credit card companies and banks have linked up with e-commerce players in Malaysia, which then make exclusive offers to cardholders (MIDF, 2016).

**Table 5.4: Comparing Internet Prices in Malaysia**

ISP	Type	Speed (Mbps)	Monthly fee (RM)
TIME	Home	100	149
		300	189
		500	299
	Business	50	318
		100	348
Maxis	Home	10	119
		30	139
		50	219
		100	299
	Business	20	208
		32	258
		64	358
		100	389

## Prospects and Challenges in Improving E-commerce Connectivity in Malaysia

ISP	Type	Speed (Mbps)	Monthly fee (RM)
TM	Home	1	110
		2	120
		4	130
		8	140
		10	129
		30	179
		50	199
	100	329	
	Business	30	299
		50	349
100		379	
Astro IPTV	Home	10	156.88
		20	209.88
		30	262.88

ISP = internet service provider, Mbps = megabits per second, RM = Malaysian ringgit.  
Source: iMoney (2018).

To reach a wider range of customers, businesses throughout the world are also selling through Facebook, most of whose users are 25–54 years old. If an SME wants to be successful, it should reveal and create promotions exclusively on Facebook (Forbes, 2018). Facebook does not limit the timeframe or character of a post, which makes it a great marketing tool. But marketing through Facebook has to be timely and unique, and businesses should keep in mind that Facebook is a social media platform, so promotional activities should not look like advertisements. The target audience should feel that they are part of the promotion. Facebook boosts are not costly and can target users based on location, age, gender, interests, demographics, likes on Facebook, and so on. Facebook is an efficient way to advertise and businesses must provide excellent service and stay in touch with customers so they will keep coming back to the page, which can also provide customer service. In Malaysia, Lazada was the number-one e-commerce site on Facebook, followed by Shopee, Zalora, Lelong, and 11street in 2017. Malaysia has more than 200 million social media users, so SMEs should use Facebook to promote their businesses locally and internationally.

Malaysia has a smaller domestic market than its neighbours. It must continue to enter into open trade agreements to promote economic growth. Free trade agreements (FTAs) are proving that Malaysian SMEs can go international and participate in global value chains. Malaysia has signed 13 FTAs. (see Annex I). The SMEs' e-commerce platform is important

## E-commerce Connectivity in ASEAN

for reaching wider free trade markets. The FTAs do not only liberalise trade but also provide many other benefits such as trade facilitation, competitive policy for trade, SME development, research and development, and paperless trading. MATRADE encourages SMEs to participate in e-commerce and to take advantage of the FTAs. Malaysian SMEs benefit from bilateral FTAs with China, India, the Republic of Korea, Australia, Japan, Chile, New Zealand, Pakistan, and Turkey, and will benefit from bilateral and regional trade agreements coming into force.

One of the biggest obstacles to online shopping is buyers' lack of confidence in online shopping and data protection. The Personal Data Protection Act 2010 and the SME Corporation of Malaysia (SMECM) require that data provided by a company be protected. The data provided by the company – from a company, a partner company, a society, a club, an unincorporated body, or an individual – is used by the SMECM and its strategic partners. Individuals can have access to their personal data and request the SMECM to correct any incorrect information.

### 3. E-commerce Potential

Malaysia has enormous potential to develop digital trade and e-commerce. Its population is 32.5 million and it is geographically located in the heart of ASEAN. Malaysia has two main ports, grasping the strategic international shipping lane connecting West and East. Both ports are amongst the top-20 busiest in the world (World Shipping Council, 2018). Malaysia is close to Indonesia and borders on Thailand, connecting it to neighbouring countries such as Cambodia, Myanmar, and Viet Nam. Economically, when compared to Singapore, it has cheaper labour, abundant land, and lower operational costs to open e-fulfilment (logistic) centres to facilitate cross-border e-commerce.

Broadly, the whole ASEAN region is getting ready to grasp the growth opportunities coming long with digital economy. The use of the Internet, social media, and mobile phones is growing rapidly. By January 2018, there were over 370 million Internet users in Southeast Asia. It is forecast that the market will keep booming at double-digit growth rate. (ASEANUP, 2018) E-commerce in Indonesia, Thailand, Malaysia, Singapore, the Philippines, and Viet Nam is booming. With the third-largest population in the world and rapidly rising Internet connectivity, the ASEAN region has been one of the most promising markets of e-commerce. Many companies are using the Internet to sell the products or provide services.

In general, the region has more online shoppers and e-commerce participants compared to the United States, Europe, or Japan. Relatively, e-commerce market expansion in Indonesia,

the Philippines, and Viet Nam seems to mainly driven by their large population; while in Malaysia, Thailand, and Singapore, the market is more likely driven by the purchasing power. (A.T. Kearney, 2015) Looking forward, the ASEAN e-commerce market is expected to grow twice as fast as that in Europe, the United States, or Japan. This provides Malaysia a development-friendly regional environment to promote e-commerce.

When compared to other ASEAN countries, Malaysia has several advantages. First, the level of the country's Internet and smartphone penetration, credit card usage, and the quality of transportation infrastructure are higher than most of its neighbours. In Malaysia, the high-speed Internet has covered almost three-quarters of the population. Second, Malaysians' shopping habits seem to be attractive for foreign e-commerce investors. A survey conducted by 11 street, one of the country's largest e-malls, showed that in Malaysia, men shopped online more than women. East Malaysians were 2.6 times more likely to shop online than peninsular Malaysians; 59% of online shoppers purchased something at least once a month and 80% shopped using their smartphones. Another survey, conducted by Nanyang Siang Pau in the Klang Valley of Malaysia reveals that 70% of respondents were optimistic that online shopping would dominate traditional shopping; and the prospects for e-commerce in Malaysia in the next few years would be 'immense' (eCInsider, 2016).

#### 4. Challenges of E-commerce

Malaysia's e-commerce ecosystem is still in its early stage of development and needs to make progress in many aspects. E-commerce websites still offer a smaller range of products than many other countries (MDEC, 2016). SMEs are not growing fast enough to export internationally because they lack product offers. High upfront investment to adopt e-procurement – usually including a change of procurement processes, costs to integrate, and the need to search for suppliers – are amongst the factors hindering SMEs from adopting e-commerce. Many SME owners find the e-commerce system complex and need to build their capacity to participate in e-procurement platforms (A.T. Kearney, 2015; Rillo and Cruz, 2016; MDEC, 2016). Only about 25% of SMEs in Malaysia are active in e-commerce (MDEC, 2016). As in some other ASEAN countries, online e-commerce marketing is still driven by large companies, creating unclear value propositions because such marketing does not cover products sold by SMEs (MDEC, 2016).

How to improve the efficiency of delivery services is another challenge facing the e-commerce industry. Whilst transport infrastructure is good, many customers do not use the e-commerce platform because delivery time does not meet customers' expectations



## E-commerce Connectivity in ASEAN

(Jones Lang LaSalle Inc., 2013; A.T. Kearney, 2015). In Malaysia, products are delivered mostly during office hours, so the risk of items being returned is high. There is little delivery information available and sometimes it is not correct (MDEC, 2016). With the rapid growth of e-commerce, customers' delivery expectations are changing rapidly and e-retailers are under pressure to reduce fulfilment costs whilst also delivering faster. Therefore, one of the biggest limitations in the online market is reliable last-mile delivery services.

Online consumers still lack confidence and trust in Internet shopping, and many prefer to pay cash on delivery (Brewer, 2017). This is a barrier to e-commerce adoption (MCMC, 2017). Other barriers include consumers' preference to go to physical stores, as well as security and privacy concerns. Whilst e-commerce is becoming more popular, Malaysia is still far behind other countries in developing a successful e-commerce system. Product warranty is still a concern, with product warranty claims for online purchases delayed by 2 weeks to more than 1 month (Mukhtar et al., 2016). In some cases, warranty is eventually denied. Delays and denial of warranty may be caused by misunderstanding between service centres and brands. Other challenges include lack of knowledge about market access, e-commerce, and digital markets; limited production capacity; cyber security; and logistics costs and regulations of cross-border e-commerce (e.g. A.T. Kearney, 2015; Rillo and Cruz, 2016).

Malaysia also faces institutional issues such as complex border clearance procedures and disharmonised customs requirements, in addition to market-related challenges such as adoption costs, fraud, and risk of crowding out (Rillo and Cruz, 2016). Malaysia and other countries in the region need to reduce the technological complexity and barriers to free market competition and attract SMEs to e-commerce. A successful e-commerce system is made up of several components and Malaysia needs to focus on each of them.

### 5. Digital Free Trade Zone

To deal with the challenges of e-commerce connectivity, Malaysia collaborated with Alibaba and launched the first Digital Free Trade Zone (DFTZ) on 3 November 2017. Alibaba and its affiliated firms are participating in four segments of the DFTZ: e-fulfilment hub, e-service platform, e-payment and financing, and e-talent development. The e-fulfilment hub, under the Electronic World Trade Platform (eWTP), is in the KLIA Aeropolis, a 24,700-acre development led by Malaysia Airports Holdings (MAH). The hub is a joint venture between Alibaba Cainiao's logistics and MAH, where Cainiao holds 70% of shares and MAH 30% (Vicknaraj and Tay, 2018). The joint venture has a total paid-up capital of RM206.67 million (US\$48.84 million) and will help develop the regional e-commerce and logistics hub. This

covers the development of freight terminals, sorting centres, warehouses, execution centres, and other facilities that support e-commerce.

The eWTP hub provides SMEs with e-commerce infrastructure, including logistics, cloud computing, mobile payment, and talent-training services. The eWTP's vision is to reduce trade barriers and provide more equitable market access for SMEs around the world, linking the private sector and the government to work together. A one-stop solution platform has been put in place to facilitate exports by local SMEs, with services ranging from marketing and customs clearance to simplified permits and tax-filing procedures. The logistics centre is partly operational to serve Lazada, the largest online shopping platform in Southeast Asia. Alibaba recently increased its stake in Lazada, from 51% to 83%. Alibaba mentioned that goods clearance time has been reduced from 6 to 3 hours through the help of robots and cloud computing technologies.

The establishment of Alibaba Cloud local data centre in Malaysia aims to provide powerful, reliable, and secure service to meet SMEs' cloud computing needs. With the amalgamation of Tianchi's Big Data programme in Malaysia and Alibaba Cloud's global Tianchi community, Malaysian specialists will be learning to develop advanced data technologies from their counterparts around the world and place Malaysia in a leading position in the global digital economy. Alibaba Cloud has committed a local team of solution architects and professional consultants to help clients of all sizes, enabling them to reach their fullest potential. For SMEs and start-ups, in particular, access to cost-effective cloud services supported by a local team is key in choosing a cloud service partner. Alibaba Cloud levels the global playing field for small businesses. Large companies will also benefit from the convenience and security of local data storage, which will help them comply with monitoring necessities.

Training and capacity building of local business are also included in the plan. As part of the eWTP programme, local talent training is essential to ensure the ecosystem's sustainability. More than 1,000 students from Malaysian universities have participated in business-to-business e-commerce programmes, and nearly 140 faculty members have completed the Train the Trainers programme. In this regard, the establishment of joint ventures will help fill the gap in technical abilities, skills, and knowledge as well.

DFTZ also pilots in exploring e-payment and financial opportunities to facilitate business-to-business trade. Two local banks, the Malayan Banking Berhad and CIMB Group holdings, will explore joint opportunities in e-payment and financing services with Ali-Pay. Both banks will permit Chinese tourists to use their Ali-Pay e-wallet services in Malaysia. This to a great extent facilitate doing business for SMEs. In addition to its support for e-commerce, the

bilateral cooperation in e-payment tends to help Malaysia accelerate the transition to an inclusive and transparent cashless society.

### 6. Discussion and Conclusion

Generally, government initiatives and support are encouraging, resulting in Malaysia ranking higher in network readiness than its neighbours. These initiatives cover all levels of stakeholders and aim to promote e-commerce growth and realise Malaysia's vision to be the e-commerce leader in Southeast Asia. The impacts of these initiatives, however, are still unclear since Malaysia's e-commerce ecosystem is still in its early stage of development. The level of adoption is still low amongst SMEs and individuals. Without doubt, SMEs are economically important, especially in developing countries. E-commerce is an alternative strategy for SMEs to sustain their businesses and expand across countries in this digitalised world. The level of e-commerce adoption amongst Malaysian SMEs is relatively low, with less than 10% of their GDP contribution derived from e-commerce. E-commerce adoption is lower in rural areas, where many SME owners and customers live (MOSTI, 2014). These areas need stable, affordable high-speed Internet connection.

Why individual consumers shun e-commerce should be studied. Although Internet penetration level is high and the use of credit cards is expanding, the level of e-commerce adoption is still low. The lack of confidence and trust in the products sold online and the concern for security and privacy whilst paying online are the two main barriers to e-commerce adoption. If these concerns are not addressed adequately, e-commerce will not be adopted.

Another big issue is the link between the physical and virtual parts of e-commerce, which involves smooth networking amongst countries as well as coordinated information, logistics, and cash flow connectivity. Cross-border e-commerce transactions can expand throughout the ASEAN region, especially with the advancement of e-banking, e-fulfilment, and consumer protection. Urban and rural areas, however, are developing unevenly in Malaysia and other Southeast Asian countries, which should improve their connectivity to ensure e-commerce growth in the region.

Malaysia established the DFTZ to promote e-commerce amongst SMEs and improve e-commerce logistics. As cross-border e-commerce grows, complementary or alternative approaches to fulfilment might be needed. The target is to drive down the cost of shipment and shorten the end-to-end return cycle. This will facilitate international sales, with the help of leading fulfilment service providers. The government has added extra terminals, is rehabilitating existing ports, and is developing new ones. Another important investment is the

railway connecting the east and west coasts of Malaysia – the East Coast Rail Link (ECRL). It will be operated and owned by Malaysia Rail Link, Sendirian Berhad, but the vehicle will be owned by the Ministry of Finance. The ECRL will connect Port Klang on the west coast of peninsular Malaysia to Pengkalan Kubor in northeast peninsular Malaysia, and link the East Coast Economic Region to the east coast of peninsular Malaysia. The ECRL is expected to carry cargoes and passengers and to be completed by 2024.

Alibaba's involvement in Malaysian e-commerce initiatives improves e-commerce connectivity and helps the country fulfil its vision to lead in e-commerce in Southeast Asia. Former Prime Minister Najib Razak pledged his full support for the initiatives, saying he looked forward to 'the rebirth of the new Silk Road'. The e-hub is designed to ease trade between Malaysian and Chinese firms and is also expected to boost trade between Southeast Asia and China. This initiative will open opportunities for small businesses, especially start-ups, by lowering the barriers to cross-border trade and by providing access to the global market. The Malaysian market is the smallest in Southeast Asia but local companies may be able to sell to China, which will help increase creativity and innovation amongst Malaysian companies so they become more competitive globally.

This Belt and Road project, however, has also raised anxiety due to its strong control over the process, which could lead to a monopoly. Malaysian firms may find it difficult to compete with the giants. Small businesses that depend on commoditised products may be outpriced by their competitors from China. As it is, Alibaba, through Cainiao, has a bigger share of the logistics market than MAH. Alibaba recently raised its share in Lazada, the biggest e-commerce platform in Southeast Asia. Local businesses, however, should take full advantage of Alibaba's platform and use their language skills and education to compete with other mainland Chinese businesses. Local businesses need to be more creative. They should publicise their companies and products. To ensure that the market is competitive, the government should encourage more Malaysian firms to provide similar services because they understand the needs of Malaysian customers.

Malaysia must encourage e-commerce adoption amongst SMEs because they are vital to the economy. E-commerce adoption is a source of competitive advantage. E-commerce improves financial performance and operational competence and enables SMEs to compete globally, enhancing the quality of their information and competitiveness (Migiro, 2006). Malaysian SMEs will increase their computing capabilities and be exposed to globalisation and cross-functional communication and cooperation. They will be able to offer online customers a vast and diverse choice of products. But they need to improve their logistics services,

provide an effective payment gateway, and develop innovative ideas and products if they are to compete with international big players such as Alibaba and Amazon.

The Malaysian e-commerce ecosystem is dynamic and fast-changing, so businesses, especially SMEs, should equip themselves and take full advantage of all the government's initiatives and support. With strong government backing, Malaysia could very well lead e-commerce in Southeast Asia.

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### Annex I: List of Free Trade Agreements Signed Between Malaysia and Trading Partners

Free Trade Agreement	Entry into Force
Malaysia–Japan Economic Partnership Agreement (MJEPA)	13 July 2006
Malaysia–Pakistan Closer Economic Partnership Agreement (MPCEPA)	1 January 2008
Malaysia–New Zealand Free Trade Agreement (MNZFTA)	1 August 2010
Malaysia–India Comprehensive Economic Cooperation Agreement (MICECA)	1 July 2011
Malaysia–Chile Free Trade Agreement (MCFTA)	25 February 2012
Malaysia–Australia Free Trade Agreement (MAFTA)	1 January 2013
Malaysia–Turkey Free Trade Agreement (MTFTA)	1 August 2015
ASEAN–China Free Trade Agreement (ACFTA)	1 July 2003
ASEAN–Korea Free Trade Agreement (AKFTA)	1 July 2006
ASEAN–Japan Comprehensive Economic Partnership (AJCEP)	1 February 2009
ASEAN–Australia–New Zealand Free Trade Agreement (AANZFTA)	1 January 2010
ASEAN–India Free Trade Agreement (AIFTA)	1 January 2010
ASEAN Trade in Goods Agreement (ATIGA)	17 May 2010

Source: MITI website <https://www.fta.miti.gov.my>

# How Can E-marketplaces Turn Thailand into a Distributive Economy?

Nuttawut Laksanpanyakul

## 1. Introduction

Thailand is prosperous but its prosperity has not been fairly shared. Whilst large enterprises and the rich get richer, small and medium-sized enterprises (SMEs) and the poor – most of the people – struggle to survive. The share of SMEs in gross domestic product (GDP) shrank from 45.0% in 1994 to its lowest at 36.6% in 2011 before gradually crawling up to 42.4% in 2017 (Office of Small and Medium Enterprises Promotion, 1995; Office of Small and Medium Enterprises Promotion, 2018). The average income gap between the richest and poorest 10% increased from ฿27,379 in 1986 to ฿85,370 in 2013, more than trebling in 27 years (Tansakun, 2016). As in many countries, SMEs and the poor are hindered from thriving in today's rapidly increasing competition by undeveloped sales channels and lack of information on competent suppliers, amongst other reasons.

The electronic marketplace (e-marketplace) is generally seen as a promising way to connect SMEs and individuals with their customers and suppliers. It provides an additional sales channel and opportunities to partner with suppliers, within and across supply chains, within and across national boundaries. Over the last several years, the number of e-marketplaces in Thailand has exploded thanks to increased Internet access and mobile phone use as well as improved logistics and e-payment systems. E-marketplace providers range from the government and local businesses to leading global players. Whilst Thaitrade is the only viable government-owned e-marketplace, local businesses such as Buik and Tarad as well as multinational businesses such as Lazada and Shopee are in the playing field. But the spread of e-marketplaces also poses challenges that call for practical solutions. Serious problems are, for instance, the uneven access of weak SMEs and the poor to the e-marketplace, and the collection of income tax, consumption tax, and tariffs. Difficulties and conflicts often arise when popular and disruptive companies such as the highly controversial Uber enter the e-marketplace. These issues occur because of regulatory loopholes or because there are no essential and actionable laws.



This chapter explores the ways to unleash the potential of e-marketplace development and transform Thailand into a distributive economy. The research seeks to answer the following. (1) What is the status of the e-marketplace industry in Thailand? (2) To what extent does the e-marketplace industry benefit stakeholders, particularly SMEs? (3) What key drivers and obstacles impact the industry's performance? (4) What should the government do and not do to ensure the successful and impactful development and operation of the e-marketplace?

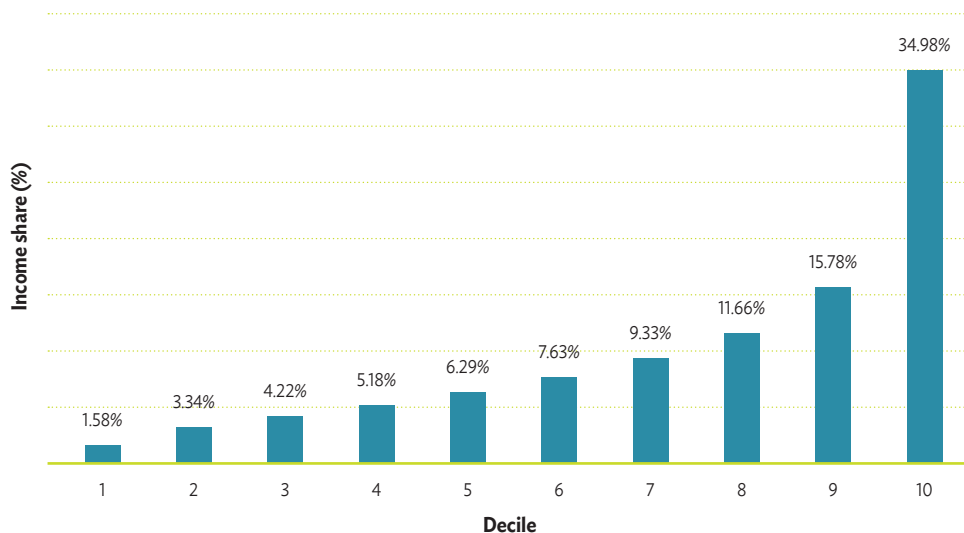
## 2. Income Inequality Issues

With average economic growth of just above 5% annually over the last 3 decades (World Bank, 2018a), Thailand has been an upper-middle-income country since 2011. If this prosperity were distributed equally, every Thai would have had an annual income of US\$16,913 in purchasing power parity terms in 2016 (World Bank, 2018b) and poverty would have been eliminated. However, about 5.8 million people – 8.6% of the total population in 2016 – lived below the nationally defined poverty line. The Gini coefficient, a commonly used measure where 0 represents complete equality and 1 represents complete inequality, remained moderate and moved slowly between 0.36 and 0.45 during the past 3 decades. Of those living in poverty, 47.7% worked in agriculture, 26.4% were low-skilled workers, and 18.4% were unemployed (National Economic and Social Development Board, 2017). But the number of billionaires has jumped from 5 to 30 in the past decade, and their accumulated wealth totalled about US\$93.3 billion in 2018 (Forbes, 2018).

The richest 10% captured more than one-third of income and almost four-fifths of total wealth, whilst the poorest 10% took no more than a 2% share of income and a 0.1% share of wealth (Figure 6.1) (National Economic and Social Development Board, 2016).

SMEs are Thailand's economic backbone. Whilst they made up 99.7% of all businesses that provided 78.5% of all private sector jobs in 2016, their contribution to GDP was only 42.2% (Office of Small and Medium-Sized Enterprises Promotion, 2018). During the past decade, their output performance, although rising, increased more slowly than that of large enterprises.

**Figure 6.1: Thailand's Income Distribution by Decile, 2015**



Source: National Economic and Social Development Board (2016).

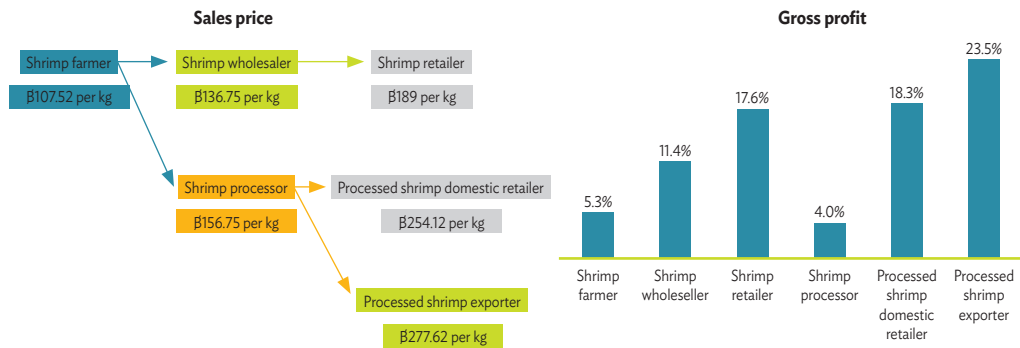
Many challenges hinder SMEs and the poor from thriving in today's rapidly increasing competition. The key challenges include the following:

First, SMEs and the poor have limited windows of opportunity to increase their sales and income. Most SMEs have difficulty finding new customers as they have undeveloped sales channels, resulting in meagre sales and high marketing and sales costs. The poor have difficulty finding decent jobs or even good part-time jobs. Farmers on average earn US\$1.50 a day and are almost 3 times more likely than those in other occupations to fall into poverty, and they often work off-farm during the off-crop cycle (National Economic and Social Development Board, 2015).

Second, SMEs and the poor lack information on suppliers that can give them reasonable prices, which results in higher production and procurement costs for SMEs and raises the cost of living of the poor.

Third, exploitation by middlepersons in many industries results in an unfair share of benefits along the value chain. Farmers and upstream producers are most likely to be victims. For example, shrimp farmers are right at the bottom of the value chain, receiving the smallest share, even though shrimp is amongst the country's top agricultural exports that have integrated into the global value chain (Figure 6.2).

**Figure 6.2: Sales Price and Distribution of Gross Profits Along the Shrimp Value Chain in Thailand**



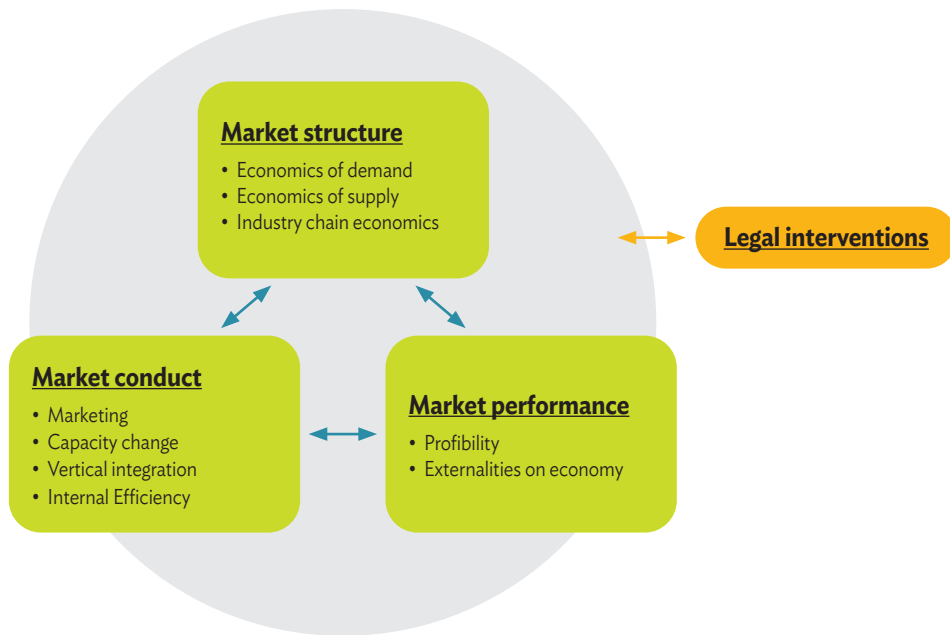
Source: Oxfam (2017).

### 3. Assessing E-marketplaces in Thailand

Structure-conduct-performance (SCP) is an analytical framework used to analyse the role of e-marketplaces in transforming Thailand into a distributive economy. Introduced by J.S. Bain (1959) and subsequently developed by many industrial organisation economists such as Phillips (1976) and Porter (1981), the SCP framework can provide a complete understanding of industry structure, players, conduct, and their competitive performance over time.

Three main elements in the SCP framework interact with each other: market structure, market conduct, and market performance (Figure 6.3). The market structure directly influences a firm’s economic conduct, which in turn affects its market performance. Feedback effects occur such that market performance may lead to a crucial change in conduct and structure, or conduct may affect the market structure. External factors such as legal interventions may also have an impact on the structure, conduct, and performance of the market.

**Figure 6.3: Structure-Conduct-Performance (SCP) Framework**



Source: Author.

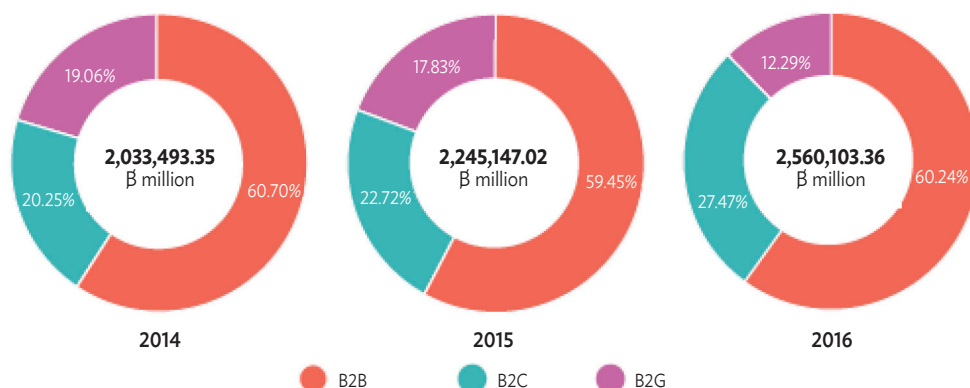
Theoretically, the market structure establishes the overall environment or playing field where each firm operates. Essential market structure characteristics include the number and size distribution of sellers and buyers, types of products offered for sale, barriers to entry, and whether asymmetry of information exists between buyers and sellers. Market structure often differs across industries because of variations in basic conditions, including the underlying technological base, the legal environment, demand, and economies of scale. All these basic conditions tend to affect the number and size distribution of firms. Market conduct shows up in pricing, promotion, and research and development. Whether a firm decides its policies independently or in conjunction with other firms in the market has a crucial impact on the conduct of the industry. Market performance feeds off conduct and is reflected in the degree of production and allocative efficiencies, equity, and technological progress (Santerre and Neun, 2013).

### 3.1. Structure of E-marketplaces in Thailand

According to the Electronic Transactions Development Agency (2017), in 2016, 592,996 e-enterprises sold their products or services through e-commerce, amounting to  $\beta 2,560,103$  million (US\$77,579 million), a 14.0% increase over the previous year. Of all e-commerce, 60.2% is business-to-business (B2B), 27.5% business-to-consumer (B2C), and 12.3% business-to-government (B2G) (Figure 6.4). E-retailing was the largest e-business (31.8% of total e-commerce in 2016), followed by e-lodging (27.1%), and e-manufacturing (19.1%). The smallest was e-insurance (0.1%). The main customers were in the country; cross-border e-commerce, although increasing, made up only 13.5% of total e-commerce in 2016 (Figure 6.5).

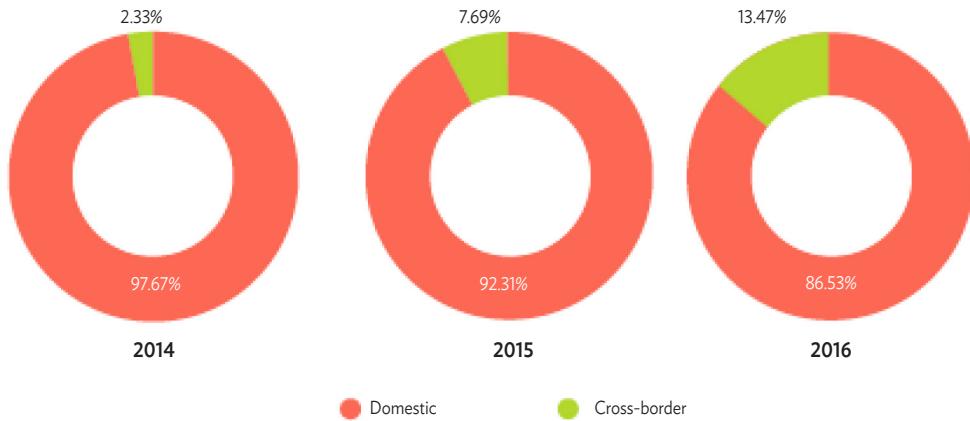
These e-enterprises sell their products and services on a variety of online platforms, from traditional e-mailing and one-way communication websites to more sophisticated interactive websites and mobile applications. These platforms are operated by four main types of e-marketplaces: the e-enterprises themselves, domestic third parties, international third parties, and social media. An Electronic Transactions Development Agency (2017) survey shows that social media are the most popular e-marketplaces through which SMEs in many sectors traded in 2016 (Figure 6.6). Sales through social media reached  $\beta 2,560,103$  149,401 million (US\$4,527 million), accounting for 39.7% of all e-commerce traded in 2016 (Figure 6.7). Sales through domestic third-party e-marketplaces comprised 28.0%, and e-enterprise platforms 27.6%. Only 4.6% of sales were through international third-party e-marketplaces, suggesting that not many SMEs reach external markets.

**Figure 6.4: E-commerce Traded in Thailand, 2014–2016**



B2B = business-to-business, B2C = business-to-consumer, B2G = business-to-government.  
Source: Electronic Transactions Development Agency (2017).

**Figure 6.5: E-commerce Customers in Thailand, 2014–2016**



Source: Electronic Transactions Development Agency (2017).

**Figure 6.6: Ratio of Sector-wise SME E-commerce by Sales Channel in Thailand, 2016**



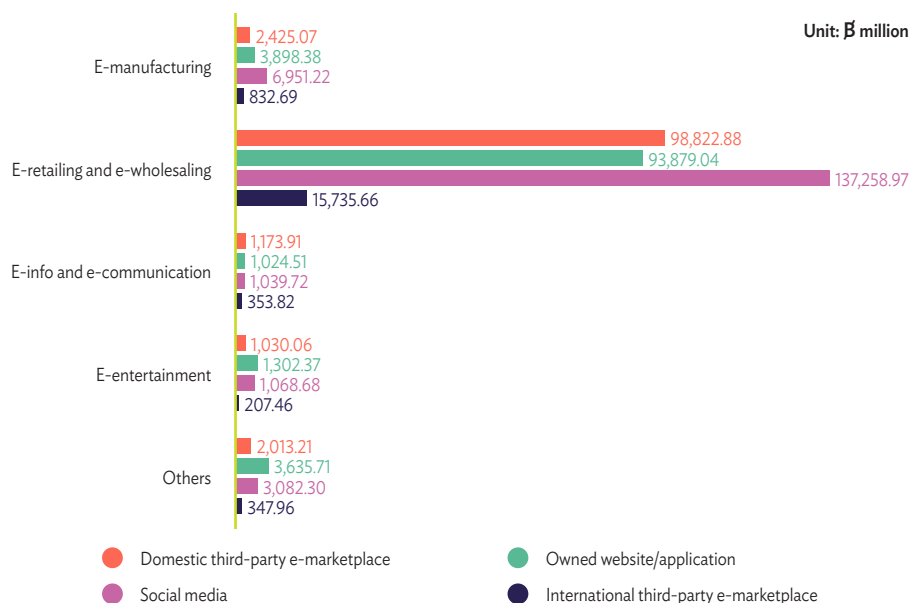
SMEs = small and medium-sized enterprises.

Source: Electronic Transactions Development Agency (2017).

## E-commerce Connectivity in ASEAN

Thailand has many e-marketplaces, especially for e-retailing and e-wholesaling, which comprise 91.9% of total e-commerce (Figure 6.7). E-marketplace operators can be categorised into four distinct categories, depending on their nationality and main customers: (1) outside-out, (2) outside-in, (3) inside-out, and (4) inside-in (Table 6.1).

**Figure 6.7: Sector-wise SME E-commerce traded by Sales Channel in Thailand, 2016**



Source: Electronic Transactions Development Agency (2017).

**Table 6.1: Examples of E-marketplace Operators in Thailand**

Category	Characteristics	E-marketplace Operators
Outside-out	Owned by multinational companies with eyes on the international market	eBay, Amazon, Alibaba
Outside-in	Owned by multinational companies with focus on the domestic market	Lazada, 11street, Shopee, Foodpanda, Line@, Uber, Grab
Inside-out	Nationality is Thai but aims for the international market	Thailandmall, SMEsiam, Buzzebees, BBNova, Thaitrade
Inside-in	Owned by Thais whose focus is on the domestic market	Builk, Wazzadu Onestockhome, Tarad, Pantipmarket, Weloveshopping, Kaidee, Central online, Cmart, 24catalog, Tesco Lotus online, Se-ed, Ookbee, Pinsouq, Event Pop, ZipEvent, Freshket, Zabdelivery

Source: Author.

The major e-marketplace operators are large multinational companies such as Lazada. Large Thai companies active in e-marketplaces are, for instance, Central online, cmart.co.th, and 24catalog.com. Although facing fierce competition, some small and medium-sized operators have won the share of some markets. These operators are new start-up companies that have developed a fascinating and scalable business model. Amongst them, Builk is considered one of the most successful pioneers in building and construction, and Event Pop and ZipEvent are movers in event organising. Freshket matches up restaurants and cooks with suppliers of ingredients. Some e-marketplaces are developed and operated by the government, such as the long-running ThaiTrade and the recently shut-down RiceOnline.

### 3.2. Conduct of E-marketplace Operators in Thailand

Continually growing market demand has been attracting more operators to e-marketplaces. To thrive and survive, incumbents and new entrants have adopted modern and sophisticated marketing strategies, including the following:

First, many e-marketplace operators strive for innovation that can provide their customers with better experiences and greater satisfaction. As in many countries, passengers in Thailand suspect that they are cheated by dishonest taxi drivers and are weary of being repeatedly rejected by them, especially when it is raining. The Thailand Development Research Institute (2018) found that 78% of traditional taxi drivers were the subject of at least one complaint from rejected passengers. Seeing an opportunity, Uber and Grab introduced ride-hailing: a passenger is notified once a driver is ready to serve, and they can settle the transaction at a pre-determined price.

Second, many e-marketplace operators adopt a customer-centric strategy by providing options for product and service delivery and payment methods. Foodpanda and Zabdelivery allow customers to set the time of food delivery as well as the payment method: hungry customers can have food delivered right away, whilst food for special occasions, such as a surprise birthday cake, can be ordered in advance. Customers without a credit card or those reluctant to use one can pay by cash on delivery.

Last, partnership-seeking for business synergies is widespread amongst e-marketplace operators. Horizontal partnership is good for expanding outreach, whilst vertical partnership, in cash or in kind, can reduce costs or build capacity. Discount, exclusive privilege, reward, and special promotion campaigns are commonly organised by e-marketplace operators in partnership with credit card companies. Line@’s partnership with seven leading digital marketing companies is a striking example of how benefits accrue not only to the e-marketplace operator and its partners but also to SMEs that join the programme.



## E-commerce Connectivity in ASEAN

Even though they have limited digital marketing skills, experiences, and resources, the SMEs are helped by e-commerce enablers to grow the number of LINE@ followers for a business, complete back-end order fulfilment and last-mile delivery, as well as manage LINE@ daily accounts, such as by answering incoming messages and pushing out targeted promotions.

### 3.3. Performance of E-marketplace Operators in Thailand

Although starting an e-marketplace business is not difficult in Thailand, building a stronghold in this dynamic market requires much more effort. As competition is exceptionally fierce, only the strongest survive and many firms have gone out of business.

The commodity e-market is considered a 'red ocean', where many e-marketplace operators are born, grow, thrive, and are eliminated. Low profit margins and high operating costs are not uncommon. E-marketplace operators must not only pay high prices for relentless marketing campaigns but also cut selling prices to compete. According to the Department of Business Development (2018) corporate accounting and financial databases, major players in e-marketplaces have reported considerable losses in recent years. In 2016, Lazada, the biggest player, with revenue of ฿4.3 billion, recorded a loss of ฿2.1 billion or a 49.6% net loss margin. 11Street, with ฿1.5 million in sales, also saw a loss of ฿185.0 million or a 126.7% net loss in the same year. Some operators such as Ensogo and Rakuten closed down in 2016.

When operators shut down, the e-sellers who had joined them are forced to look for other e-marketplaces and migrate their information. SMEs and the poor incur great losses in cost or time as they have limited resources and capacity to navigate new e-marketplace requirements, including terms, conditions, technical infrastructure, user interface, payment method, customer communication method, membership account management system, and all other back-office activities.

To avoid the 'red ocean' battlefield, many e-marketplace operators opt for a 'blue ocean' strategy, where profit and survival are generally more predictable. For instance, Builk is a famous technology start-up company that developed an innovative e-marketplace, which not only links construction-material providers with construction companies but also provides free software-as-a-service (SaaS) for construction-specific enterprise resource planning. Despite hard times in 2010, Builk realised solid revenues from major construction-material companies' sponsorships and from industry-specific B2B digital media as a large number of SME construction contractors adopted SaaS and made purchases on the Builk platform. Today, there are more than 18,000 construction SMEs in Thailand, Indonesia, Lao PDR, Myanmar, and Cambodia (Builk Construction United, 2018).

## How Can E-marketplaces Turn Thailand into a Distributive Economy?

Developing and operating 'blue ocean' e-marketplaces, however, requires vision, bravery, creativity, innovation, and deep understanding of market needs. It also needs good design and the collaboration of many stakeholders. Lack of even just one crucial factor may lead to instability.

Uber is one amongst many thought-provoking examples of 'blue ocean' operators. Enjoying success in Thailand for many years, Uber later ran into trouble as it disrupted the conventional taxi business. Customers and Uber drivers were on the winning side. Customers were fed up with conventional taxi drivers who refused to pick them up during rush hours or at certain locations and who preferred to take only foreigners. Many customers also preferred the conveniences offered by Uber, such as better cars, mobile apps for booking and tracking, and an option for credit card payment. Demand drove up the numbers of individuals with a private vehicle who wanted to earn more money. Uber drivers could work anytime, day or night, 365 days a year, and, because of the surge pricing system, were paid more when demand rose during rush hour. Conventional taxi drivers, however, thought they were on the other side of this zero-sum situation. They felt that Uber drivers stole customers from them and they complained that competition was not fair since they were bound by regulations whilst Uber drivers were not. Clashes between taxi drivers and Uber drivers increased and even became physical. In 2016, the Department of Land Transport of Thailand halted the motorbike taxi services by Uber and Grab and later announced that Uber and similar private ride-hailing services were illegal. Uber drivers were reportedly fined ฿2,000 (about US\$60) for providing taxi services without a licence. Uber and other operators approached the government to discuss how to resume operations. Uber ceased operating and sold its business to Grab, which remains in an uncertain and ambiguous market.

Government-supported e-marketplaces must also compete in the free market. RiceOnline, operated by the Department of Business Development, is an example of failure. The project's objective was to connect rice farmers throughout the country with grocery stores. Before shutting down, the project reported that 399 farmers and 76 grocery stores had participated. The authorities said a key reason for failure was many farmers' lack of Internet access.

Thaitrade.com, a government-run B2B e-marketplace established in 2011 by the Department of International Trade Promotion, aims to connect Thai sellers, particularly SMEs, with international buyers. In 2016, deals made via Thaitrade.com totalled 766, by buyers from 61 countries, amounting to ฿693.9 million. The most popular goods were food and beverages, automobile and auto parts, souvenirs and home decorative items, furniture, gems, and accessories (Thaitrade, 2018).

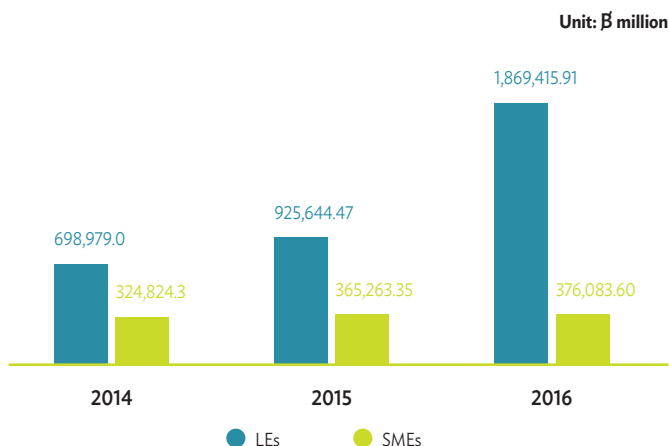
## E-commerce Connectivity in ASEAN

Recently, Thaitrade.com Small Order OK (Thaitrade.com SOOK) was launched as a business-to-business-to-consumer (B2B2C) platform: SMEs can offer small quantities of products to international buyers, who might want to try the product before making a large order later. Whilst success stories are numerous, the platform's wider impact is yet to be evaluated.

As for outside-out e-marketplaces, despite the lack of official records, many experts believe that few Thai SMEs can sell their products abroad. Thai officials recently reached an agreement with Chinese officials and the e-commerce giant Alibaba Group to place Thai durian on Tmall.com. CNY3 billion (US\$478 million) worth of Monthong durian (80,000 pieces) was snatched up in minutes (Bangkok Post, 2018). This e-marketplace should focus on orders' regularity and consistency to sustain Thai SMEs and farmers.

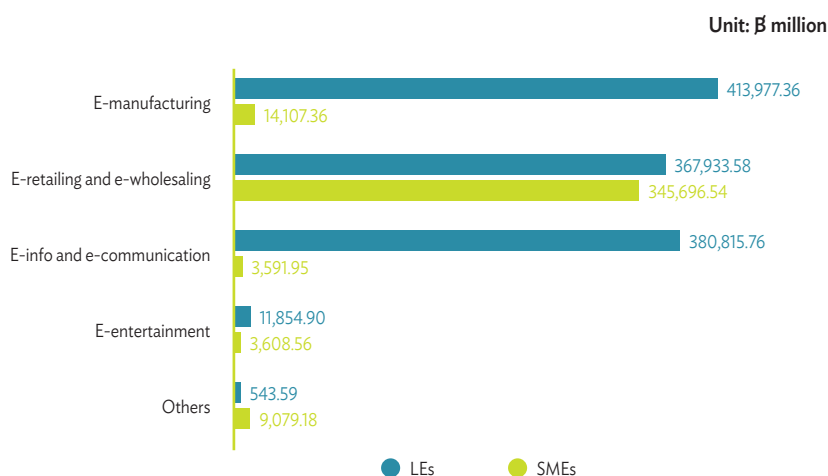
The lack of data makes impossible any detailed analysis of the impacts of e-marketplace operations on the performance of SMEs and the poor. There is no solid proof that e-marketplaces can provide farmers with either greater farm-to-fork opportunities or limitless opportunities for off-farm earnings. The evidence suggests that although SMEs can reap benefits from e-marketplaces, their sales are much smaller than those of large e-enterprises, and the gap has been widening in recent years (Figure 6.8). Only SMEs' retail sales are comparable to those of large e-enterprises (Figure 6.9) (Electronic Transactions Development Agency, 2017).

**Figure 6.8: Sales of Large and of Small and Medium-sized E-enterprises in Thailand, 2014–2016**



LE = large enterprise, SMEs = small and medium-sized enterprises.  
Source: Electronic Transactions Development Agency (2017).

**Figure 6.9: Sector-wise Large and Small and Medium-sized E-enterprises in Thailand, 2016**



LE = large enterprise, SMEs = small and medium-sized enterprises.  
Source: Electronic Transactions Development Agency (2017).

### 3.4. Legal Interventions Affecting the Development and Operation of E-Marketplaces in Thailand

The rapid growth of e-commerce in Thailand has been driven mainly by the private sector. Recognising that private e-marketplaces would be vital for developing e-commerce, the government has attempted to create a favourable regulatory eco-system to ensure predictability, transparency, security, fair competition, and consistency. The government has also facilitated and promoted greater business participation, particularly by SMEs and the poor, in promising e-marketplaces.

There are at least five legal and regulatory requirements for those who participate in developing and operating e-marketplaces.

First, the Regulation of Ministry of Commerce on Persons who Have the Duties for Commercial Registration (No. 11), B.E. 2553, requires e-marketplace operators and e-sellers to register with the Department of Business Development within 30 days or pay a fine of up to ฿2,000 (US\$64) and a daily fine of up to ฿100 (US\$3) until registration is complete. Yet, official statistics reveal that unregistered sellers are not uncommon. As of January 2018, there were only 32,235 registrants or about 5% of the total number of e-enterprises estimated by the Electronic Transactions Development Agency (2017), implying that enforcement of the Commercial Registration Act is weak.

## E-commerce Connectivity in ASEAN

Second, just like traditional merchants, e-marketplace operators and e-sellers must comply with the civil and commercial code, and their products and services must be regulated under the Electronic Transactions Act B.E. 2544, which gives electronic transactions the same legal effect as traditional ones. Due to loopholes and regulatory agencies' passivity and ignorance, some e-marketplaces are susceptible to unfair commercial practices. The Department of Business Development says that Uber registered itself as providing market research services and claimed public transportation regulations did not apply to it. Grab was questioned about its excessive promotional fare subsidy; in its 5 years of the operations, its revenue was ฿665.8 million (US\$20.1 million) but its net loss was ฿2,123.1 million (US\$63.9 million): sceptical regulators questioned the 300% loss-to-revenue ratio.

Third, to protect consumers against false, misleading, and unfair advertising of goods and services, the Consumers Protection Act B.E. 2522 stipulates that goods and services purchased through electronic means should be treated the same way as those purchased through traditional means.

Fourth, the Penal Code of Thailand stipulates that the offences related to electronic card forgery – for example, making, using, and owning forged electronic cards – are criminal offences and shall be punished with a fine or imprisonment.

Fifth, e-marketplace operators as well as individual or corporate e-sellers with incomes exceeding the exemption threshold are required to pay income and value-added taxes. Although this requirement applies to anybody who has earnings in Thailand, tax avoidance and tax evasion are not uncommon amongst online SMEs and even large multinational companies that do not have a presence in Thailand under domestic rules. The Department of Business Development says that only 533 registered e-enterprises submitted their financial reports to the department and paid income tax. At the time this chapter is drafted, Thailand was developing e-commerce taxation rules against tax avoidance and tax evasion.

The long-awaited Personal Data Protection Act (PDPA) became law on 28 February 2019 but entered into force when it was published in the Royal Gazette on 27 May 2019. It will be the first consolidated law generally governing data protection and is likely to have impacts on the development and operation of e-marketplaces. For example, the law requires overseas e-marketplace operators to appoint a local representative, defines the requirements and exemptions for the transfer of personal data to a third country that does not have an adequate level of protection, and provides for punitive damages up to twice the value of the actual damage.

The following are the latest government efforts to facilitate and promote the development and operation of e-marketplaces:

First, the Department of Business Development has long used a trustmark to set development and operation standards for secure and trustworthy e-platforms. E-marketplace operators and e-sellers are encouraged to apply for a department-verified trustmark to increase customers' confidence. As of January 2018, 314 websites had the trustmark (Department of Business Development, 2018).

Second, the Electronic Transactions Development Agency launched Thaiemarket.com as a gateway to promote websites of verified e-marketplaces and e-sellers. Some food-, travel-, and health-related products and services are typical showcases (Electronic Transactions Development Agency, 2018). English-language content is scant but developing.

Last, the Electronic Transactions Development Agency has set up an e-commerce complaint centre to deal with complaints and inquiries about online transactions: 24-hour '1212 hot line', '1212@mict.mail.go.th', '1212OCC Facebook', and '1212OCC mobile application' are one-stop services. In 2015, there were 592 complaints about online transactions (Electronic Transactions Development Agency, 2018).

The government, however, has taken no concrete, specific action to support SMEs and the poor. The Social Enterprise Act – under which companies investing in social enterprises can enjoy corporate income tax exemption of the amount invested in the social enterprise, provided the social enterprise meets all the requirements – has been put on hold. The government may need to enact it soon and consider providing more incentives to those who wish to develop innovative and more efficient models to increase opportunities for SMEs and the poor.

#### **4. Key Success Factors for and Obstacles Against the Development and Operation of Pro-equality E-marketplaces**

Available data shows that the impacts of e-marketplaces on SMEs and the poor are mixed. Whilst many e-marketplaces provide them with sales channels and opportunities to partner with suppliers, some pose sizable challenges. This section uncovers lessons learned, good and bad, from the development and operation of e-marketplaces, and solutions to alleviate income inequality.

### 4.1. Key Success Factors

The proliferation of e-marketplaces has changed the way businesses and individuals interact with customers. Enabling this shift are four factors:

First, consumer behaviour has changed dramatically: it is now more convenience- and mobile-oriented as observed by increased Internet and mobile phone use. The Internet penetration rate markedly increased from 28.9% in 2013 to 52.9% in 2017, whilst the mobile phone penetration rate stayed high at more than 70% in the same period. Strikingly, the country's smart phone penetration rate reached 72.3% in 2017 from only 8.0% in 2013 (National Statistical Office, 2017). The changes suggest that most Thais consider the mobile device as part of life and are well-versed in digital technologies and e-commerce. Although a large player dominates the market, SMEs have much room for growth as Thais become accustomed to e-commerce.

Second, rapidly improving logistics and e-payment systems allow more people across the country to quickly buy and sell at their convenience. The moment of effective consumption can be separated from the moment of purchase: after buying, e-buyers can choose the delivery time (immediate, scheduled) and location (home, office, store, designated collection point). Thanks to the liberalised business environment, there are many efficient logistics providers such as Thailand Post, SCG Express, Kerry, and Lalamove. Fierce competition keeps delivery costs down.

The e-payment system is ready to move towards a cashless society, where money transfer is easier, faster, and cheaper. Introduced in 2016, PromptPay aims to reduce transaction costs and facilitate money transfers amongst individuals, corporates, and the government. The PromptPay system matches the bewildering 10-digit bank account number with an identification card number and/or cell phone number. Instead of using a traditional bank account number, a national identification number or phone number is used as a fund transfer code. Normally, banks charge ฿25 (US\$0.75) for an interbank transfer of up to ฿10,000 (US\$300), and ฿35 (US\$1.06) to transfer ฿10,001– ฿50,000 (US\$301–US\$1,500). With PromptPay, fees are waived for transactions of up to ฿5,000 (US\$150); ฿2 (US\$0.06) is charged for transactions of ฿5,001–฿30,000 (US\$151–US\$900), ฿5 (US\$0.15) for ฿30,001– ฿100,000 (US\$901–US\$3,000), and ฿10 (US\$0.3) for anything above ฿100,000 (US\$3,000). Seven banks have removed fees for interbank and cross-clearing-zone money transfers through their digital platforms. Even if e-buyers and e-sellers live in different provinces, they pay no fees when paying through Internet banking services.

Third, with respect to growing market opportunities, e-sellers are becoming more aware, adaptive, and proactive. Many employ digital marketing strategies to build strong relationships with customers, engage them with customised advertising messages, and proactively close sales. While the first and second factors are indifferent to e-seller size, the capability to successfully utilise digital marketing strategies depends on business size. Online SMEs in almost all industries have been outperformed by large rivals. The government has therefore developed a variety of projects to make SMEs more competitive, including SMEs Go Online implemented by the Office of Small and Medium Enterprises Promotion. SMEs and One-Tambon-One-Product community enterprises are provided with hands-on capacity-building courses. As of December 2017, about 20,000 participants had placed a total of 30,000 products and services in e-marketplaces (SMEs Go Online, 2018). Two main questions arise: Are the courses practical enough to help these SMEs survive? And will a post-project monitoring and/or mentoring system be put in place?

Last, Thailand has witnessed the widespread emergence of supporting industries, especially in the last few years. They provide the ‘secret ingredients’ of e-business success, such as digital platform development, digital marketing consultancy, brand image building, customer relationship management, big data analysis, consumer-behaviour machine learning, and language translation. With these services, e-marketplace operators and e-sellers can engage with wider and better-targeted customer prospects in a more cost-effective and labour-saving way. SMEs whose resources are limited can use these services to benefit their business and strive for bigger goals.

### 4.2. Key Obstacles

Many SMEs and the poor cannot take advantage of opportunities in a digitalised competitive arena. The following are some bottlenecks that stifle the development and operation of e-marketplaces and must be unblocked:

First, SMEs and the poor have uneven access to the Internet. Official statistics show that no more than 10% of the bottom half of Thais were able to surf the Internet, and far fewer rural than urban people had Internet access (National Statistical Office, 2017). The government therefore started a mega-project to construct countrywide fibre-optic broadband networks and provide universal low-cost Internet access and even thousands of free WiFi hotspots. Of 75,032 villages countrywide, 40,423 have no Internet connection and are expected to be equipped with 30/10 Mbps Internet connection. Physical infrastructure in 24,700 villages has been completed but no one has been able to use the Internet because the government and the Internet service providers disagree on prices.



Second, some e-marketplaces lack a reliable seller-screening mechanism. E-marketplace operators have to compete for expanding supplier and customer bases. Whilst an increasing number of sellers could benefit customers, it could also be a peril. Without a proper screening mechanism, untrustworthy sellers can damage the reputation of not only the e-marketplace but also of innocent sellers. In December 2017, a Thai customer filed a complaint against Agoda, one of the world's fastest-growing online travel booking e-marketplaces, after booking a non-existent hotel in Bangkok. Normally, Agoda screens accommodations before adding them to its list, but in this case it did not detect the fraud: the seller used a false address and pictures of another hotel.

Third, legal interventions related to regulating, facilitating, and promoting e-marketplaces are inadequate or ineffectively implemented or have loopholes. New laws and regulations are urgently needed to cover social enterprises, personal data protection, and e-commerce taxation. A social enterprise law is needed because incentives to develop innovative and pro-equality e-marketplaces are unclear and insufficient. The upcoming Personal Data Protection Act should meet international standards to build trust amongst e-marketplaces, e-sellers, and e-buyers, especially in cross-border electronic transactions. Well-designed regulations on e-commerce taxation could narrow the loopholes in collection of income tax, consumption tax, and tariffs.

Last, some regulatory agencies are blamed for their passivity, ignorance, and indecisiveness. In the case of Uber, it took about 7 months for the Department of Land Transport to announce that using privately registered 'black-plate' or newly purchased 'red-plate' vehicles was in violation of the Motor Vehicle Act. Then it took another 11 days for the department to hold the first meeting with Uber and similar operators. No agreement was reached and it took almost 3 months for the department and police to start arresting and fining Uber drivers. Uber was not charged although it matched drivers and customers. Two weeks later, the second meeting also failed to reach an agreement as Uber insisted it did not violate any law since no legal instruments on ride-sharing services were in place. Uber operated until late March 2018, when it decided to sell its Southeast Asian operations to Grab. Although ride-sharing service providers have been doing business in the country for more than 4 years, there is still no clear direction in policy, regulations, and regulatory practices to deal with this diverse, sophisticated, and disruptive industry. Regulatory agencies should be forward-looking and decisively position themselves as risk-based or precautionary. If they want to gather more data before taking action, the regulatory sandbox – a mechanism for developing regulations that keep up with the fast pace of innovation – may be a good option. Once regulations are determined, strong enforcement accompanied by strong penalties should be pursued.

### 5. Conclusion and Policy Recommendations

Thailand is prosperous but its prosperity has not been fairly shared. Whilst large enterprises and the rich get richer, SMEs and the poor must struggle to survive. Serious social intervention is needed to give SMEs and the poor greater opportunities, especially to generate income.

Using a structure-conduct-performance framework, this chapter argues that e-marketplaces, although promising, have not reduced income inequality. Many have failed. Only those thoughtfully designed and well implemented have survived and government support is needed to ensure their sustainable growth.

Policymakers envision 'Thailand 4.0' – an economic model to pull the country out of the middle-income trap and transform it into a distributive economy with sustainably inclusive growth. They emphasise technology as a tool to boost the economy and have mandates to develop e-commerce. To unlock untapped potential and ensure that e-marketplaces will achieve Thailand 4.0, the following are recommended:

The government should

- act as a facilitator and a regulator, not an operator;
- be more active and impartial, and provide an attractive investment climate for innovative e-marketplaces;
- promote the development and operation of pro-equality e-marketplaces through the long-awaited Social Enterprise Act; and
- provide universal access to reasonable quality of Internet services at an affordable cost.

Private companies should

- be more innovative and customer-centric, and aim for a 'blue ocean' strategy;
- register under the legal and regulatory regimes; and
- collaborate more with all stakeholders, especially media and customers.

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# Policy Environment for E-commerce Connectivity in Viet Nam

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Lurong Chen

## 1. Background

Viet Nam is transforming its growth model from a centrally-planned economy to a market economy. After more than 30 years of renewal, Viet Nam maintains the state-owned sector and gives privileges and benefits to state-owned enterprises; 85% of the gross domestic product (GDP) is based on trade. Viet Nam actively builds regional solidarity, promoting and strengthening the Association of Southeast Asian Nations' (ASEAN) position. Whilst digital technology is paving the way for domestic and foreign businesses to enter each other's markets through joint ventures and global value chains, Viet Nam's business environment – in the broadest sense, both real and virtual environments – is still a barrier to connectivity amongst domestic and regional enterprises and to regional value chains and the creation of a regional competitive platform (Grant Thornton, 2018; Hoa and Yen, 2016).

Specifically, Chen (2017) and OECD (2017) consider e-commerce connectivity in four layers: information flow, logistics, cash flow, and integration. They point out that the development of cross-border e-commerce will need smooth connectivity in both the cyberspace and the physical world, as well as the efficient online-offline linkages. To unleash the potentials of the digital economy, it is important for emerging Asian countries to solve those 'short slabs' in connectivity.

The Asian Development Bank Institute (ADBI) (2014) also points out that connectivity is crucial to make ASEAN-based companies more competitive, including in production networks and agriculture-related supply chains. Efficient connectivity is important to ensure region-wide food security. Due to the presence of network externalities, benefits are larger when more areas are connected because the information technology (IT) revolution has made efficient communication central to economic and social life (ADBI, 2014).

For a competitive, innovative, and dynamic ASEAN, the ASEAN Economic Community (AEC) Blueprint 2025 ‘supports fair competition,..enhanced access to information for businesses, reaching out to relevant stakeholders through an enhanced regional web portal for competition policy and law, outreach and advocacy to businesses and government bodies, and sector-studies on industry structures and practices that affect competition’ (ASEAN, 2018). The blueprint also states ‘Establish regional cooperation arrangements on competition policy and law by establishing competition enforcement cooperation agreements to effectively deal with cross-border commercial transactions’ (ASEAN, 2018). Beyond reducing tariffs and non-tariff barriers as well as removing regulatory impediments to businesses, ASEAN governments are seeking ways to ensure a seamless flow of goods and services from the time they leave the suppliers to the time they reach the customers. Governments believe the digital economy will rapidly connect ASEAN businesses.

The four pillars of the AEC are (i) a unified production base and a common market with free movement of goods, services, skilled labour, and free flow of capital; (ii) an area of balanced economic development that will narrow the development gap and accelerate the integration of countries, especially the less-developed members, through regional and sub-regional cooperation; (iii) a highly competitive economic region; and (iv) a fully integrated economic region in the global economy.

Economic relations often greatly depend on the business environment of the member countries, which have different cultures, different economic institutions, and different levels of economic development, creating difficulties such as longer time needed for procedures and higher business costs. The top concerns of foreign investors are difficulty in forming local partnerships in ASEAN countries (49%), lack of legal clarity and rule of law (85%), political instability (50%), and lack of skilled labour (33%); one-third of foreign investors surveyed do not think the AEC has helped their company expand in the region (Singapore Institute of International Affairs, 2017). Domestic policies, a lack of a coherent digital strategy, inadequate infrastructure, and weak connectivity within and between countries pose challenges to achieving the AEC’s goals.

This chapter applies Chen (2017)’s analytical framework to examine Viet Nam’s e-business legal environment. It provides insights and policy recommendation from the following four aspects: (i) how to enable e-commerce connectivity; (ii) the current state of e-commerce connectivity; (iii) e-commerce connectivity weaknesses, problems, and challenges; and (iv) the Vietnamese government’s strategy/plan to solve these problem, taking into account possible regional and sub-regional cooperation efforts as well.

### 2. Literature Review

WTO (2013: 2) defines e-commerce as ‘the sale or purchase of goods or services, conducted over computer networks by methods designed for the purpose of receiving or placing of orders’. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. To be included are orders made over the web, extranet or electronic data interchange. The type is defined by the method of placing the order. To be excluded are orders made by telephone calls, facsimile or manually typed e-mail.

As the cost of international trade is reduced, consumers look beyond national borders for the best online deals. Cross-border e-commerce involves goods and services delivered from a supplier in one country to a consumer in another country. In the services trade, cross-border e-commerce also brings new business opportunities. Online software and app markets such as App Store and Google Play help deliver digital products from business developers to billions of smart devices. E-commerce helps businesses scale up and expand their outreach by (i) building an international reputation; (ii) expanding outreach as it lowers the threshold required for a company to become visible in the global market, because once the number of users surpasses a certain threshold, the marginal cost of attracting newcomers to a website is minimal; (iii) reducing market research costs thanks to big data; (iv) dis-intermediating in international trade as a business can ship goods directly to the end user; and (v) leveraging e-commerce ecosystems with matchmaking services.

The business community alone cannot create e-commerce connectivity nation- and region-wide. E-commerce connectivity ‘is fourfold: (i) smooth exchange of data and information (connectivity for information flow), (ii) delivery of goods and services (logistics connectivity), (iii) payment (connectivity for cash flow), and (iv) seamless links between the virtual and physical parts of e-commerce network (integrating connectivity)’ (Chen, 2017: 11).

According to ITC (2016), a company can build up capacity in e-commerce through effort on three groups of factors. First, fitness of products and services that match all criteria in adopting e-commerce to access markets. Second, access to technology (since e-commerce international competitiveness requires the company to access state-of-the-art technology to create an online presence and offer electronic payment). Third, knowledge and skills, including (i) language skills to access foreign markets and (ii) computers and Internet and related technologies to ensure security to prevent fraud, information leaks, and all forms of attack that can undermine foreign consumers’ confidence.

However, it will be difficult for individual enterprises to affect some other factors, especially the regulatory framework that rules technical communications and interconnectivity standards, legality and modality of digital signatures, certification and encryption, as well as disclosure, privacy, online content, and tax policies. In principle, the market will desire those rules that provide adequate e-commerce standards, and easy to use.

Eifert, Gelb, and Ramachandran (2005) define the business policy environment as ‘a group of policies, institutions, physical infrastructure, human resources and geographic features that affect the effectiveness of different enterprises operating in them’. At the enterprise level, the business environment might affect the cost of production, whilst at the industry level it can affect market structure and competitiveness (Eifert, Gelb, and Ramachandran, 2005). Deficiencies in the law protecting intellectual property rights, or a weak policy framework, can result in massive losses that may strip an e-commerce business down to nothing. In this regard, e-commerce policy is a legal tool to protect and guide the business owner and create a safe business environment. Entities participating in e-commerce must comply not only with direct regulations on e-commerce but also with relevant business investment, commercial, and civil laws. Therefore, developing and improving the e-commerce legal system is an urgent need.

### 3. Data

In this chapter, primary data were collected via surveys of 132 consumers; 61 e-commerce and traditional enterprises; and 18 experts, including 5 policymakers. Amongst the 18 experts, 5 were ministry officials and 5 were leaders of Vietnamese and foreign enterprises, and 3 were policymakers and policy reviewers (research institutes, chambers of commerce and industry). The surveys were conducted using questionnaires and direct interviews.

Secondary data were from (i) surveys of small and medium-sized enterprises (SMEs) conducted by the Central Institute for Economic Management (CIEM), Ministry of Planning and Investment (MPI), UNU-WIDER, and Institute of Labour and Social Sciences (ILSSA); (ii) Viet Nam logistics reports prepared by the Ministry of Industry and Trade; (iii) the Vietnam E-commerce Index prepared by the Vietnam E-commerce Association; (iv) business statistics published by Viet Nam’s General Statistics Office; and (v) the provincial competitiveness assessment (PCI) by the Vietnam Chamber of Commerce and Industry (VCCI).



### 4. E-commerce Connectivity in Viet Nam

In Viet Nam, e-commerce activities are regulated by Decree 52/2013/ND-CP and Circular 47/2014/TT-BCT. The Ministry of Industry and Trade is the direct management agency. Due to its unique political-economic system, entrepreneurs in Viet Nam are facing a ‘forest of regulations’ -- more than 5700 administrative conditions imposed by either the central government or various ministries and agencies. To obtain necessary license(s) of doing business, it will need to go through lengthy administrative procedures. This is certainly not a positive factor to promote e-commerce. For that reason, Jack Ma, the former CEO of Alibaba, a Chinese giant e-commerce platform, once argued that ‘Vietnam needs high-speed Internet, and administrative procedures need to be sped up as well’ (Huyen, 2017).

#### 4.1. Connectivity for Information Flow

##### 4.1.1. Market structure

Currently, there are four major network operators in Viet Nam: (i) Vietnam Posts and Telecommunications Group (VNPT); (ii) Corporation for Financing and Promoting Technology (FPT); (iii) Military Telecommunications Group (Vietel), a 100% state-owned defence economic enterprise run by the Ministry of Defence; and (iv) Vietnam E-Commerce Association (VECOM), which is a non-governmental organisation of businesses, organisations, and individuals directly conducting e-commerce, developing e-commerce applications or conducting research on or providing e-commerce services.

VNPT is the largest state-owned economic group specialising in investment, production, and business in posts and telecommunications. It entered the market first. In 1997, it was assigned by the government to build a backbone network connecting the national and international Internet. So far, VNPT’s fibre-to-the-home (FTTH) optical cable network has covered 97% of communities nationwide. VNPT fixed broadband service accounted for nearly 50% of the domestic market. It also engages in operating Viet Nam’s first two satellites, Vinasat-1 and Vinasat-2.

FPT is the largest IT services company whose main business is providing IT-related services in Viet Nam. FPT’s network is now top-rated and provides Internet Protocol version 6 (IPv6). By the end of 2017, FPT had completed visualising infrastructure in Hanoi, Ho Chi Minh City, and some major cities and provinces, completing the upgrade of bandwidth for individual customers and enterprises. FPT actively researched and launched additional services for the virtualisation transformation of enterprises, such as hiring virtual servers and providing cloud computing service HI GIO Cloud.

Broadband ADSL first appeared in Viet Nam in 2003. Since then, the number of Internet users has increased nearly seven-fold, accounting for one-fourth of the total population by the end of 2009. The launch of 3G in late 2009 and the deployment of 4G service in 2016 further stimulated the market booming. However, the study by Akamai shows that by the end of 2015, Viet Nam still had low-than-the-average Internet connection when compared to others (Tinh, 2016).

### 4.1.2. Regulatory Framework

In 2005, the National Assembly approved three laws that lay down the legal basis for e-commerce: Commercial Law, Civil Code, and Law on E-Transactions. In addition, E-commerce activities and the related dispute settlement are subject to the Law on Information Technology in 2006, Telecommunications Law 2009, Penal Code 1999 (amended and supplemented in 2009), Law on Consumer Protection in 2010, Advertising Law 2012, Investment Law 2014, and Enterprise Law 2014.

Tables 7.1 and 7.2 list the decrees related to e-commerce transactions and dispute settlements, respectively.

Decree 52/2013/ND-CP lists four e-commerce principles: (i) ensure free, voluntary agreement in transactions; (ii) determine the scope of business activities; (iii) define consumer protection and obligations; and (iv) deal in goods and services that are subject to conditional business. Investment and doing business in e-commerce is also subject to Investment Law 2014 and Enterprise Law 2014. There are no additional requirements or restrictions on online business.

Circular No. 47/2014/TT-BCT by the Ministry of Industry and Commerce provide guidance on the management of e-commerce websites in details based on Decree No. 52/2013/ND-CP. Websites that provide special services, such as those for finance, banking, credit, insurance, trade, exchange of money, gold, foreign exchange and other means of payment, online games, auction, social media, need to be registered and get approval before the operation. For instance, according to Circular No. 47/2014/TT-BCT, individuals are not allowed to trade in goods and services subject to business conditions;<sup>1</sup> entrepreneurs and

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<sup>1</sup>The business condition here is the limitation of business products. Article 3 of this circular states: ‘Traders, organizations and individuals must not use e-commerce websites to trade in goods subject to restricted business: hunting rifles and shotguns, sport weapons, support tools; plants and wild animals, precious and rare wild animals, including living things and processed parts of them; cigarettes, cigars and other finished drug products and assorted spirits; other goods restricted from trading as prescribed by law’.

**Table 7.1: Decrees in Regulating E-commerce Transactions**

Decree	Issued date	Content
1) Decree No. 57/2006/ND-CP	9 June 2006	E-commerce
2) Decree No. 52/2013/ND-CP	16 May 2013	E-commerce (replacing Decree 57/2006/ND-CP)
3) Decree No. 26/2007/ND-CP	15 February 2007	Implementation of the Law on E-Transactions, Digital Signatures, and Digital Signature Certification Services
4) Decree No. 106/2011/ND-CP	23 November 2011	Amending and supplementing Decree No. 26/2007/ND-CP on Signatures and Signature Verification Services
5) Decree No. 170/2013/ND-CP	13 November 2013	Amending and supplementing a number of articles of Decree No. 26/2007/ND-CP, 15 February 2007, detailing the implementation of the Transaction Law Electronic Signatures and Certification Services and Decree No. 106/2011/ND-CP, 23 November 2011, amending and supplementing some articles of Decree No. 26/2007/ND-CP 15, February 2007
6) Decree No. 27/2007/ND-CP	23 February 2007	Electronic transactions in financial activities
7) Decree No. 35/2007/ND-CP	8 March 2007	Electronic transactions in banking activities
8) Decree No. 90/2008/ND-CP	13 August 2008	Anti-spam
9) Decree No. 77/2012/ND-CP	6 April 2011	Amending and supplementing Decree No. 90/2008/ND-CP on anti-spam
10) Decree No. 25/2011/ND-CP	5 October 2012	Detailing and guiding the implementation of a number of articles of the Telecommunications Law
11) Decree No. 43/2011/ND-CP	13 June 2011	Regulating the provision of online information and services on websites or electronic portals of state agencies
12) Decree No. 101/2012/ND-CP	22 November 2012	Non-cash payment; Decree No. 72/2013/ND-CP, 15 July 2013, on the management, provision, and use of Internet services and information on the Internet
13) Decree No. 154/2013/ND-CP	08 November 2013	Regulating information technology parks
14) Decree No. 181/2013/ND-CP	14 November 2013	Detailing the implementation of some articles of the Advertising Law
15) Decree No. 08/2018/ND-CP	15 January 2018	Revision of the decree relating to business investment conditions

Source: Author, based on government documents.

Notes: See Annex for official documents on the implementation of the listed decrees.

**Table 7.2: Decrees in Regulating E-commerce Behaviours**

Decree	Issued date	Content
1) Decree No. 158/2013/ND-CP	12 November 2013	Regulating sanctions for administrative violations in culture, sports tourism, and advertising
2) Decree No. 174/2013/ND-CP	13 November 2013	Regulating sanctions for administrative violations in posts, telecommunications, IT, and radio frequency
3) Decree No. 25/2014/ND-CP	7 April 2014	Regulating the prevention of and combat against crimes and other violations of law using hi-tech
4) Decree No. 185/2013/ND-CP	15 November 2013	Regulating sanctions for administrative violations in commercial activities, production, sale of counterfeit goods, prohibited goods, and protection of consumer interests
5) Decree No. 124/2015/ND-CP	19 November 2015	Amending and supplementing a number of articles of Decree No. 185/2013/ND-CP, 15 November 2013, on sanctions for administrative violations in trade, production, sale of counterfeit goods, prohibited goods, and protection of consumers' interests

Source: Author, based on government documents.

Notes: See Annex for official documents on the implementation of the listed decrees.

organisations may set up websites for trading in goods and services subject to conditional business, and must publish on their websites the serial number and date and place of issuance of certificates of satisfaction. Such goods or services must have business registration certificates. By 2016, there were 13,510 websites, up from 9,424 in 2015, and 93 online promotion websites and 20 online auction sites (Ministry of Industry and Trade, 2017).

Decree 08/2018/ND-CP published in 2018 loosened some conditions for establishing and managing e-commerce websites. It removed the requirements about the structure, features, and key information that the service providers need to post on the websites. Basically, organisations and individuals who have been granted individual tax codes are allowed to set up e-commerce websites with or without a valid domain name. The decree abolished the financial and technical requirements for traders and organisations providing e-contract authentication services as well.

Section 2 of Decree 52/2013/ND-CP contains eight articles to regulate contracts between online sellers and buyers. Regarding online dispute resolution, Article 76 of Decree No. 52/2013/ND-CP provides that e-commerce site owners may not unilaterally resolve disputes without the customer's consent. In practice, it is difficult to resolve online transaction disputes, especially the cross-border ones that involve high value and multiple parties. When a dispute occurs, enterprises often do not know how and to which legal agency to file complaints. Although Clause 3, Article 95 of Civil Procedure Code 2015 stipulates 'electronic data, electronic voucher, electronic mail, telegraph, facsimile and other similar forms in accordance with the law on e-transactions' are considered evidence,<sup>2</sup> there is no clear guidance how electronic records and evidence can be used in arbitration or court proceedings.

### 4.2. Logistics Connectivity

Viet Nam has joined a series of regional agreements that facilitate logistic connectivity, such as the Border Transport Agreement (1999), the Agreement Facilitating Transit Goods (1968), and the ASEAN Multilateral Transport Framework Agreement (2005). Logistics service providers in Viet Nam are required to abide by the international commercial terms or incoterms; implement credit agreements; take out cargo insurance; and follow rules on loading, unloading, storage, and delivery.

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<sup>2</sup>The E-transaction Law 2005 and Decree No. 52/2013 ND-CP on E-commerce are silent on this matter.

## E-commerce Connectivity in ASEAN

Decree No. 160/2016/ND-CP, 29 November 2016, stipulates the business conditions relating to organisational structure, finance, and human resources. In line with international economic integration, Viet Nam made commitments on maritime transport services regulated by ASEAN and the World Trade Organization (WTO), commitments under the Trans-Pacific Partnership Agreement/Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and other new free trade agreements with the European Union, Korea, and the Asia-Europe Union, thereby creating a legal, equitable, and transparent environment for domestic and foreign shipping businesses.

The 2005 Commercial Law replaced the 1997 Commercial Law, in which the term 'logistics' was replaced by the previous term 'delivery service'. In 2005, Viet Nam amended the 1990 Maritime Code in line with international law. In 2006, Viet Nam officially recognised the Convention on Facilitation of International Maritime Traffic. At the same time, Customs Law, Credit Institutions Law, Insurance Law, as well as various laws on aviation, road, railroad, inland waterways were also established. Decree 140/2007/ND-CP regulates conditions for doing business in logistics services and limiting the liability of logistic service. Decree 163/ND-CP, which took effect on 20 February 2018, facilitates foreign enterprises' participation in e-logistics development.

### 4.2.1. Problems

The Ministry of Industry and Commerce business surveys on logistics and e-commerce show that although logistics and delivery services have grown rapidly since 2015, they still do not meet the demand from the fast growth of e-commerce. (Chien, 2018). In Viet Nam, the major difficulties in developing logistics and e-commerce come from three aspects: legal environment, market development, and human resources.

First, logistics administrative procedures are complex. It is not easy to meet government conditions, especially for small and micro business owners (Thao, 2018). Second, there are concerns how the development in logistics services can meet current and future e-commerce needs. In general, both hardware (ie. physical construction) and software (ie. planning and management) of logistics need to improve. For instance, it is difficult for some ports to maintain the required depth to accommodate 30,000 deadweight tonnage (DWT) vessels in some ports due to the high cost of dredging. Using many smaller vessels leads to congestion and waiting times up to 10 days, sometimes even 30 days or more. This results in even higher cost and lower efficiency. Moreover, some ship owners give 'tips' to authorities to receive priority, causing tip harassment and corruption.

In Viet Nam, logistics services are mainly concentrated in big cities such as Ho Chi Minh, Hanoi, Hai Phong, and Da Nang (Table 7.3). However, it is still quite limited for the majority of the population, who are living in the rural areas, to access logistics services.<sup>3</sup> Ngan (2018) estimates that logistics costs account for 30% of e-commerce sales, higher than in many countries. The high cost of logistics and delivery services of tangible products is one reason why the online purchase price is not significantly lower than the traditional purchase price. Vietnamese carriers' capacity is low and connectivity between regions is not what it should be. E-commerce logistics is plagued by separate logistics services, legal traffic regulations are changeable, administrative procedures are complicated, qualified personnel and experience are lacking, and low technology application in e-logistics.

**Table 7.3: Distribution of Logistics Enterprises by Province, 2017**  
(% total logistics enterprises)

Hanoi	Bac Ninh	Quang Ninh	Hai Phong	Binh Dinh	Da Nang	Dong Nai	Ho Chi Minh	Binh Duong	Ba Ria	Can Tho	Others
18.2	0.7	1.9	10.8	0.7	2.4	2.4	54.0	1.3	2.1	0.3	5.2

Source: Ministry of Industry and Trade (2017).

### 4.3. Connectivity for Cash Flow

More than 50% of Vietnamese uses the Internet and about 54% uses smart phones. This is a favourable condition for mobile payments, non-cash payments, and comprehensive financial services. Viet Nam is the 19th market where JP Morgan Chase Financial Group deployed Samsung Pay. It did so because (i) the government's policy direction is encouraging, (ii) the retail market is among the top-three destinations of investors in Asia, (iii) more than 110 million bank cards have been issued and that number is expected to increase to 150 million in 2018, and (iv) more people are using smart phones. By the end of June 2017, Viet Nam had about 48 million broadband mobile subscribers, including 3G and 4G.<sup>4</sup>

On 22 November 2012, the government issued Decree No. 101/2012/ND-CP on non-cash payment. On 11 December 2014, the Governor of the State Bank issued Circular No. 39/2014/TT-NHNN to guide the intermediate payment services stipulated in Decree 101/2012/ND-CP, 22 November 2013, on non-cash payment. Circular 39/2014/TT-NHNN clarifies the types of payment intermediary services and provides specific regulations on providing such services, including managing risk, ensuring safety and security, and

<sup>3</sup> About 80% of the country's population lives in rural areas.

<sup>4</sup> Interview with Mr. Nguyen Quang Hien Huy, deputy general director of Samsung Electronics Vina, on 6 November 2017.

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ensuring solvency. Intermediary service providers must (i) determine and implement risk management principles in e-banking; (ii) ensure safety and security of IT systems in banking activities, and security and confidentiality in the provision of e-banking services; and (iii) comply with regulations on the establishment, use, preservation, and storage of electronic vouchers in accordance with the law on e-transactions in banking activities.

Circular No. 47/2014/TT-BCT stipulates that companies with sales websites and social networking sites must register on the electronic trading platform, and social networking sites must manage the information and subscribers' activity. All e-commerce activities must be registered with the E-Commerce Department, Ministry of Industry and Trade. The tax office coordinates with the department to monitor enterprises and organisations that own websites providing e-commerce services, thereby reviewing cooperative contracts and agreements for tax collection. The tax authorities examine the documents related to the revenues and expenditures of these enterprises.

Through Decision No. 2545/QĐ-TTg, 30 December 2016, the Prime Minister approved a project to develop non-cash payment in 2016–2020 to diversify payment services and push up the application of electronic payment technology, especially in rural areas.

The State Treasury has been providing solutions to enhance non-cash payment in managing state budget revenues and expenditures. To ease tax payment and reduce cash transactions, the State Treasury has been coordinating since 2012 with four major commercial banks – Vietnam Industrial and Commercial Bank (Vietinbank), Bank for Investment and Development of Vietnam (BIDV), Bank for Agriculture and Rural Development (Agribank), Bank for Foreign Trade of Vietnam (Vietcombank) – to ensure that the payment system is stable and efficient from the central to the provincial and district levels. State budget taxpayers can use bank cards (debit cards) instead of cash to pay through point-of-sale (POS) equipment of commercial banks in State Treasury units. The taxpayer does not have to pay a fee.

Some commercial banks have deployed mobile payment services through fingerprint authentication, face recognition, biometrics, code usage, QR code, tokenisation, non-contact payment, and mobile POS (mPOS) technology.

Statistics of the Payment Department, the State Bank of Vietnam (SBV) show that Viet Nam has 41 commercial banks providing mobile payment services, which have been growing rapidly in volume and value. In the first 9 months in 2017, there were over 90 million mobile phone transactions with total value over VND423 trillion, increasing by 93% and 139% when compared to the respective figures in 2016.

The SBV has also approved 25 non-bank organisations to provide payment intermediary services, including e-wallet services via the Internet and mobile phones. On 23 October 2017, the through-banks-e-tax payment and 24/7 customs clearance program were piloted with five banks: Vietcombank, Vietinbank, BIDV, MBbank, and Techcombank.

Electronic payment services face many problems. The biggest one is how to convince consumers that payment is convenient and secure. Another is mobilising capital to invest in technical infrastructure to connect with partners such as banks, telecommunication companies, electricity providers, water providers, hospitals, schools, transport companies, among others.

Many consumers still do not know much about the new payment methods and keep spending in cash. Most people live in rural areas. Many do not have bank accounts: 6.2 million people do not have access to financial services, 2.2 million find them expensive, 2.3 million have difficulty opening an account, and 1.1 million have no faith in the financial system (VECOM, 2018).

The two most popular payment forms are remittances (88%) and cash on delivery (82%) (VECOM, 2018). Viet Nam's ratios of enterprises using cash on delivery (49%) and instalment payment at sale points (47%) are the highest in Southeast Asia. Most Vietnamese e-commerce businesses offer instalment payments to offline and online shoppers.

Financial data exchange is an efficient payment mode between regular business partnerships, allowing both parties to track the transaction value and clearing accounts. Viet Nam does not yet have all the conditions for such exchange: the network is scattered and at a technically low level. To pay each other, enterprises and businesses can use, in a limited way, the e-banking function on their websites in the same system. The most common method is to pay online at the payment card's website, but the use of online payment is still limited.

Awareing that payment through intermediary services is a form of facilitating e-commerce transactions, the service provider delivers secure and smooth billing by seamlessly connecting banks to the payment gateway, but due to its weak technical infrastructure, Viet Nam is unable to deploy this service systematically. Instead of that situation, mobile payment is becoming increasingly popular (Huong, 2017).

The number of domestic online transactions increased by about 50% in 2017 over 2016 whilst transaction value increased by 75% (Quan, 2018). The most spectacular growth areas are online retail, online marketing, travel, and billing (VECOM, 2018). Online retail revenue growth increased by 35% in 2017. Revenue from delivery services grew from 62% to 200%.



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Some affiliate online marketing companies grew by 100%–200% in 2017. Booking through online travel agents accounted for 20% of booking revenue in 2016 (Grant Thornton, 2018). This rate continued to rise sharply and went over 30% in 2017 (VECOM, 2018). Combined with the two-digit gain in tourism revenue, online travel sales growth is estimated at over 50%. Some hotels offer online overseas reservations in Viet Nam, such as Agoda.com or Booking.com, with a 10%–25% discount on the room rate. As the tourism industry develops rapidly, revenue from online booking is estimated at up to VND1 trillion a year. Notably, social media benefits businesses, especially SMEs and individual traders; 32% of businesses are on social networks (VECOM, 2018).

Most e-commerce businesses, however, do not declare their activities and many do not have business locations or bank accounts. The government loses revenue not only because of weak payment infrastructure but also because there is no data on e-businesses' earnings (Sua, 2017).

The code system for business activity registration is not yet regulated for e-commerce, so it is difficult for tax authorities to determine the tax obligations of individuals and businesses involved in e-commerce. Viet Nam uses mainly paper invoices (91.8%), so it is difficult to manage e-commerce orders. Few companies have registered to use electronic invoices and the electronic invoice system is not connected with the tax authorities.

Granting business licences to enterprises is still a problem because some types of e-commerce are not in the list of types allowed by the government. The precise determination of Grab's and Uber's business type, for example, is still controversial: the Taxi Association says it is transport but the Ministry of Transport identifies it as contract-based transport. The tax authorities, therefore, have not determined the appropriate tax collection form.

The collection of foreign contractors' tax on cross-border transactions is also facing difficulties because the foreign organisations are not in Viet Nam but provide services and generate income in Viet Nam. Along with that is the difficulty in tracking sales activities, digital product services, and social networking sites; many businesses sell or advertise on websites and social networks but do not invoice or fully declare turnover to the tax authorities.

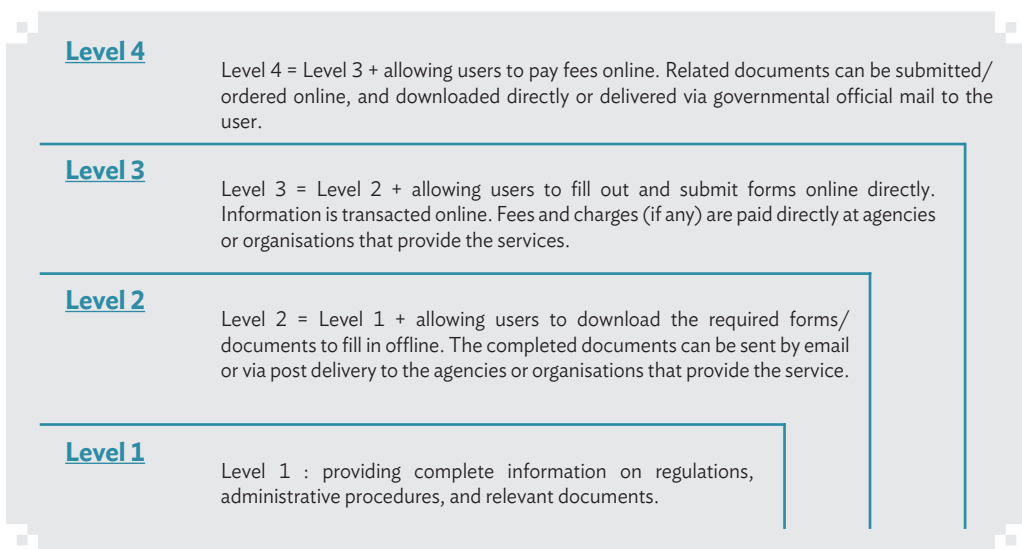
#### 4.4. Integrating Connectivity

Resolution 36a/NQCP, issued by the Prime Minister on 14 October 2015, aims to boost the development of e-government, improve the quality and efficiency of the operation of state agencies, better serve the people and businesses, and publicise and clarify the activities of state agencies in the network environment.

Circular No. 5/2016/TT.BCT by the Ministry of Industry and Trade regulates the provision of online public services by the government, including development, implementation, receiving, handling, and responding to complaints about online public services for industrial and administrative procedures implemented at the central level. Public administrative services are related to law enforcement and not-for-profit purposes, granted by state agencies to organisations and individuals. Each public administrative service is associated with an administrative procedure that consists of four levels (see Figure 7.1).

E-government gradually came into effect in ministries, sectors, and local government, and improved the business environment, the quality and efficiency of state agencies, and service to clients. Online public services related to notification, registration, and licensing procedures of enterprises were used at the rate of 73% in 2017, close to that in 2016. Electronic tax declarations remain the most-used public service (88%), followed by business registration services (42%) (Government Office, 2018a). Table 7.5 summarises the achievement of E-government in each province.

**Figure 7.1: Four Levels of E-government Service in Viet Nam**



Source: Government of Viet Nam, Decree No. 43/2011 / ND-CP.

**Table 7.4: Progress of E-government in Viet Nam**

Province	Progress
Bac Nin	Of 1,775 public services mainly at level 3 and including 104 at level 4, 819 or 46% were online.
Binh Dinh	Of the 401 online provincial services, 49 were provided at the district level and 6 at the commune level
Da Nang	Of the province's administrative procedures, 66% are provided online at levels 3 and 4 – two times higher than the 2020 target (30%). Da Nang led in information technology application and e-government development in 2018 with 640,399 electronic files, and is among the top 10 provinces with on-time services, with 633,388 or 98.9% of services provided on time.
Dak Lak	As of 25 November 2018, 7,004 or 3.6% of applications were received online (levels 3 and 4) out of a total of 194,620 applications received at state agencies.
Hanoi	As of the end of 2017, of 239,480 state services, 225,173 were online. Hanoi synchronously deployed 81 online public services at levels 3 and 4 to districts, wards, and departments; expanded 10 online public services at level 3 in 18 districts and towns and 6 online public services at level 3 in the justice field in 416 communes and towns.
Ho Chi Minh City	As of February 2019, of 1,000,845 total applications, 412,965 or 41% were online.
Quang Nam	As of the end of November 2018, the total number of online services submitted by departments and agencies was 5,713 out of a total of 46,588 received services. The rate of online processing services at level 3 and 4 is about 32%. Some departments and industries have a high rate of online applications, such as the departments of planning and investment, industry and trade, natural resources and environment, among others.
Thai Binh	As of 24 December 2018, the online public service portal system had received and updated 12,194 applications.
Thai Nguyen	In 2018, of 33,680 public services, 3,500 or 10.39% were online. Of 1,826 services received and processed at level 4, 900 or 49.3% were online.

Source: Authors. Based on Government Office (2018a).

#### 4.4.1. Difficulties and Challenges

By the second quarter of 2017, 29 out of 30 ministries, ministerial-level agencies, government agencies, and all 63 provinces and centrally run cities had acted to build e-government. All provinces and cities across the country have interconnected document management software linking them to the Government Office. Generally, the feedbacks are quite positive. According to VECOM (2018), 99% of users agree that the e-government public services are 'very helpful' or 'relatively useful'. (Table 7.6)

**Table 7.5: Assessment of Public Services (%)**

Satisfaction criteria	2012	2013	2014	2015	2016	2017
Very helpful	27	25	39	52	53	52
Relatively useful	60	58	55	47	46	46
Unprofitable	13	17	6	2	1	1

Source: VECOM (2018).

Despite a detailed delivery plan, however, only 1% of total public services were provided online at level 4 and 5% at level 3. Online service rates provided at level 4 in ministries are

fewer and depend on the nature of the work. For example, the Ministry of Finance has 943 online public services, 26% of which are at level 4; MPI has 332 online public services, 2% of which are at level 4<sup>5</sup>; MOLISA provides 0.4% of its services at level 4. Some important tasks such as proposing financial mechanisms for investment, applying IT, and setting up information systems for e-government development (land information system or land licensing via the Internet) have only just been implemented and have not yet shown specific results (Table 7.7).

**Table 7.6: Implementation of Specific E-government Tasks of Ministries, Branches, and Local Governments**

	Ministry/Core Government Agency	Number of Specific Tasks Assigned	Number of Tasks Completed	Number of Specific Tasks in Progress
1	Government Office	6	3	3
2	Ministry of Information and Communications	6	3	3
3	Ministry of Finance	5	3	2
4	Ministry of Planning and Investment	4	4	0
5	Ministry of Labour – Invalids and Social Affairs	1	1	0
6	Ministry of Education and Training	3	3	0
7	Ministry of Transport	2	1	1
8	Ministry of Natural Resources and Environment	3	1	2
9	Ministry of Construction	4	3	1
10	Ministry of Justice	6	3	3
11	Ministry of Science and Technology	3	3	0
12	Ministry of Culture, Sports and Tourism	2	2	0
13	Ministry of Health	6	3	3
14	Social Insurance of Vietnam	5	3	2
15	Ministry of Home Affairs	2	1	1
16	Ministry of Industry and Trade	2	1	1
17	Ministry of Agriculture and Rural Development	1	1	0
18	Ministry of Public Security	1	1	0
19	Ministry of Foreign Affairs	1	1	0
20	The Bank of Vietnam	1	1	0
21	Government Inspector	2	0	2
22	Hanoi People's Committee	3	1	2
23	Ho Chi Minh City People's Committee	2	1	1

Source: Government Office (2018b).

<sup>5</sup>Deputy Prime Minister Vu Duc Dam, National Assembly, 17 December 2017.

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The assigned tasks are not yet completed due to the following obstacles:

First, some governance agencies, ministries, sectors, or local governments are ‘reluctant’ to disclose documents and procedures that they control, because if they do, they will lose the exclusive right to monitor them. According to a 2018 Office of the Government survey, out of about 700 information systems and databases at ministries, branches, and localities, only about 70 or 10% were connected to each other (Government Office, 2018b). Of the 68% Vietnamese living in rural and remote areas, 80% are poor. Many have never had access to IT, computers, or the Internet. It is hard to talk about using online public services.<sup>6</sup>

Second, the application of IT is still limited in many local governments and on a small scale and unsystematically within state agencies.

Third, integrating information into and exchanging it in the online public service systems of local governments and of ministries and branches has not been uniform. Management of online job processing is not consistent (L. Ha, 2017).

Fourth, online public services in many ministries, branches, and local governments are provided at the planning stage. Because of the lack of the uniform electronic format/template and guidance on hiring online services providers, many agencies have difficulty systematising profiles with administrative procedures.

## 5. Policy Suggestions

The development of e-commerce in Viet Nam differs across cities and provinces. Although the regulations are set by the central government; and the government’s goal is to create a transparent and pro-business market environment nation-wide, the pace and effect of policy implementation are quite different. In 2018, Ho Chi Minh City ranked first in the e-commerce index, with 82.1 points, followed by Hanoi (79.8 points). The city with the lowest ranking, Bac Kan, got only 26 points. Amongst 63 provinces and cities, 9 of them even did not appear in the e-commerce business index of 2018 (VECOM, 2018).

On 27 July 2018, Prime Minister Nguyen Xuan Phuc warned of the inertia of reform (Tuân 2018). He proposed continuing to remove unnecessary business requirements and detecting and preventing the emergence of new ones, especially at the ministerial level. Tuân (2018) points out that in total, enterprises in Viet Nam spend VND14.3 trillion each year for

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<sup>6</sup> Issues raised at the 2017 Business Day, ‘E-Commerce Solutions – For More Success’, Trade Promotion Agency, Ministry of Industry and Trade, 12 December 2017, Hanoi.

professional inspection by government agencies. For example, a chocolate product needs 13 licences: its 12 ingredients need a licence each, and the finished product needs product announcement certification. Tax and customs inspectors sometimes obstruct or even threaten enterprises, deliberately seeking signs of violations in a way that is tantamount to tip harassment.<sup>7</sup>

By the end of October 2018 only about 13% requirements (738 out of 5,700) were abolished. By 15 August 2018, only the Ministry of Industry and Trade took action to issue decrees to simplify the e-commerce related business conditions. The Ministry of Construction and Ministry of Agriculture and Rural Development have submitted a draft decree on simplifying the related regulation. Other ministries and sectors are still reviewing and proposing plans.

From a public policy perspective, Viet Nam needs to change government staffs' mindset regarding administrative procedures, from supporting business in the way the state wants, to giving enterprises what they need. The issue is not only to improve the quality of the business environment but also to attain specific indicators and substantive business support.

Based on the survey conducted by this study, 96% of interviewees agree that in order to support the development of e-commerce, it will be among the government's top priorities to improve legal system to meet the international standards, especially in the areas of e-commerce administrative procedures, safe and secure infrastructure, the national e-payment system, an efficient transportation service, and human resources development. (see Figure 7.2) The results of the survey also highlight (i) the importance to increase the public awareness of laws and regulations, and (ii) state agencies and the business community should engage in regular dialogue, enhance mutual understanding, and quickly solve difficulties.

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<sup>7</sup> Richard Leech, British Business Association Vietnam and Mark Gillin, head of the Tax and Customs Working Group, at the Vietnam Business Forum, 5 July 2018, Hanoi. See <https://vbf.org.vn/>

**Figure 7.2: Legal Framework to Support E-commerce**



Source: Author, based on survey findings.

Implementation of e-commerce policies by government agencies and local authorities should be monitored using the public administrative regulation index (PAR index)<sup>8</sup> of ministries, ministerial-level agencies, provincial people's committees, and the satisfaction index of citizens and enterprises.

While business conditions that hinder e-commerce should be abolished, trust should be retained as a business condition to minimise unsecured e-commerce websites and deception of consumers. VECOM has cooperated with the E-commerce Development Centre under the E-commerce and Information Technology Department to set up a standard system in e-commerce transactions called Safe web. E-commerce websites under the trust-label category include B2B, B2C, e-commerce platform, and buying group.

Last but not the least, in order to apply e-commerce laws and regulations in ruling online business, there are needs to establish an effective mechanism to facilitate the recognition of

<sup>8</sup> The PAR index includes an internal assessment of the agency (with appraisal by the Central Appraisal Council) and an external assessment of the personnel. The index covers eight areas: (i) steering PAR implementation, (ii) developing and organising the implementation of legal documents, (iii) implementing administrative reform, (iv) reforming the organisation of state administrative apparatus, (v) building and improving the quality of the contingent of cadres and civil servants, (vi) innovating financial mechanisms for administrative agencies and public non-business units, (vii) modernising administration, and (viii) implementing a one-stop mechanism. The total PAR index score is 100 points: 62 maximum from local self-scoring results (internal assessment) and 38 maximum from sociological survey results (external rating).

electronic evidence and the legality of electronic data collected by competent authorities. Many of these issues are still under international debates. For instance, although the use and the recognition of electronic signatures (E-signature) and digital authentication has long been discussing,<sup>9</sup> there is still not yet the global standard to adopt and follow.

### 6. Conclusion

The legal framework is crucial to the survival of e-commerce activities, especially in international trade. Every country needs to perfect a regulatory framework governing e-commerce, then unify the legal framework for e-commerce.

As the use of Internet-connected devices and mobile applications explodes, e-commerce could boom in Viet Nam and ASEAN. Establishing the digital economy is indispensable, but economic digitalisation in Viet Nam has focused only on communication and information. E-commerce policies focus only on management control, whilst other areas such as e-commerce connectivity and data sharing still face many challenges.

Lawmakers are considering a uniform legal framework to promote the broad smart environment, not just e-commerce activities, since the Internet is a unified environment and e-commerce sites operate in a similar way, ASEAN comprehensive connectivity is in processing.

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<sup>9</sup> For example, the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Signatures (2001); the Electronic Signatures Directive (1999/93/EC) of the European Council; and digital signature and digital signature laws of the United States.



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## Annex

### Documents for the Implementation of the Decrees Listed in Table 7.1 and Table 7.2

- (i) Circular No. 78/2008/TT-BTC, 15 September 2008, guiding the implementation of some provisions of Decree No. 27/2007/ND-CP on e-transactions in financial activities
- (ii) Circular No. 12/2008/TT-BTTTT, 30 December 2008, Ministry of Information and Communications, guiding the implementation of some provisions of Decree No. 90/2008/ND-CP on anti-spam
- (iii) Circular No. 03/2009/TT-BTC, 2 March 2009, Ministry of Finance, prescribing management codes for electronic mail, text message service providers, and message service providers, guiding the implementation of Decree No. 90/2008/ND-CP
- (iv) Circular No. 50/2009/TT-BTC, 16 March 2009, guiding electronic transactions in the securities market
- (v) Circular No. 26/2009/TT-BTTTT, 31 July 2009, Ministry of Information and Communications, providing information on and ensuring convenient access to the website of state agencies
- (vi) Circular No. 37/2009/TT-BTTTT, 22 July 2010, Ministry of Information and Communications, regulating the profiles and procedures related to licensing, registration, accreditation of service delivery organisations, and authentication of digital signatures
- (vii) Circular No. 17/2010/TT-BKH, 22 July 2010, Ministry of Planning and Investment, detailing online pilot bidding
- (viii) Circular No. 153/2010/TT-BTC, 28 September 2010, Ministry of Finance, guiding the implementation of Decree No. 51/2010/ND-CP, 14 May 2010, on sales invoices, goods, and services
- (ix) Circular No. 23/2010/TT-NHNN, 9 November 2010, Governor of the State Bank, providing for the management, operation, and use of the inter-bank electronic payment system
- (x) Circular No. 180/2010/TT-BTC, 9 November 2010, Ministry of Finance, guiding electronic tax transactions
- (xi) Circular No. 25/2010/TT-BTTTT, 15 November 2010, Ministry of Information and Communications, regulating the collection, use, sharing, safety, and protection of personal information on websites or portals of state agencies
- (xii) Circular No. 209/2010/TT-BTC, 20 December 2010, Ministry of Finance, regulating electronic transactions in State Treasury operations

- (xiii) Circular No. 32/2011/TT-BTC, 14 March 2011, Ministry of Finance, guiding the creation, issuance, and use of electronic invoices for sale of goods or provision of services
- (xiv) Joint Circular No. 10/2012/TTLT-BCA-BQP-BTP-BTTTT-VKSNDTC-TANDTC, 10 September 2012; Ministry of Public Security, Ministry of Defence, Ministry of Justice, Ministry of Information and Communications, Supreme People's Procuracy, Supreme People's Court; guidance on applying the Penal Code to some crimes in the field of information and communication technology
- (xv) Circular No. 47/2014/TT-BCT, 5 December 2014, Ministry of Industry and Commerce, regulations on management of e-commerce websites
- (xvi) Circular No. 39/2014/TT-NHNN, 11 December 2014, Governor of the State Bank, on payment services

# Enabling India's E-commerce Connectivity with ASEAN: E-payment in India - Problems and Prospects

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## 1. Introduction

Information and communication technology (ICT) has driven numerous socio-economic changes across the globe. This may be witnessed in the way payments are made, businesses work, and countries are governed. ICT has enabled digitalisation of a number of processes, inducing much-needed inclusiveness not just of citizens but also of businesses and government. This aspect of digitalisation was featured in the G20 Ministerial Conference in Germany in April 2017. Global trade is shifting to digital platforms as ICT spreads.

The development of online trading of goods and services, or e-commerce, catalyses socio-economic transformation. ICT connectivity provides the free flow of information and a platform for transactions. The ASEAN Economic Community Blueprint 2025 (ASEAN Secretariat, 2015a) establishes global e-commerce as a 'vital element of the global economy as part of a retailer's multi-channel strategy'. E-commerce is now part of many bilateral and plurilateral trade agreements and was discussed at the 11th World Trade Organization (WTO) Ministerial Conference in December 2017, in Argentina, on a global e-commerce mandate. However, the conference ended without any consensus as some member countries did not agree to formulate global rules for e-commerce.

Global e-commerce activities have been booming in the past few years. The E-commerce Foundation says that turnover increased from US\$1,255.5 billion in 2012 to US\$2,272.7 billion in 2015, and the share of the Asia-Pacific region during the same time increased from 31.27% to 46.50%. In the next 5–10 years, India is forecast to be amongst the top-three fastest-growing e-commerce markets in the world, with Indonesia and Malaysia. (ADB, 2016; Chen, 2017).

ICT infrastructure, however, is just one enabler of e-commerce. Logistics, e-payment, and the seamless link and harmonisation between virtual and physical networks will also drive e-commerce sustainability and growth. E-payment eases financial transactions. Logistics

infrastructure enables product delivery. Finally, connectivity between virtual and physical networks streamlines the entire process. (Chen, 2017, 2019)

This chapter reviews the status of India's e-commerce connectivity, specifically ICT and logistics, with Association of Southeast Asian Nations (ASEAN) countries, and examines India's e-payment framework. Section 1 introduces the research. Section 2 elaborates on India's e-commerce connectivity (ICT and logistics) with ASEAN countries. Section 3 examines India's e-payment framework, including government initiatives, e-payment methods, and the existing regulatory framework. Section 4 describes the link between e-payments and highlights trends in volume and value of e-payments in the last few years. Section 5 describes the challenges pertaining to e-payment and e-commerce in India, and analyses their strength, limitations, opportunities, and threats. Section 6 elaborates on e-payment connectivity between India and ASEAN. Finally, section 7 recommends ways to promote e-payment in India, which will catalyse domestic e-commerce and expand e-commerce connectivity with ASEAN countries.

## 2. E-commerce Connectivity in India

India had over 1.34 billion citizens and a gross domestic product (GDP) of US\$2.6 trillion in 2017. The economy is primarily driven by services, followed by manufacturing and agriculture. The largest job creators are agriculture and allied sectors. During the last decade, e-commerce has emerged as a key sector, employing a large number of people, directly and indirectly, whilst also generating substantial revenue. Snapdeal (2016: 2) says that, 'Indian electronic retailing (e-tail) market is estimated to reach US\$68.8 billion (76% of total e-commerce market) by 2020 from US\$23 billion during the financial year 2016, growing at a compound annual growth rate (CAGR) of about 31%'. Furthermore, 'e-tail and allied ecosystem is expected to create 1.45 million employment opportunities by 2021'. The phenomenal growth of Indian e-commerce is proof of consistent improvements in every dimension of e-commerce connectivity.

There are few e-commerce studies by the private sector, and there is not much public data on the volume and growth of e-commerce. 'India's e-commerce revenue is expected to jump from US\$30 billion in 2016 to US\$120 billion in 2020, growing at an annual rate of 51%, the highest in the world. Whilst in terms of base, India may be lower than China and other giants like Japan, the Indian rate of growth is way ahead of others. Against India's annual expansion of 51%, China's e-commerce is growing at 18%, Japan 11% and South Korea 10%' (The Economic Times, 2016).<sup>1</sup>

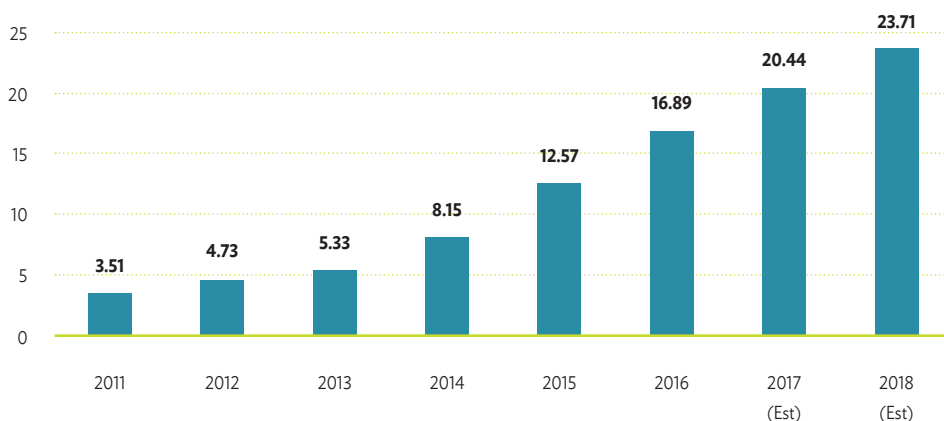
<sup>1</sup>The Economic Times (08 May 2016), India's e-commerce sector to see \$120 billion revenue by 2020: ASSOCHAM-Forrester Study report. Retrieved from <https://economictimes.indiatimes.com/industry/services/retail/indias-e-commerce-sector-to-see-120-billion-revenue-by-2020-asso-cham-forrester-report/article-show/52172120.cms> on 17 August 2017



## E-commerce Connectivity in ASEAN

The Digital Commerce Report (Kantar-IMRB, 2017) says that the 'Indian e-commerce market has grown at a compound annual growth rate (CAGR) of 34% between December 2011 and December 2017. It was estimated to reach INR 20.44 billion by December 2017. In 2017, 54% of the e-commerce market was covered by travel sector whilst remaining 46% was covering non-travel sectors, such as e-tail (36%), utility services (5%), matrimony and classified (2%) and other online services (3%)'. The main contributors of this growth are India's young demographic profile, increasing Internet penetration and ICT connectivity, availability of digital payment services, and improved economic performance after liberalisation in 1991 (Figure 8.1).

**Figure 8.1: Growth of E-commerce in India,  
Value of Digital Commerce in India (INR billion)**



Source: Kantar-IMRB (2017).

**ICT connectivity** refers to the use of ICT tools to exchange and share information between two or more parties. Indicators of ICT connectivity are the state of national ICT infrastructure; broadband service speed, availability, affordability, and adoption; and technology adoption by firms and government. India has one of the fastest-growing telecommunication subscriber bases in the world. The government has initiated several programmes such as Digital India, Smart Cities, and BharatNet to ensure data connectivity for the masses and to 'connect the unconnected'. The status of selected indicators is given below:

- The Telecom Regulatory Authority of India (TRAI) (2017) says, 'As on 30 September 2017, total telecom subscribers in India were 1206.71 million (out of this 98% are wireless) with a teledensity of 93.40. Total internet subscribers were 429.23 million out of which 98% were wireless subscribers. Total internet subscribers per 100 populations was 33.22 whereas it was 73.65 and 14.62 in urban and rural areas, respectively. The average data usage per month was 1600 MB'.

- The average Internet speed for mobile broadband in India was 2 megabits per second (Mbps) for upload and 6 Mbps for download, which was lower than in most ASEAN countries, except for Myanmar and Viet Nam (Chen, 2017). In the first quarter of 2017, the average Internet speed in India was 6.5 Mbps and it ranked 89th globally (Akamai, 2017).
- Firm-level technology adoption in India has considerably declined from 5.58/7 in 2007–2008 to 4.36/7 in 2016–2017 (WEF, 2016b). ASEAN countries followed an almost similar pattern but the ASEAN average has been higher than India's since 2014–2015.
- India stands at 91st out of 139 countries, with a score of 3.75/7 in the Network Readiness Index<sup>2</sup> of the World Economic Forum.

**Logistics connectivity** refers to the physical part of e-commerce and is responsible for the final delivery of products from origin to destination. India has sound logistics infrastructure for roads, rail, and sea transport, but gaps still limit India's connectivity with ASEAN countries. The status of logistics connectivity of India (Indiastat)<sup>3</sup> is as follows:

- **Railways.** Total railway routes increased from 64,600 kilometres in 2011–2012 to 66,687 km in 2015–2016 whereas the running track increased from 89,801 km to 92,081 km during the same period. Total freight traffic increased from 975.16 million tonnes to 1,108.62 million tonnes during the same period.
- **Road.** Total road length (all types of road, rural and urban) increased from 4,471,510 km on 31 March 2009 to 5,603,293 km on 31 March 2016. The length of national and state highways increased from 70,548 km and 158,497 km to 101,011 km and 176,166 km, respectively, during the same period. National and state highways play a major role in connecting goods' place of origin to destination, and especially to ports for cross-border delivery.
- **Shipping and ports.** Traffic capacity of major ports<sup>4</sup> in India is 965.36 million tonnes. Total overseas traffic handled by these ports was 461.87 million tonnes in 2014–2015.
- **International logistics connectivity.** India has international land borders of 15,106.7 km and a sea coastline of 7,516.6 km. The border with Myanmar is 1,643 km, which gives entry to Thailand and other ASEAN members. Almost all major cities are connected to parts of the world by air.

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<sup>2</sup> A measure of how well an economy is using ICT to boost competitiveness and well-being.

<sup>3</sup> The source of data is Indiastat.com.

<sup>4</sup> Including Kolkata, Haldia, Paradip, Visakhapatnam, Kamarajar, Chennai, VOC-Chidambaram, Cochin, New Mangalore, Mormugao, Mumbai, Jawaharlal Nehru Port Trust, and Kandla.

There is only one functional land customs station between India and Myanmar – Moreh and Tamu – which, however, is not well developed. But India, Myanmar, and Thailand are working on a 1,400 km tri-country highway that will connect India through its north-eastern states with Southeast Asia. Major Indian seaports are connected to ASEAN countries. Myanmar's Dawei deep-sea port and industrial estate project near Thailand's border are expected to help further integrate eastern India with Southeast Asian countries. The planned port can be linked with India's Chennai port as well as Thailand's Laem Chabang port on the other side of the ocean.

**E-payments** have grown increasingly over the last decade due to widely spread Internet-based banking and consumers' evolving purchasing habits. India, a traditionally cash-heavy society, is striving hard to transform itself into a cash-light society. The government is promoting e-payment through various initiatives but challenges, attributable to unfavourable policies and practices, hinder it. Optimal regulation and competition to facilitate access deserves much more consideration than it currently receives. More detailed insights on cross-border e-payment connectivity between India and ASEAN are in section 6.

### 3. E-payment: National Priority

In the past decade, India has experienced revolutionary growth in telecommunications, specifically in mobile phone and Internet connection. The increasing availability of the Internet has led to growing use of digital payment. The use of ICT, the high penetration of mobile phones and the Internet, and quick adoption of online economic activities, including e-commerce, have created enormous opportunities for e-payment systems.

The Jan Dhan–Aadhar–Mobile (JAM) Trinity has further strengthened uptake. A government initiative, JAM links Jan Dhan bank accounts,<sup>5</sup> mobile numbers, and Aadhar cards to achieve complete financial inclusion and to reduce or even eliminate leaks in government subsidies. The following are the three most important events related to this initiative:

- i. 'Pradhan Mantri Jan Dhan Yojan', under which over 310 million bank accounts had been opened by 7 February 2018, with deposits totalling US\$12 billion in just 3.5 years after its launch on 28 August 2014.
- ii. Demonetisation of Re500 and Re1,000 notes on 8 November 2016, which led to the withdrawal of almost 85.9% of the currency in circulation: Re15.44 trillion out of

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<sup>5</sup> Pradhan Mantri Jan-Dhan Yojana (PMJDY) is National Mission for Financial Inclusion to ensure access to financial services, namely, banking/ savings & deposit accounts, remittance, credit, insurance, and pension in an affordable manner. Accounts can be opened in any bank branch or business correspondent (Bank Mitra) outlet. Accounts opened under PMJDY are being opened with zero balance. However, if the account-holder wishes to get a cheque book, they will have to fulfil minimum balance criteria.

Re17.977 trillion (Wilson, 2017). Demonetisation has been touted as a 'process to digitalisation', a move to a cashless society, as it left people with only digital means to pay.

- iii. Entry of Reliance Jio into the telecommunication market on 27 December 2015. It has had substantial impact on both price and consumption of Internet services: 'The average monthly data consumed by wireless users increased almost six times from 0.6 GB to 3.5 GB with prices crashed by 97% from Re200/GB to Re6/GB from April–June 2016 to April–June 2017' (Eluvangal, 2017).

The cumulative impact of these events was magnified because of the availability of low-cost smartphones.

E-payment refers to online financial exchanges using digital financial instrument(s). A bank, legal tender, or an intermediary backs these financial instruments. A range of digital financial instruments is available in India (section 3.2). E-payments are vital for e-commerce as they bridge the virtual (online platform) and physical (logistics and transport) parts of online sales and purchase of goods and services. Digital transactions have been growing because of the diffusion of new technologies in the digital payment infrastructure and increasing willingness of consumers to accept cashless transactions.

The Standing Committee on Finance (2017: 65) said:

Digital transactions allow for services to be delivered at a competitive cost, afford greater scalability and enable small and micro enterprises to access formal financial services and benefits of e-commerce. Such a process can create a multiplier effect in efficiency of capital use through greater transparency, traceability of transactions, enforceability of law and significantly buoyed tax revenues for social welfare. Further, in addition to accelerating financial inclusion, opening up new business models and markets, digital payment can be expected to improve the State's ability to curb tax leakages and reduce cash related costs and inconvenience.

While e-payments may have made payments easy and less time consuming, they are also susceptible to risks such as theft of payments and personal data and fraudulent transactions. Transforming India into a cashless economy is contingent upon enabling access of the poorest of the poor to formal financial services. Despite several government initiatives, remaining challenges include digital illiteracy; inadequate Internet connectivity in banking; insufficient banking infrastructure, especially in rural areas; lack of awareness, mostly amongst rural customers; and an unorganised indigenous market.

### 3.1. Government Initiatives to Promote E-payment

Making India a cashless society is a government priority. The following are some initiatives to realise it:

**Establishment of the National Payment Corporation of India (NPCI).** The Reserve Bank of India (RBI) and Indian Banks Association established the NPCI as provided by the Payment and Settlement Systems (PSS) Act of 2007. The NPCI aims to provide innovative infrastructure for retail payment and settlement systems using technology. Since its inception in 2008, the NCPI has introduced revolutionary measures to promote e-payment.

People are becoming comfortable day by day in using cards at points of sale (PoS) and other non-cash modes of payment. This is envisaged to promote 'card not present' (CNP) transactions,<sup>6</sup> which are hindered by consumers' lack of trust of digital platforms.

**Pradhan Mantri Jan Dhan Yojan (PMJDY)** was launched so all Indian citizens could have a bank account. Recently cited in the Guinness World Records, the scheme saw over 310 million bank accounts opened, with total deposits of US\$12 billion in just 3.5 years. The account holders are issued a RuPay debit card and have access to Internet banking. PMJDY accounts are used to electronically channel government benefits (gas subsidy, payments of government employment programmes, crop insurance, among others) without intermediaries, reducing transaction costs and bureaucracy and drawing the common people into the formal financial system.

**Digital India Programme** is a government umbrella curriculum involving multiple ministries and departments, and including several schemes and projects to transform India into a digitally empowered society and knowledge economy by promoting digitalisation of services, including e-payment (Box 1).

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<sup>6</sup> A CNP transaction is one where the cardholder does not or cannot physically present the card for a merchant's visual examination at the time an order is given and payment effected.

**Box 1: Major Initiatives Taken Under the Digital India  
Programme to Promote E-payment**

*Discounts and cashback on digital payment*

- Public sector petroleum companies give a 0.75% discount on digital payments of diesel and petrol.
- The government directed all central public sector undertakings and central government departments to ensure that merchant discount rate (MDR) charges\* or transactions are borne by them, not by consumers, if payment is made digitally.
- Several discounts have been announced for e-payment on booking gas cylinders, paying at toll plazas, and so on. Most central government departments and ministries have also floated several offers on e-payment for their services. For example, Indian Railways incentivised monthly and seasonal ticket bookings by 0.5% and its catering and accommodation services by 5% if payment is made electronically.
- Public sector insurance companies will incentivise general insurance policies and new life policies of the Life Insurance Corporation by way of discount or credit up to 10% and 8%, respectively, if paid for digitally through the online customer portal.
- Merchants offering Aadhaar-based biometric merchant transactions are incentivised by a discount of 0.5% (within the range of Re1 to Re10) of transactions valued up to Re2,000.
- Through the Bharat Interface for Money (BHIM), merchants can earn up to Re1,000 per month as a cashback on a minimum of 50 transactions (at least 20 with unique customers) with a minimum value of Re25.
- Through the BHIM referral bonus scheme, individuals can offer a referral bonus to three unique users upon completing at least three unique successful transactions with an aggregate value of Re50. Both referrer and referee get Re25 each.

*Developing digital payment infrastructure*

- To develop rural digital payment infrastructure, the government deployed two PoS machines per 100,000 villages with populations of less than 10,000. The government also financially supports cooperative banks and rural regional banks in issuing Rupay Kisan cards to over 43 million Kisan credit card holders to allow them to transact electronically at PoS and ATMs.

*Withdrawal of fees and charges*

- To bring small merchants to the digital payment platform, public sector banks have been advised to cap monthly rentals of mobile PoS, PoS machines, and micro ATMs to Re100 per month.
- Service tax has been withdrawn on digital transactions of up to Re2,000.

### *Awareness and training programmes*

- Several digital financial inclusion awareness and access programmes (Digital Jagriti) are being organised for consumers and merchants. Similar training programmes have been organised for government officials, and government ministries and departments have been given digital transaction targets.
- DigiShala, the free Doordarshan DTH channel, uses Hindi, English, and regional languages to promote e-payment. To encourage citizens to use e-payment, the government launched Lucky Grahak Yojna (LGY) and DigiDhan Vyapar Yojana (DDVY). Under LGY, a daily reward of Re1,000 was announced for 15,000 lucky consumers for 100 days, along with weekly prizes worth Re100,000, Re10,000, and Re5,000 for consumers who used modes of e-payment, except private credit cards and digital wallets. Under DDVY, merchants using e-transactions were offered weekly prizes worth Re50,000, Re5,000, and Re2,500. Three mega prizes for consumers (Re10 million, Re5 million, and Re2.5 million) and merchants (Re5 million, Re2.5 million, and Re1.2 million) were offered for adopting e-payment from 8 November 2016 to 13 April 2017.

\* MDR is charged on payments made to merchants through the Bharat Interface for Money Unified Payments Interface (BHIM UPI) platform and the Aadhaar Enabled Payment System (AePS). When payment is made at a merchant point of sale, MDR is payable by the trader to the bank.

Source: The Standing Committee on Finance (2017).

### 3.2. E-payment Systems and Instruments

Numerous modes of e-payment are available:

**Aadhaar Enabled Payment System (AePS)** was developed by the NPCI, based on unique identification numbers. It allows a person holding an Aadhaar number to carry out a financial transaction on a micro ATM provided by the banking correspondent. AePS empowers the marginalised and excluded to transact financially in their villages.

**Credit and debit cards** are the most popular digital finance instruments. They free people from the burden of carrying huge amounts of cash and reduce the risk of theft. They can be used to pay at PoS through swipe machines. Credit card payments are settled after 50 days.

**Mobile banking** has become the most popular instrument for transferring funds, monitoring account balances, paying bills, and so on, using smartphones or other cellular devices.

**Unified Payment Interface (UPI)** is a single-window mobile payment system launched by the NPCI. The system is designed to send and receive money through smartphones. It works through a 'single identifier', which can be a virtual address such as a mobile number, an Aadhaar number, or an email ID. It does not require entering sensitive banks details.

**National Electronic Fund Transfer (NEFT)**, started in 2005, 'operates on a Deferred Net Settlement (DNS) basis which settles transactions between two banks/their branches. In DNS, the settlement takes place with all transactions received until the particular cut-off time. These transactions are netted (payable and receivables) in NEFT whereas in RTGS [real time gross settlement] the transactions are settled individually'.<sup>7</sup>

**Prepaid payment instruments (PPIs)** facilitate the purchase of goods and services against the value stored in such instruments, which represents the value paid for by the holder by cash, debit to a bank account, or credit card. Popular PPIs are magnetic-strip cards, smart cards, Internet wallets, Internet accounts, mobile accounts, paper vouchers, mobile wallets, and any such instruments, which can be used to access the prepaid amount.

**Wallets** are also known as mobile wallets, digital wallets, or e-wallets. A virtual wallet stores payment card information on a mobile device. This is a type of e-commerce model designated to be used with smartphones for paying online. The popular wallets in India are Paytm, Freecharge, Mobikwik, Oxigen, mRuppee, Airtel Money, Jio Money, SBI Buddy, Izt Cash, Citrus Pay, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, SpeedPay, amongst others.

**Real-time gross settlement (RTGS)** is 'the continuous (real-time) settlement of funds transfers individually on an order by order basis (without netting). "Real Time" means the processing of instructions at the time they are received rather than at some later time; "Gross Settlement" means the settlement of funds transfer instructions occurs individually (on an instruction by instruction basis). Considering that the funds settlement takes place in the books of the RBI, the payments are final and irrevocable. RTGSs are used for high-value transactions of at least Re0.2 million'.<sup>8</sup>

**Immediate payment service (IMPS)** is an instant and real-time inter-bank and/or intra-bank electronic fund transfer system. It works through a mobile phone, ATM, and Internet banking, and so on. Unlike RTGS and NEFT, IMPS works 24/7, including bank holidays.

**Unstructured supplementary service data (USSD)** is a national unified platform for mobile banking, which transmits information through Global System for Mobile (GSM) communication network channels. It transfers funds via MMID (a code allotted by banks for mobile banking registration), Aadhaar number, or IFSC code, and checks account balances and generates mini statements.

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<sup>7</sup> FAQ issued by the Reserve Bank of India for RTGS. [http://www.dif.mp.gov.in/circulars/RBI\\_FAQ\\_RTGS\\_NEFT.pdf](http://www.dif.mp.gov.in/circulars/RBI_FAQ_RTGS_NEFT.pdf) on 19 February 2018.

<sup>8</sup> Ibid.



The AePS and immediate payment service are used only for domestic transactions, while credit and debit cards, mobile banking, real-time gross settlement, and national electronic fund transfer are used for domestic as well as international transactions.

### 3.3. Regulatory Framework for E-payment

The responsibility of regulating the banking sector, including settlements and payments, lies with the central bank, the RBI. The PSS Act defines a 'payment system' as 'a system that enables payment to be effected between a payer and a beneficiary, involving clearing, payment or settlement service or all of them, but does not include a stock exchange' (Section 2[1]).

Two regulations under this act provide the RBI with statutory powers: the Board for Regulation and Supervision of Payment and Settlement Systems, 2008 and the Payment and Settlement Systems Regulations, 2008. The former empowers the RBI to prescribe policies and set standards for regulating payment and settlement systems, while the latter provides the procedural requirements for commencing payment systems.

To promote e-payment to purchase goods and services and to pay bills, the RBI issued 'directions for opening and operation of accounts and settlement of payments for e-payment transactions involving intermediaries' on 24 November 2009 (Reserve Bank of India, 2009). The notification contains all the guidelines to safeguard the interests of customers paying online and defines intermediaries, merchants, and accounts for collecting payment. It lays more responsibilities on banks for timely settlement of payment to merchants by intermediaries after receiving money from customers, and for the audit of these accounts.

Further, to regulate payment and settlement of PPIs, the RBI issued a master circular in 2014, which contains policy guidelines on the issuance and operation of PPIs (Reserve Bank of India, 2014). The notification allows the issuance of PPIs under three categories:

Closed System Payment Instruments which are issued by a person for facilitating buying goods and services from him. Cash withdrawal/redemption and payment & settlement for third party services are not permitted under these instruments. Semi-closed System Payment Instruments which can be used for purchase of goods and services, including financial services at a group of clearly identified merchant locations/ establishments which have a specific contract with the issuer to accept the payment instruments. These instruments also do not permit cash withdrawal or redemption by the holder. And Open System Payment Instruments; which can be used for purchase of goods and services, including financial services like funds transfer at any card accepting merchant locations (point of sale terminals) and also permit cash withdrawal at ATMs and BCs (automated teller machine / banking correspondents) (Reserve Bank of India, 2014).

This notification also defines the limits on and eligibility for issuing a PPI, provides safeguards against money laundering, validity of PPIs, sets transaction limits, provides fraud prevention and security standards, and protects customers.

To redress customers' grievances, the RBI launched the Banking Ombudsman Scheme, 2006, updated on 14 July 2017. It outlines the entire procedure for filing a complaint about banking services and for resolving it (Reserve Bank of India, 2017).

#### **4. E-payment and E-commerce: Convergence**

While a variety of e-payment options are available, few are applicable to the business-to-consumer (B2C) mode of e-commerce, such as online payment through credit or debit cards (CNP transactions), Internet banking, and PPI. However, the dominant mode of online payment is cash on delivery. Its popularity may be attributed to consumers' preference to receive the product before paying, and may be associated with consumers' lack of trust in online merchants and transactions.

The trend, however, seems to be changing. Amazon India, a leading e-tailer, says that digital payments accounted for over 60% of total transactions recorded in its portal in 2017, compared with less than 50% in 2016 (Variyar, 2018). For prepaid e-commerce orders, consumers prefer CNP transactions, wallets, and Internet banking. Most CNP transactions occur in private payment gateways. This is visible on the website of the Indian Railway Catering and Tourism Corporation (IRCTC) ([www.irctc.co.in](http://www.irctc.co.in)) (Figure 8.2), the subsidiary of Indian Railways handling catering tourism and online ticketing. IRCTC is also the biggest e-commerce player in India.

The payment page shows various modes of e-payment such as Internet banking, BHIM, UPI, USSD, credit and debit cards, wallets, cash cards, and pay on delivery (Figure 8.3). All payment gateways are owned by private banks and provide an interface between merchant and consumer. Because the platforms are private, transaction data is not publicly available, which limits the scope of this study to gauge the growth of e-commerce in recent years.

## Figure 8.2: E-payment Gateways available on IRCTC

• User can have a maximum of 5 Banks in their Preference list. User can manage their Bank Preferences under *My Profile* section.

• All VISA/MASTER Debit cards (If enabled by card issuer) can also be used for ticket booking through any of the payment options listed under 'Multiple Payment Service' or 'Payment Gateway / Credit / Debit Cards' payment category.

• All RuPay Debit Cards (If enabled by card issuer) can also be used for ticket booking through 'RuPay-Card KOTAK PG'.

• All international Debit/Credit cards can also be used for ticket booking through 'International Cards (Powered by ATOM)'.

Preferred Banks	<input type="radio"/> Visa/Master Card(Powered By CITI BANK)	<input type="radio"/> Visa/Master Card(Powered By HDFC BANK)
BHIM / UPI / USSD	<input type="radio"/> American Express	<input type="radio"/> Visa/Master Card(Powered By AXIS BANK)
Multiple Payment Service (Credit & Debit Cards/ Netbanking /Wallets / International Cards)	<input type="radio"/> RuPay Card (Powered by Kotak Bank)	
Debit Card with PIN	Add as Preferred Bank <input type="checkbox"/> In case of cancellation, the refund will be applicable as per New Railway Refund Rules. Please visit "Refund Rule"section at IRCTC home page.	
Net Banking		
Bharat QR / Scan & Pay		
Wallets/ Cash Cards		
IRCTC Prepaid		
IRCTC eWallet		
Pay On Delivery / Paylater		
Payment Gateway /Credit /Debit Cards		

IRCTC = Indian Railway Catering and Tourism Corporation.  
Source: www.irctc.co.in

## Figure 8.3: E-payment Wallet Options available on IRCTC

• User can have a maximum of 5 Banks in their Preference list. User can manage their Bank Preferences under *My Profile* section.

Preferred Banks	<input type="radio"/> I Cash Card	<input type="radio"/> Oxigen Wallet	<input type="radio"/> Mobikwik Wallet (Offers)
BHIM / UPI / USSD	<input type="radio"/> Paytm Wallet (Offers)	<input type="radio"/> Freecharge Wallet (Offers)	<input type="radio"/> SBI Buddy
Multiple Payment Service (Credit & Debit Cards/ Netbanking /Wallets / International Cards)	<input type="radio"/> OLAMONEY Wallet	<input type="radio"/> Airtel Money	
Debit Card with PIN	Add as Preferred Bank <input type="checkbox"/> In case of cancellation, the refund will be applicable as per New Railway Refund Rules. Please visit "Refund Rule"section at IRCTC home page.		
Net Banking			
Bharat QR / Scan & Pay			
Wallets/ Cash Cards			
IRCTC Prepaid			
IRCTC eWallet			
Pay On Delivery / Paylater			
Payment Gateway /Credit /Debit Cards			

IRCTC = Indian Railway Catering and Tourism Corporation.  
Source: www.irctc.co.in

Most wallet services are also provided by private players. Indian Railways offers its own wallet service, easing transactions on its website. But the wallet is closed, which prevents it from being used on other websites or platforms. Wallets and cash cards are PPIs. A number of PPIs have emerged in the last 5 years and gained immense popularity, such as PayTM, which is the largest wallet service in India, and Sodexo, the meal vouchers. The growth of e-payment through wallets and PPIs is highlighted in Table 8.3. The types of PPIs are listed in Box 2.

### Box 2: Types of Prepaid Payment Instruments

**Closed-system payment instruments.** Generally issued by business establishments for use at their establishment only, these instruments do not permit cash withdrawal or redemption. For example, Freecharge credit, Ola money.

**Semi-closed system payment instruments.** Redeemable at a group of merchants and establishments that have contracted with the issuer to accept them, these instruments do not permit cash withdrawal or redemption. For example, Paytm.

**Semi-open system payment instruments.** Used at any merchant location that accepts them, these instruments do not permit cash withdrawal or redemption. For example, private-label cards issued by merchants.

**Open-system payment instruments.** Used to purchase goods and services, these instruments can also be used to withdraw cash at ATMs. For example, almost every Visa, MasterCard, or Rupay card issued in India.

**Mobile prepaid instruments.** The prepaid talk time issued by mobile service providers can also be used to purchase 'value-added service' from the provider or a third party.

Source: Reserve Bank of India (2014).

A few private entities (non-banks) provide digital payment solutions by acting as gateways for all modes of e-payment instruments such as credit and debit cards, Internet banking, and wallets (Figure 8.4). Data on these gateways is not publicly available.

E-payment options such as NEFT, RTGS, and IMPS are associated more with business-to-business (B2B) e-commerce and peer-to-peer (P2P) payments because they can be used to pay large amounts.

Due to the paucity of publicly available data on CNP transactions in various gateways, this study correlates the rise in e-payments with the growth of e-commerce. Aggregate e-payment data was used as a proxy variable for e-commerce payment data. This section presents the facts about volume and value of e-payment for major modes.

**Figure 8.4: Credit and Debit Card E-payment Options available on IRCTC**

• User can have a maximum of 5 Banks in their Preference list. User can manage their Bank Preferences under *My Profile* section.

Preferred Banks	<input type="radio"/> Credit & Debit cards / Net Banking / Wallet (Powered by Paytm)
BHIM / UPI / USSD	<input type="radio"/> International cards (Powered by ATOM)
Multiple Payment Service (Credit & Debit Cards/ Netbanking/ Wallets / International Cards)	<input type="radio"/> Credit & Debit cards / Net Banking / Wallet (Powered by ITZ)
Debit Card with PIN	<input type="radio"/> Credit & Debit cards / Net Banking / Wallet (Powered by PayU)
Net Banking	<input type="radio"/> Credit & Debit cards / Net Banking / UPI (Powered by Razorpay)
Bharat QR / Scan & Pay	Add as Preferred Bank <input type="checkbox"/>
Wallets/ Cash Cards	In case of cancellation, the refund will be applicable as per New Railway Refund Rules. Please visit "Refund Rule" section at IRCTC home page.
IRCTC Prepaid	
IRCTC eWallet	
Pay On Delivery / Paylater	
Payment Gateway /Credit /Debit Cards	

IRCTC = Indian Railway Catering and Tourism Corporation.  
Source: www.irctc.co.in

Table 8.1 exhibits the trends in e-payment from 2013–2014 to 2016–2017. The volume and value of total digital transactions increased from Re2,697.15 million and Re996,330.8 billion in 2013–2014 to Re10,855.91 million and Re1,467,175.11 billion in 2016–2017, respectively. Over this period, the volume of e-payments grew by over 300% while their value increased by 47.26%. It is important to note that the increase from 2015–2016 to 2016–2017 happened after demonetisation. The volume and value of e-payments in 2016–2017 (year-on-year) increased by 63.45% and 22.41%, respectively.

**Table 8.1: Trends in Volume and Value of Selected E-payment Systems, 2013–2014 to 2016–2017**

Year <sup>a</sup>	RTGS	NEFT	IMPS	Debit and Credit Cards <sup>b</sup>	PPI <sup>c</sup>	Total <sup>d</sup>
<b>Volume (million)</b>						
<b>2013–2014</b>	81.11	661.01	15.36	1,128.16	133.63	2,697.15
<b>2014–2015</b>	92.78	927.55	78.37	1,423.21	314.46	4,141.4
<b>2015–2016</b>	98.34	1,252.88	220.81	1,959.28	748.02	6,641.8
<b>2016–2017</b>	107.86	1,622.10	506.73	3,486.43	1,963.66	10,855.91
<b>Value (Re billion)</b>						
<b>2013–2014</b>	904,968.04	43,785.52	95.81	2,494.36	80.87	996,330.8
<b>2014–2015</b>	929,332.89	59,803.83	581.87	3,112.65	213.42	1,061,035.47
<b>2015–2016</b>	1,035,551.64	83,273.11	1,622.26	3,995.89	487.58	1,198,621.46
<b>2016–2017</b>	1,253,652.08	120,039.68	4,111.06	6,582.89	838.01	1,467,175.11

RTGS = real time gross settlement, NEFT = national electronic fund transfer, IMPS = immediate payment service, PPI = prepaid payment instrument.  
Source: National Payments Corporation of India (various years); RBI Bulletin, Reserve Bank of India (various years).

<sup>a</sup> Financial year from April to March.

<sup>b</sup> Card transactions of four banks only, including PoS, not ATM withdrawals.

<sup>c</sup> PPI issued by eight issuers for goods and service transactions only.

<sup>d</sup> Total figures include other modes such as cheque truncation system and national automated clearing house.

Table 8.2 presents trends in volume and value of e-payments for major modes after demonetisation. The total volume of e-payments increased from Re671.5 million in November 2016 to Re1,064.2 million in December 2017, with a semi-log trend growth rate (SLTGR) of 1.83% and a compound average (monthly) growth rate (CAGR) of 4.30%. At the same time, total value of e-payments increased from Re94,004.2 billion in November 2016 to Re125,531.5 billion in December 2017 with an SLTGR of 1.63% and a CAGR of 3.82%. However, the highest growth has been registered by the UPI (SLTGR of 37.49% in volume and 25.92% in value of e-payments), signifying that people preferred to pay using smartphones. This is followed by the use of IMPS and PPI. These trends undoubtedly reflect that payments using smartphone have captured the e-payment markets and ICT has changed the way people pay for their purchases. Table 8.2 also shows that credit and debit cards have not been as widely adopted, which may be because the cards and swipe machines are not as available.

**Table 8.2: Trends in Volume and Value of Selected E-Payment Systems after Demonetisation in November 2016**

Year <sup>a</sup>	RTGS	NEFT	IMPS	UPI	Debit and Credit Cards <sup>b</sup>	PPI <sup>c</sup>	Total <sup>d</sup>
<b>Volume (million)</b>							
Nov-2016	7.9	123.0	36.2	0.3	205.5	59.0	671.5
Dec-2016	8.8	166.3	52.8	2.0	311.0	87.8	957.5
Jan-2017	9.3	164.2	62.4	4.2	265.5	87.3	870.4
Feb-2017	9.1	148.2	59.7	4.2	212.3	78.4	763.0
Mar-2017	12.5	186.7	67.4	6.2	229.7	90.0	893.9
Apr-2017	9.5	143.2	65.1	6.9	231.1	89.2	853.1
May-2017	10.4	155.8	66.7	9.2	233.4	91.3	858.5
Jun-2017	9.8	152.3	65.8	10.2	232.4	84.7	844.7
Jul-2017	9.4	148.1	69.1	11.4	237.6	88.7	861.1
Aug-2017	9.5	151.6	75.7	16.6	243.0	89.7	883.4
Sep-2017	9.6	157.7	82.9	30.8	240.3	87.5	877.0
Oct-2017	10.0	158.8	88.1	76.8	255.7	96.2	967.3
Nov-2017	10.8	162.0	89.5	104.8	244.6	92.8	998.5
Dec-2017	10.9	169.0	98.0	145.5	263.9	99.1	1,064.2
SLTGR (%)	<b>1.32</b>	<b>0.66</b>	<b>5.47</b>	<b>37.49</b>	<b>0.33</b>	<b>1.95</b>	<b>1.83</b>
CAGR (%)	<b>3.09</b>	<b>1.53</b>	<b>13.42</b>	<b>137.08</b>	<b>0.76</b>	<b>4.59</b>	<b>4.30</b>
<b>Volume (million)</b>							
Nov-2016	78,479.2	8,807.8	324.8	0.9	352.4	13.2	94,004.2
Dec-2016	84,096.5	11,537.6	431.9	7.0	522.2	21.3	104,055.3

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Year <sup>a</sup>	RTGS	NEFT	IMPS	UPI	Debit and Credit Cards <sup>b</sup>	PPI <sup>c</sup>	Total <sup>d</sup>
Jan-2017	77,486.1	11,355.1	491.2	16.6	481.2	21.0	97,011.4
Feb-2017	74,218.8	10,877.9	482.2	19.0	391.5	18.7	92,594.5
Mar-2017	123,375.8	16,294.5	564.7	23.9	416.2	21.5	149,589.1
Apr-2017	88,512.2	12,156.2	562.1	22.0	431.4	22.3	109,602.2
May-2017	90,170.5	12,410.8	585.6	27.7	450.8	25.3	111,109.3
Jun-2017	92,812.6	12,694.2	596.5	30.7	468.2	24.1	113,745.2
Jul-2017	87,149.3	12,011.6	604.8	33.8	439.3	25.1	107,378.4
Aug-2017	89,163.4	12,500.4	651.5	41.3	457.1	27.2	109,817.9
Sep-2017	102,348.1	14,182.1	717.6	52.9	478.2	27.6	124,706.8
Oct-2017	92,056.1	13,851.3	750.4	70.3	530.5	32.7	114,532.2
Nov-2017	98,410.5	13,884.0	782.6	96.4	483.3	32.0	121,047.1
Dec-2017	100,907.8	15,779.2	871.1	131.4	528.7	35.1	125,531.5

RTGS = real time gross settlement, NEFT = national electronic fund transfer, IMPS = immediate payment service, PPI = prepaid payment instrument, SLTGR = semi-log trend growth rate, CAGR = compound annual growth rate.

Source: National Payments Corporation of India (various years); RBI Bulletin, Reserve Bank of India (various years).

<sup>a</sup> Financial year from April to March.

<sup>b</sup> Card transactions of four banks only, including PoS, not ATM withdrawals.

<sup>c</sup> PPI issued by eight issuers for goods and service transactions only.

<sup>d</sup> Total figures include other modes such as cheque truncation system and national automated clearing house.

Note: SLTGR has been calculated by fitting semi-log function as  $\ln Y = ab^t e^{\alpha}$  Or  $\ln Y = a + bt$ . Here,  $b = 1 + r$  and  $r$  is CAGR,  $Y$  = variable indicating the volume and value of e-payments for respective instruments,  $b$  = slope coefficient which measures the relative change in  $Y$  for a given absolute change in value of explanatory variable  $t$  which is time. The multiplication of  $b$  by 100, gives semi-log trend rate of growth in  $Y$  for an absolute change in  $t$ . CAGR has been computed using the formula  $r = e^b - 1$ , further elaborated as  $CAGR (r\%) = (AL(\log b) - 1) \times 100$

Table 8.3 depicts the phenomenal increase in both volume and value of e-payments through wallets and mobile banking from 2013–2014 to 2016–2017, especially from 2015–2016 to 2016–2017, i.e., after demonetisation. The volume of e-payments through wallets and mobile banking increased from Re603.98 million and Re389.48 million in 2015–2016 to Re1,629.98 million and Re976.85 million in 2016–2017, respectively. The value of e-payments through wallets and mobile banking increased from Re205.84 billion and Re4,040.91 billion in 2015–2016 to Re532.42 billion and Re13,104.76 billion in 2016–2017, respectively. As far as the use of wallets and mobile banking is concerned after demonetisation, the volume of e-payments increased at an SLTGR of 2.35% and 4.97% monthly, respectively, whilst the value of e-payments increased at a SLTGR of 4.58% and negative 2.70% monthly, respectively.

**Table 8.3: Trends in Volume and Value of Payments through Wallets and Mobile Banking, from 2013–2014 to 2016–2017**

Year <sup>a</sup>	Wallets		Mobile Banking <sup>b</sup>	
	Volume (million)	Value (Re billion)	Volume (million)	Value (Re billion)
<b>2013-14</b>	107.51	29.05	94.71	224.18
<b>2014-15</b>	255.00	81.84	171.92	1,035.30
<b>2015-16</b>	603.98	205.84	389.49	4,040.91
<b>2016-17</b>	1,629.98	532.42	976.85	13,104.76
<b>Nov-2016</b>	99.57	33.05	72.3	1,244.9
<b>Dec-2016</b>	138.09	74.48	70.2	1,365.9
<b>Jan-2017</b>	261.67	83.53	64.9	1,206.7
<b>Feb-2017</b>	246.95	69.11	56.2	1,080.0
<b>Mar-2017</b>	307.45	73.12	60.8	1,499.9
<b>Apr-2017</b>	320.87	74.42	61.0	1,443.8
<b>May-2017</b>	241.72	71.94	64.9	1,940.7
<b>Jun-2017</b>	221.63	53.10	77.1	1,584.7
<b>Jul-2017</b>	235.46	69.34	69.5	1,019.2
<b>Aug-2017</b>	225.43	72.62	70.8	1,033.0
<b>Sep-2017</b>	199.48	81.54	86.3	1,121.6
<b>Oct-2017</b>	201.23	86.60	130.9	1,168.7
<b>Nov-2017</b>	186.67	93.88	122.8	848.4
<b>Dec-2017</b>	288.37	125.68	113.3	921.5
<b>SLTGR<sup>c</sup> (%)</b>	<b>2.35</b>	<b>4.58</b>	<b>4.97</b>	<b>-2.70</b>
<b>CAGR<sup>c</sup> (%)</b>	<b>5.56</b>	<b>11.12</b>	<b>12.12</b>	<b>--</b>

SLTGR = semi-log trend growth rate, CAGR = compound annual growth rate.

Source: National Payments Corporation of India (various years); Reserve Bank of India (various years).

<sup>a</sup> Financial year from April to March.

<sup>b</sup> Mobile banking figures are for five banks only.

<sup>c</sup> SLTGR and CAGR were calculated from November 2016 to December 2017.

The interesting fact is that the use of wallets and mobile banking increased at an unprecedented rate for the initial 6 months after demonetisation and later declined considerably. It means that the return of cash after demonetisation slowed the pace of adopting digital payment. The growth of the use of wallets may be attributed to various offers and discounts provided by various companies.



### 5. E-payment and E-commerce: Challenges

Demonetisation massively boosted digital payment initially, but its effects wore off when ample cash was back in circulation. E-payment greatly enables e-commerce but challenges have kept its impact at bay:

**Cross-border transactions.** These are inefficient as payment systems across the globe are not uniform. Most are bound by laws and regulations in their jurisdictions and by domestic banking and financial structures (Park, 2006). Rules and fees also vary from country to country, which discourages cross-border online purchases.

**Cybersecurity issues.** A major challenge to e-payment is cybersecurity breaches, which encompass stealing of consumer and payment information (data phishing), fraudulent financial transactions through unauthorised account access (hacking), cyberbullying, ransomware attacks, amongst others. As in the rest of the world, cybersecurity concerns are on the rise in India. Numerous countries, including India, were recently subjected to ransomware attacks such as Wannacry and Petya. This may be attributed to consumers' limited understanding of the need to update operating systems, use licensed software, adopt precautionary measures when using the Internet, and know how to report such cases.

Financial information leaks from commercial banks, as well as leaks of unique identification numbers (Aadhaar), have done little to foster consumers' trust in e-payment. While e-payment should be promoted, consumers should also be able to feel that their finances are secure on Internet platforms.

**Multi-currency and payment methods.** The key objective of an efficacious e-commerce network is to accept a variety of payment methods and currencies across the globe. Various digital modes such as wallets, mobile payments, and credit and debit cards support online merchants participating in international markets by permitting their customers to pay in their domestic currencies (UNCTAD, 2016). However, for merchants, multi-currency cross-border transactions might require new bank accounts and new business entities, which may lead to new regulatory hurdles in their national markets (DPO, 2017).

**Limited banking penetration.** Only 40% of adults have a bank account and only 13% of them have a debit card. In March 2017, there were only 50,860 rural bank branches serving over 65% of the total population. Inadequate banking infrastructure hampers the promotion of digital payment.

**Unorganised structure of the economy.** The market is dominated by the unorganised sector, where more than 50% of the population is engaged in agriculture and its allied activities. The unorganised sector prefers cash payment.

**Grievance redressal mechanisms.** Even with the PSS Act in place, India lacks a strong grievance redressal mechanism and it is difficult for consumers or micro and small merchants (MSMs) to approach appellate bodies with their grievances.

**Fees on e-payment instruments.** Banking and other financial companies offering e-payment instruments levy charges and fees. For example, payments through credit cards are charged differently because merchants and consumers use them in different ways. Debit cards are amongst the most common e-payment modes, with various banks charging different amounts each time a debit card swipe is declined. This poses a big challenge to making India a cashless economy.

**Challenges for micro and small merchants.** In developing countries like India, most people prefer cash to e-payment for daily transactions. Around 78% transactions in India are made in cash. MSMs face many challenges to adopting digital payment:

- MSMs mainly deal with rural people who still have not adopted cashless payment due to low income, lack of digital literacy, and poverty.
- A small retail shop selling at a low margin needs cash daily to pay wholesalers and therefore prefers hard cash to digital payment.
- E-payment is a two-sided exchange where the consumer and merchant are willing to use digital payment rather than cash. Because of customers' inefficient aggregate demand for e-payment, especially in developing countries like India, digital payment is not successful among MSMs (WEF, 2016).
- Especially in semi-rural and rural areas, insufficient access to the Internet and electricity discourages MSMs from adopting e-payment.
- MSMEs under-report their sales volume to reduce tax liability, which discourages them from adopting e-payment.

**Miscellaneous challenges.** Other challenges are poor penetration of plastic money, lack of digital literacy, lack of trust between buyers and sellers, and collection of customs duties on cross-border e-commerce.

### 5.1. SLOT Analysis of E-payment

The following is a SLOT (strengths, limitations, opportunities, and threats) analysis of e-payment.

Strengths:

- A large number of young people adopt technology to conduct business and day-to-day economic activities.
- Millions use smartphones.
- Internet services are available at a very low price.

## E-commerce Connectivity in ASEAN

- Various e-payment options are available.
- Promoting e-payment and a cashless society is a high priority of the government, which is launching many programmes and schemes to achieve it.
- The e-commerce market is flourishing.
- Payment methods are easy, smooth, and time saving.
- Electronic records of all payments can be recalled at any time.
- E-payment promotes fairness and transparency.
- Payment is done in real time.

### Limitations:

- Penetration of banking and telecommunication services is poor in rural areas.
- People lack e-literacy, especially in rural and semi-urban areas.
- Infrastructure is lacking, especially swipe machines at PoS terminals.

### Opportunities:

- All banks and several non-banking financial companies are promoting e-payment with attractive offers, including discounts and cashback.
- E-payment can be done anywhere, any time.
- New technologies are available, making payment easier and safer.
- E-payment can curb black money and unrecorded transactions.
- E-payment can curb tax evasion and tax avoidance.
- The government can save on printing currency and its transportation.

### Threats:

- Data and money in wallets can be stolen.
- Cybercrime, data encryption, viruses, and malware can harm e-payment software.
- Credit cards, especially, can be charged fraudulently.

## 6. India–ASEAN Digital Payment Connectivity

Relations between India and ASEAN have come a long way since the Southeast Asian Sectoral Dialogue Partner Meeting in 1992. With full dialogue partnership established in 1995, India's engagement with ASEAN is both regional and sub-regional, with economic cooperation agreements with several Asia-Pacific Economic Cooperation members. India has bilateral agreements with Thailand, Singapore, and Malaysia, and is a signatory to the ASEAN–India Free Trade Agreement, the ASEAN–India Investment and Services Agreement, and, soon, the Regional Comprehensive Economic Partnership.

India and ASEAN are discussing strategic partnerships pertaining to the digital economy. The ASEAN–India Connectivity Summit, held in New Delhi in November 2017, concluded with an emphasis on improving digital and physical links between India and ASEAN countries

to maximise the benefits of cross-border production chains. Similarly, improving digital connectivity was discussed at the ASEAN–India Senior Official Meeting in Hanoi in April 2018, where digital literacy and technology and telecommunication exchange scholarships were discussed.

‘Wider ICT development’ is an ASEAN priority. The ASEAN Digital Integration Framework, embraced during the 32nd ASEAN Summit in April 2018, is aligned with the ASEAN ICT Masterplan 2020 and the Masterplan on ASEAN Connectivity 2025. The five key expected outcomes of the ASEAN ICT Masterplan 2020 (ASEAN Secretariat, 2015b) are (1) an accessible, inclusive, and affordable digital economy; (2) deployment of next-generation ICT as enablers of growth; (3) sustainable development through smart-city technologies; (4) multiple ICT opportunities across a single regional market; and (5) secure digital marketplaces and safe online communities.

With the rise of global digital trade and e-commerce, cross-border trading is evolving and will shape India–ASEAN trade. ASEAN accounts for 10% of India’s global trade, rising from 7% in 2001, making it India’s fourth-largest trading partner. ‘The quantum of trade was gauged at US\$70 billion in 2016–2017, which rose from US\$65 billion in 2015–2016. India’s exports to ASEAN also increased to US\$30 billion in 2016–2017 from US\$25 billion in 2015–2016’, (Ministry of External Affairs, Government of India, 2018).

India is ASEAN’s seventh-largest trading partner, accounting for 2.7% of ASEAN’s total trade in 2013, rising from 1.3% in 2001 (ASSOCHAM, 2016). A conducive environment for trade to flourish must be created.

Because it is disruptive and raises competition concerns, the digital economy is grappling with regulations. The policy framework must evolve to tackle them. Due to the lack of global standards, different procedures and practices exist across sectors, countries, and regions, impacting cooperation between countries and regions, including India and ASEAN. Some ASEAN countries are strengthening their digital economies and rules must be harmonised.

Digital payment is growing at an unprecedented rate across India and ASEAN but, at least for now, they remain cash-heavy. Digital payment systems differ across countries, hampering digital trade. Cross-border e-commerce requires an interoperable payment mechanism.

Thailand rolled out the first phase of an e-payment gateway called PromptPay in 2017 to facilitate its extensive exports with Cambodia, Viet Nam, Lao PDR, and Myanmar. Alipay, valued at US\$60 billion, is the biggest payment gateway in China, about three times bigger than PayPal, the United States’ largest payment gateway. India, too, is working to make its payment system interoperable with other countries.

Considering the varying levels of technical and economic sophistication of ASEAN countries, however, the challenge of achieving financial inclusion and integration and interoperability of payment mechanisms is even bigger. The ASEAN Economic Community's 2025 Blueprint for financial integration highlights the need for real-time payment capabilities to propel socioeconomic growth.

### 7. Conclusion and Policy Recommendations

E-commerce has transformed how goods and services are purchased, delivered, and consumed domestically and internationally, creating a large number of value chains across the globe and changing customers' buying behaviour and producers' selling techniques. It has also created a new arena of cross-border exchange of goods and services and is therefore important in negotiating bilateral, regional, and multilateral trade agreements, although some countries, including India, still do not agree to them.

The phenomenal growth of e-commerce in India and all over the world can be attributed to connectivity, which brings buyers and sellers together without the need for face-to-face interaction. India has progressed well in ICT and logistics connectivity by establishing new, and expanding existing, infrastructure, but Internet speed, quality of roads, penetration of telecommunication services, especially in rural areas, require attention.

India has done remarkably well in promoting e-payment. In the last decade, the government has launched a number of e-payment methods and instruments, further escalated by demonetisation. The government established the NPCI, which introduced several payment instruments, and the PMJDY, which connected millions of people to banking services and offered several discounts and cashback schemes. The entry of Reliance Jio has unquestionably been pivotal in promoting e-payment because it provides low-cost 4G Internet services to thousands who have never used the Internet, boosting the adoption of wallets and mobile banking.

Still, e-payment penetration is low, especially in rural areas and among small merchants, and is hampered by poor banking penetration in rural areas, cybersecurity and data privacy issues, charges on the use of plastic money, digital illiteracy, and so on.

Closer integration and interoperability are needed as well as better digital security as transactions increase between India and ASEAN. Fraud and consumer grievances will impede the growth of e-commerce and lead to lack of trust amongst consumers. Financial institutions should ensure that consumer data and payments are protected.

## 7.1 Policy Recommendations

The government set up the Standing Committee on Finance in 2017 to review India's transformation into a digital economy. In January 2018, the committee reported that although the cash-to-GDP ratio declined from 12.2% at the end of March 2016 to 8.8% at the end of March 2017, it still ranks low in terms of e-payments per million people. The committee recommended ways to promote e-payment and make India a cashless society:

- India ranks second to last in the Asia-Pacific region in average Internet speed. About 175 million urban and 750 million rural people are still not connected to telecommunication or Internet services. ICT connectivity speed and geographical coverage should be improved. Manufacturing of telecommunication devices should be encouraged. The Telecom Regulatory Authority of India (TRAI) should ensure that rural and hilly areas have high-speed Internet and telecommunication connectivity. The country should become competitive in broadband expansion and development, focusing on speed and penetration in all parts of the country.
- Use of digital payment involves some financial burden on customers as well as merchants. In India, the high cost is amongst the major lacunae in encouraging people to adopt e-payment. However, the government has, for example, taken it upon itself to bear MDR on transactions up to Re2,000 through debit cards, UPI, and AePS, for 2 years from 1 January 2018. The RBI has also capped MDR charges for debit card transactions at 0.4% and 0.9% for merchants with turnover of Re2 million and above Re2 million, respectively. Still, both consumers and merchants pay an e-payment cost on credit cards and, in some cases, on debit cards, which should be withdrawn for at least small consumer transactions.
- India is amongst the countries most targeted by cyber criminals. The government should therefore establish IT infrastructure to secure customer and merchant data.
- Inequality in digital literacy is massive across population and geography. The government should promote digital literacy, especially in rural and semi-urban areas.
- Data protection and consumer privacy laws are needed to assure consumers that their information and data are safe.
- E-payment through UPI had the highest growth rate and should be popularised and incentivised.
- As India is a leader in software development, its companies should build local service providers' capacity to secure data.
- Laws dealing with the online market, such as the IT Act, 2000; Consumer Protection Act, 1986; and the Indian Contract Act, amongst others, should be strengthened to bolster e-commerce. More importantly, a single law governing e-commerce should be passed.

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- Grievance redressal mechanisms should be strengthened.
- Data from private gateways should be reported to the RBI. This will enable policymakers to gauge the growth trajectory of e-commerce, which will help them pass optimal regulations.

To establish India's e-commerce connectivity with ASEAN and rest of the world, the country should focus on (1) improving existing ICT infrastructure, encompassing underserved regions; (2) establishing adequate logistics infrastructure in areas such as the north-eastern states that border ASEAN countries; (3) creating a more friendly and secure environment for e-payment by allaying cybersecurity concerns, ensuring digital and financial inclusion, guaranteeing a strong grievance redressal mechanism, and optimising fees levied on e-payment instruments; and (4) inducing transparency in the payment framework, where aggregate transaction data is available to the public. This data will enable policymakers to establish policies and policy think tanks advocating for evidence-backed policy reforms.

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# A Threshold for Tariff and/or Tax Exemption

Inkyo Cheong

## 1. Introduction

Although e-commerce ranges from the trade of digitised products to all types of trades based on information and communications technology (ICT), this chapter focuses on the international trade of goods. E-commerce is gaining importance in international business, providing new opportunities for businesses and consumers to engage in international trade (Dan, 2014; Rillo and Cruz, 2016).

Global Internet users number about 3.4 billion, and have grown at higher than 10% per year since 2009.<sup>1</sup> The global expansion of the Internet has provided the environment for creating new business models that bring trade and related information together, and it has underpinned the development of some of the world's most innovative companies providing goods and services to consumers in entirely new ways (Cheong and Hong, 2017).

Since e-commerce business is based on the Internet, the business could be activated more efficiently in an advanced country than in a developing country. Despite the advantages and potential economic gains of e-commerce, it is difficult for many developing countries to realise numerous business opportunities due to the lack of fundamental Internet infrastructure. This applies to most countries of the Association of Southeast Asian Nations (ASEAN). Although ASEAN's annual potential online retail market reaches US\$7 billion, the share of e-commerce in national sales is still low. The ratio of Internet users ranges widely across countries. In Indonesia, only 16% of the total population, or 36 million people, use the Internet, whilst the ratio of Internet users is 50% of the populations in the Philippines, Thailand, and Viet Nam. In reference, 73% of the total populations in the United States (US) utilise the Internet.<sup>2</sup>

<sup>1</sup> Refer to Meeker (2017) regarding the growth of Internet users.

<sup>2</sup> Regarding the market scale of e-commerce and Internet use in ASEAN, refer to A.T. Kearney (2017).

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Yet, in various aspects, the ASEAN region is a promising region for e-commerce industries. Above all, the scale of e-commerce market in ASEAN is developing rapidly. In Indonesia, the e-commerce market in 2013 was only US\$1.3 billion, but its potential market is about US\$25 billion–30 billion. Further, the low utilisation ratio is subject to an increase by two to three times in the near future.

Because of the network effect in e-commerce, a large scale of investment is required to build the infrastructure for advertising, placing orders, authorisation, and others. As the scale of order placement for small and medium-sized enterprises (SMEs) is diminutive, it is challenging to actualise the economies of scale. Thus, such cases become more disadvantageous compared to big and/or global e-commerce corporations not only in production but also in sales. However, the development of the Internet could be helpful for businesses in developing countries, especially for SMEs, in expanding international trade and planning to engage in new international business due to cheaper costs of communication, market information, consulting services, and others. Although SMEs in developing countries could improve global competitiveness, various barriers restrict consumers and SMEs to do cross-border e-commerce.

Although research on measures for improving e-commerce use in ASEAN and other countries are many, it is difficult to find one that studies such topics in terms of trade agreements and economic logic based on the burden of tariffs that the user of cross-border e-commerce pays. In addition to the lack of Internet infrastructure, one of the most serious barriers in cross-border e-commerce in developing countries is the risk related with customs clearance, addressing tariffs and domestic taxes, the certificate of origin (CoO) and related rules of origin (ROO), the transparency of customs, digitisation of customs procedures, inspections, and others. This chapter focuses on tariff and/or tax exemption for low-value shipments, benchmarking the special arrangement on ‘express shipments’ in the Korea–US (KORUS) Free Trade Agreement (FTA). Although physical infrastructure necessary for the Internet and e-commerce is satisfied, importation itself may be abnegated due to the high pressure of paying tariffs. In general, paying tariffs during customs clearance takes a longer time. Tariffs and time, which are required for moving goods across countries, will be an immensely critical factor to consider by SMEs and individual consumers who wish to do e-commerce.

In ASEAN, although the majority of debates and initiatives are for the promotion of e-commerce, doing cross-border e-commerce in many ASEAN countries except Singapore is still insignificant. This chapter searches a way for facilitating e-commerce utilisation in the context of tariff and/or tax exemption for low-valued shipments. It further suggests

to include in the Regional Comprehensive Economic Partnership (RCEP), now under negotiation, a similar article on express shipment to promote e-commerce in ASEAN and East Asia.

## 2. E-commerce in ASEAN

A cooperative project for Internet and e-commerce development has been actively promoted under the program of the ASEAN ICT Master Plan 2015. The ASEAN ICT initiative began as e-ASEAN initiative in 1999; the ASEAN ICT Master Plan 2015 started in 2011. The total of 29 actions was identified and two-thirds of the 29 actions have been achieved. Two years after the goal year of 2015, the Internet groundwork should have been constructed as most of the initial goals were achieved. However, according to the research results by the international economic/cooperation institutions, such as the World Economic Forum, the United Nations Conference on Trade and Development (UNCTAD), and others, most ASEAN countries are evaluated to have poor environments for the Internet and e-commerce as seen in Table 9.1.

**Table 9.1: ASEAN Countries' B2C E-commerce Index 2016**

2016 Rank	Economy	Share of individuals using Internet	Share of individuals with credit card	Secure Internet servers / million people	Postal reliability score	UNCTAD B2C e-commerce Index (2015)	2014 Rank
23	Singapore	82	35	88	98	75.8	26
44	Malaysia	68	20	69	84	60.1	45
69	Thailand	35	6	58	90	47.2	70
75	Vietnam	48	2	52	70	43.1	90
89	Philippines	40	3	52	48	35.7	N/A
93	Indonesia	17	2	47	66	33	88
115	Lao PDR	14	3	38	26	20.3	105
119	Cambodia	9	3	41	25	19.5	91
133	Myanmar	2	0	25	21	12	N/A

B2C = business to consumer.

Source: Modified from the UNCTAD B2C E-commerce index 2016.

Numerous studies are proposing measures to activate e-commerce of SMEs in developing countries. Some examples include Meltzer (2014), A.T. Kearney (2015), and UNCTAD (2017). Meltzer (2014) points out that the Internet infrastructure does not fully serve as a platform for international trade. This is because of a range of barriers for SMEs' e-commerce in developing countries, ranging from physical (technical) factors, such as limits to Internet

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access, to legal factors, such as regulations on cross-border data flows. A.T. Kearney (2015) recommends (i) increasing broadband access, (ii) supporting the emergence of local players, (iii) reinforcing online security, (iv) promoting e-payment, and (5) improving logistics and trade efficiency. UNCTAD (2017) suggests to use international programs, such as the eTrade for All initiative, Aid-for-Trade, and ICT-related substantive work of UNCTAD.

Apart from Meltzer (2014) and A.T. Kearney (2015), many other comments point out to lower logistical costs for e-commerce to flourish. Yet, Meltzer (2014) differentiates from other studies in that he emphasises increasing incentives for e-commerce use by decreasing customs duties of e-commerce goods by actively using trade agreements, such as the multilateral trade agreement of the World Trade Organization or the FTAs.

Although the expansion of the physical infrastructure must precede the spread of e-commerce, the merits of exemption of custom duties on imported commodities should be considered as very crucial. The FTAs with China, Japan, the Republic of Korea (henceforth Korea), Australia, New Zealand, and India of the 10 ASEAN countries already came into force Individual member countries also concluded bilateral FTAs with trading partners. For example, Viet Nam signed its bilateral FTA with the European Union (EU) in early 2016. In order to relish in the FTA merits, one must satisfy several requirements, such as those on ROO, rules of business dealing, rules of procedure, direct transportation (consignment) regarding the application of tariff preference for imported goods. Many SMEs are aware of the need to submit a CoO to satisfy the ROO when applying for the preferential tariff given in FTAs. However, other requirements are not in their worksheets.

For instance, many corporations are unfamiliar with the requirement of a direct transport rule. The direct transport rule secures the equivalence between the imported commodity in the import document and the exported commodity out of the exporting country. This rule aims to prevent the manipulation or mix of the goods eligible for preferential tariffs and the non-eligible goods during transport. Direct transport is needed to prevent unqualified goods from being changed into products originating from a member country, as well as illegal products being imported with the legitimate products from the member country. However, in the case of small orders, it is difficult for e-commerce sellers, who have the lowest delivery fees, to deliver goods to buyers through direct transport.<sup>3</sup>

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<sup>3</sup> Most e-commerce businesses store goods at their major international logistics bases. , They deliver products from the distribution points when an order is made. Presentation of verifying documents of a direct transport is possible but issuing such documents to individual e-commerce users is rare.

Small e-commerce businesses not only have a difficulty in receiving a CoO from exporters or producers but also lack knowledge in regulations regarding the origin; thus, disputes from such circumstance have been lately escalating. From a theoretical perspective, the burden of tariffs towards cross-border e-commerce can be regarded as absent; but realistically, it is hard to use FTAs for SMEs and most individuals.

Although the application of FTA preferential duty has been recognised as a useful means for activating e-commerce, all requirements regarding the place of origin must be satisfied to prevent risks of origin verification and more after customs clearance. Yet, it is not easy for SMEs or individual e-commerce users to manage such risks. In terms of number of cases, most e-commerce transactions carry low-value shipment, and e-commerce businesses are not cooperative as regards regulations on the ROO. Therefore, we have to seek new methods of approach based on such reality.

### 3. A Threshold for Tariff and/or Tax Exemption

#### 3.1. Phasing Out Tariffs in ASEAN FTAs

Apart from the ASEAN Free Trade Area (AFTA), ASEAN+1 FTAs with six countries – China, Japan, Korea, India, Australia, and New Zealand – also came into force. ASEAN members are negotiating the RCEP with these six countries; they completed the 21st round of RCEP negotiations in February 2018 in Yogyakarta, Indonesia. Moreover, each country has either taken numerous bilateral FTAs or is facilitating a negotiation. For instance, Singapore's FTAs with major countries, such as the US, Europe, and others, had taken effect. Apart from the ASEAN FTAs, Viet Nam's FTAs with Japan, Chile, Korea, and the Eurasian Economic Union already came into force. Viet Nam also signed the Trans-Pacific Partnership (TPP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

The AFTA has now been virtually established. Following the Common Effective Preferential Tariff (CEPT) scheme, ASEAN-6<sup>4</sup> countries liberalised more than 99% of the tariff lines in the CEPT Inclusion List. ASEAN's newcomers, the CLMV<sup>5</sup>, achieved 80% of their CEPT Inclusion List commitments. AFTA permits maintaining 0%–5% of tariffs for each country without completely eliminating them. Considering the economic development stage, CLMV countries are given more flexibility than ASEAN+6 in terms of the commitment for tariff liberalisation.

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<sup>4</sup> Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

<sup>5</sup> CLMV means the four ASEAN members of Cambodia, the Lao PDR, Myanmar, and Viet Nam.

Following the protocol to speed the CEPT in 2003, the average tariff rate for ASEAN-6 is now 1.51% from 12.76% when AFTA began tariff liberalisation.

**Table 9.2: The Progress of Tariff Liberalisation in ASEAN+1 FTAs**

	ASEAN-China FTA	ASEAN-India FTA	ASEAN-Japan FTA	ASEAN-Korea FTA
Partner	93.2%	60.5%	93%	90.7%
Average of ASEAN	91.1%	88.2%	91%	89.2%

FTA = free trade agreement/area.

Source: Calculated based on tariff concession of relative FTAs

Most tariffs committed in ASEAN's bilateral FTAs are supposed to be eliminated soon, although large gaps in the ratios of tariff elimination in the FTAs exist (Table 9.2). In the case of the ASEAN-Korea FTA, about 90% of the products being traded between ASEAN and Korea are eligible for the application of zero tariff importation. The items belonging to the Normal Track covering about 90% of the whole tariff lines (HS codes) in the FTA were fully liberalised in all members of the FTA as of 2018. Both parties agreed that the items in the Sensitive Track will be grouped into the Sensitive List and the Highly Sensitive List. Latecomers such as the CLMV are supposed to eliminate all tariffs in the Sensitive List not later than 2024, whilst Korea and ASEAN-6 eliminated tariffs not later than 2016. Members are allowed to keep some or whole tariffs in the Highly Sensitive List.

Through FTAs, the majority of the tariffs have been reduced. In general, corporations or consumers of ASEAN members do not face many barriers from tariffs when doing cross-border e-commerce.<sup>6</sup>

### 3.2. Requirements for Using Tariff Preference in FTAs

Even if the FTA took into effect, the minimum requirements have to be fulfilled to utilise the preferential tariffs mentioned in the FTA for actual businesses. After the preferential tariffs are applied, one must prepare for origin verification by customs authorities. Due to such difficulties and risks, the utilisation rate of FTAs is low. According to the survey by the East Asia Business Council (2017) on FTA utilisation, 23.5% of the wholesale and/or retail industry and 23.5% of the textile industry have given up FTA use due to non-fulfilment of stringent ROO. Even big companies had substantial constraint for ROO (insufficient regional value contents (RVC) ratio due to narrowly defined accumulation rule) and give up FTA use.

<sup>6</sup> For information about ASEAN's customs clearance and a burden of tariffs towards e-commerce, refer to East Asia Business Council (2017).

The complexity of ROO in existing FTAs was major bottleneck for FTA use, especially in the textile industry (47.1%), automotive industry (46.7%), and food industry (43.2%).

The procedure for FTA use is as follows:

- (i) Confirm the HS code of the goods that are to be applied for the FTA tariffs. As the tariff rate and ROO depend on the HS code of goods, one must carefully check the HS code.
- (ii) Check the tariff rate in the FTA and related benefits at the time of customs clearance. If the tariff benefits are small, there is no point applying for the FTA preferential tariffs.
- (iii) Check the ROO. How the FTA acknowledges the goods of its member countries includes general standards that apply to many items, and specific standards apply only to specific items.
- (iv) Prepare certifying documents of origin. These documents refer to basic documents that confirm the goods as items of origin; generally, bill of materials, manufacturing process, material specifications, country comprehensive certification, and others.
- (v) Verify from the document whether the goods correspond to the ROO. This is the process of confirming whether the ROO is satisfied, based on production and relevant information (breakdown of raw materials, the HS code of raw materials, price of raw materials and goods, production process, and etc.). When the ROO is satisfied, a CoO is to be issued. As methods and forms of issuing a CoO are different, careful attention is needed.

Issuance of a CoO can be largely divided into two: official issue and self-issue by a producer or an exporter. Official issue requires submission of corroborating documents to the customs service, chamber of commerce and industry, and any organisation issuing the CoO. For self-issuance, an exporter or producer judges the ROO fulfilments based on his/her knowledge and the FTA rules, and issues the CoO himself or herself. Advanced countries generally prefer the self-issue approach but developing countries, such as ASEAN, India, and others, favour the official issue method. When an item is at the customs clearance or even after the importation is released, customs authorities can check whether the CoO has been legitimately issued based on the FTA. That is, all FTAs assign the duty of origin verification to an exporter or producer for 4 or 5 years after the CoO is issued. Origin verification means a series of administrative procedures of confirming whether the criteria can be satisfied as goods of the origin or not.



As mentioned, numerous ROO need to be satisfied other than submission of the CoO. But even a direct transport is difficult to be satisfied by SMEs or individual consumers. Many SMEs in ASEAN countries lack in trade expertise. Consequently, the direct transport requirement becomes burdensome for SMEs, since it costs a lot compared with the scale of trade volume. Especially, myriad individuals order foreign commodities via e-commerce. There is a high possibility of commodities being assembled at a bonded site of distribution bases in Singapore, Shanghai, Yokohama, Busan, Bangkok, etc. which are then transported to the final destination via a different vessel. For instance, corporation A in Jakarta orders goods from corporation B in Tokyo, whilst applying tariff exemption under the ASEAN–Japan FTA. In such circumstance, the goods of corporation A can only receive the tariff benefits if the goods depart from Japan (for example, Yokohama) and are transported to Indonesia (Jakarta) without any transshipment. However, commercial vessels operate between Yokohama and Singapore, and goods are transported to Jakarta via Singapore–Jakarta vessels after the goods are held in a bonded warehouse in Singapore.

It is difficult for SMEs to satisfy direct transport due to maritime transportation service practice. This has been one of the main causes of the FTA utilisation in most countries, eventually impairing the incentives to use e-commerce. Many FTAs introduced a set of measures to ease the direct transport requirement. ASEAN FTAs, despite adopting easing measures,<sup>7</sup> have fragile aspects compared to other FTAs. But the requirements of ASEAN FTAs can be further improved. Especially, SMEs' utilisation of preferential tariffs in FTAs and e-commerce will be improved if FTAs adopt a special arrangement for direct transport.

### 3.3. TPP Negotiation and Threshold for Tariff/Tax Exemption

As discussed, in order to utilise the FTA preferential tariffs, the ROO should be satisfied; when it is not, producers or exporters are exposed to risks of having to pay the penalty, in addition to tariffs and taxes. Accordingly, if it is not a business that regularly deals with more than a particular amount of money, an exporter or producer tends to avoid issuing the CoO because of small incentives. For an example, no exporter is likely to issue a CoO when he/she exports small amounts, since it costs for him/her to prepare documents needed for supporting the CoO. A similar situation may apply to SMEs and consumers. Even if the

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<sup>7</sup> The FTAs by ASEAN require direct consignment of originating goods between the member states, but goods transported through a third member state or a non-member state can be considered as consigned directly under the following conditions: (i) the transit entry is justified for geographical reasons or by consideration related exclusively to transport requirements, (ii) the goods have not entered into trade or consumption in the state of transit, and (iii) the goods have not undergone any operation in the state of transit other than unloading and reloading or any other operation to preserve them in good condition

amount of tariffs to be paid is small, a lot of documents must be written in relation to tariffs. They may give up utilising cross-border e-commerce.

Today, the e-commerce business is becoming diffused; in terms of the number of cases, high-value shipments are insignificant but most e-commerce takes place as low-value shipments. US industrial associations, which are very insightful about the dealing structure of current e-commerce, have requested the trade negotiating authorities of the US, the US Trade Representative (USTR), to add an article of a threshold for the customs *de minimis* to the Customs Administration and Trade Facilitation chapter of the TPP. The TPP, led by the US to reach a conclusion, is a trade agreement with the highest level of trade liberalisation and the most comprehensive context. Although the trade agreement was signed on 4 February 2016, US President Trump officially withdrew from it on 23 January 2017. On 3 March 2018, the 11 countries, except the US, decided not to implement 22 articles of the TPP for the time-being, and signed the Comprehensive and Progressive TPP (CPTPP) on 8 March 2018.

Fergusson and Williams (2016) highly evaluated the trade liberalisation and improvement of trade rules by the US and member countries of the TPP, and suggested critical components that the US Congress may review from the viewpoints of national interests. One of the components was setting limits to tariff exemption. Fergusson and Williams (2016, pp.32) add: 'Unlike KORUS, TPP lacks a specific threshold for the customs *de minimis*, a critical commitment for express delivery providers as shipments valued below the *de minimis* receive expedited customs treatment and pay no duties or taxes. Industry sought a US\$200 *de minimis*, like that in KORUS, and has noted that TPP parties agreed to periodically review their respective thresholds'. In the US where lobbying is legalised, corporations or industrial associations voicing out opinions on government policies is an ordinary practice. Especially during negotiations of trade agreements, the USTR must listen to the Advisory Committee for Trade Policy and Negotiations (ACTPN) according to US trade laws.

With the talks of the TPP having started earlier, the ACTPN (2015) and the Industry Trade Advisory Committee on Customs Matters and Trade Facilitation (2015) evaluated the TPP as a 'fair and balanced' agreement. However, they pointed out the TPP not setting limitations on tariff exemption which could contribute to the development of trade facilitation and e-commerce. 'The Customs Administration and Trade Facilitation chapter also includes many provisions that will help SMEs and micro-businesses access the global market. We regret, however, that the agreement does not include harmonised and increased *de minimis* customs and duties exemptions for all physical goods. ACTPN recommends the Administration seek to include *de minimis* exemptions in future trade agreements, as they have enormous

potential to reduce the export barriers SMEs and micro-businesses face' (ACTPN, 2015, pp. 8–9).

### 4. Logic for the Customs *de Minimis*

Many studies – such as those of Suominen (2017), Copenhagen Economics (2017), Evdokia and Sorescu (2013), Holloway and Rae (2012), USPS (2010), Hufbauer and Wong (2011a, 2011b), Hufbauer, Schott, and Wong (2010), Hummels (2007), Fremont (2009), and Ikenon (2008) – demonstrate that logistics costs related to charging tariffs for low-value shipments are more burdensome than tariff revenues collected in most countries.

Hufbauer and Wong (2011a, 2011b) analysed barriers to low-value shipments based on microdata of US e-commerce and suggested to raise the US' *de minimis* threshold for duty-free shipments from US\$200, which was the amount at the time of publication of the paper, to US\$800. Such suggestion was accepted by the US Congress and government (US Customs and Border Protection); thus, the former threshold was increased. Hufbauer and Wong (2011a, 2011b) preached the logic of threshold augmentation in favour of the shipments with low value. Hufbauer and Wong (2011b, p. 2) stated: 'Historically, the *de minimis* threshold for duty-free shipments (mainly air cargo) is intended to achieve a balance between the costs of assessing and collecting customs duty and the revenue raised. While a higher *de minimis* exemption might reduce government revenue, it will also cut overall compliance costs, reduce delivery times, and encourage low-value imports, especially direct purchases by consumers and small business firms from foreign suppliers.. Moreover, as just mentioned, it will free up resources to deal with more important security and product safety issues'.

Although the burden of tariffs drastically decreased due to the progress of trade liberalisation by the World Trade Organization and FTAs, the costs of customs clearance and logistics are not so reduced. This issue was pointed by several studies such as USPS (2010), Hufbauer, Schott, and Wong (2010), and Hufbauer and Wong (2011b). Hufbauer and Wong (2011b, p. 6) stated: 'Enhanced trade facilitation could increase the annual global level of manufactured exports by as much as US\$400 billion. *De minimis* entries by express firms now amount to roughly 17.3 million per year, with an annual declared value around US\$1.0 billion. The significance of trade facilitation and the "time to trade" are gaining proper recognition among scholars and officials alike. Administrative procedures related to exports and imports especially hamper small and medium enterprises (SMEs) in their efforts to engage the global marketplace'.

For the US, in 2010, cross-border shipments that are less than US\$200 numbered 17.3 million; those costing US\$200–US\$800 numbered 3.8 million; those costing US\$800–US\$2,000 totalled 1.2 million; and those costing US\$2,000–US\$2,500 numbered 0.5 million. Thus, the number of dealings are conspicuously declining. Whilst the cost of customs clearance takes a comparable amount of time both for goods costing US\$200 and US\$2,000, as tax revenues from low-value revenues are small, from the perspective of economics, Hufbauer and Wong (2011a) empirically proposed that raising the *de minimis* threshold for duty-free shipments from US\$200 to US\$800 is beneficial to everyone, including government, special delivery companies, consumers, and corporations producing goods.

From Suominen’s (2017) research summarised in Table 9.3, we can comprehend how the increasing low-value e-commerce is not only a phenomenon in the US but is also a universal trend. According to this research, international parcel service has rapidly increased the delivery of low-valued parcels in the last few years. Analysis of the data from the USPS reveals that low-valued parcels increased by 73% from 2011 to 2015; specifically, those delivered from China, the US, and the EU have immensely increased. It shows that shipments with a value of less than US\$100 occupy 80% of the entire parcels, and those with a value from US\$101 to US\$1,000 are less than 20%.

#### 4.1. Analysis of Cost and Benefits

Whilst the revenue of the Customs and Border Protection (CBP) decreases as duty-free limit is increased, other economic agents can expect substantial benefits. The benefit of total of 77 million dollars consists of 10 million dollars from customers’ time saving, 56 million dollars of reduced costs that USPS and special delivery services can expect to acquire by skipping customs declaration procedures, and 11 million dollars of another reduced costs from the customs authorities, CBP. Considering the reduced amount of customs revenue of US\$51 million, the net gain (benefits) becomes US\$26 million (Table 9.4).

**Table 9.3: Distribution of Shipments of Major Blocs (2015)**

	US\$0-100	US\$101-200	US\$201-500	US\$500-1000	+US\$1000
Share	78-80%	About 8%	9-10%	3-4%	Less than 1%

Note: Averages of APEC (Asia Pacific Economic Cooperation), ASEAN, EU, and NAFTA (North American Free Trade Agreement).  
Source: Suominen (2017, p. 8).

**Table 9.4: Costs and Benefits of Raising *de minimis* Threshold to US\$800**

Items of cost/saving	Amount
Value of customer time saved for all entries	US\$10 million
Estimated cost savings to express firms and USPS	US\$56 million
Estimated cost savings to CBP	US\$11 million
Estimated loss of tariff revenue	US\$51 million
<b>Net gain from raising <i>de minimis</i> threshold</b>	<b>US\$26 million</b>

Source: Modified based on Hufbauer and Wong (2011a, p.23).

These calculations are mere analyses of customs revenue reduction and benefits due to the augmentation of threshold. But when the US and Asia-Pacific Economic Cooperation (APEC) countries promote comprehensive trade facilitation, domestic production would be magnified due to the creation of new trade, and the real GDP of those countries can rise by 1%–2% as consumption is enhanced with an increase in GDP. The measure of trade facilitation can be a critical aid for SMEs' participation in international trade and can expedite cross-border e-commerce participation of consumers and SMEs. In fact, according to Evdokia and Sorescu (2013), trade facilitation can reduce total trade costs by 10%–15%, and a more substantial influence is expected for developing countries. Recognising the importance of trade facilitation, the World Trade Organization entered the Trade Facilitation Agreement into force in 2013. The World Trade Report by WTO (2015) anticipates that this agreement would increase trade of goods up to US\$1 trillion annually.

Although the duty-free threshold is much lower compared to that of the US, the Korea Customs Service is reported to demonstrate similar results with those of the US. The Korean duty-free threshold towards cross-border shipment consists of (i) US\$125 (the Cost Insurance Freight [CIF] price) when delivered through postal operators, (ii) US\$100 (the Free on Board [FOB] price) when utilised express parcel couriers, and (iii) US\$200 when importing from the US according to the KORUS FTA. This is the only agreement that sets cross-border shipment threshold through an FTA (more about this will be discussed in section 5).

When adopting *de minimis* threshold or increasing threshold, a net economic gain is expected as suggested in the research of Holloway and Rae (2012). When the six countries of APEC (Canada, Indonesia, Japan, Malaysia, the Philippines, and Thailand) set their *de minimis* threshold as US\$200, they expected net benefits of US\$5.93 billion; and when all of 21 APEC countries adopt this, the net benefits would reach US\$30.3 billion. They suggest that a *de minimis* regime is adequate for e-commerce consignment.

According to the research of Copenhagen Economics (2017, pp.2-4), when the value added tax (VAT) exemption system of low-value (12~20 euros [€]), which the European Commission reviewed in 2016, is abolished, ‘the delivery industry is significantly affected and will face additional processing cost of 1 billion euros... The removal of the small consignments exemption will mean that delivery operator will have to process a significant larger number of packages through customs.’ The VAT additional revenue due to abolition of *de minimis* could increase to €0.05 billion, yet the cost for tax collection is absurdly trivial. When the plan of the EU is facilitated, cross-border e-commerce will decrease by 0.9% (€1.7 billion in sum), and the cost of e-commerce is viewed to generally increase by 0.5%. Particularly, non-EU e-commerce corporations are anticipated to face considerable damage.

For Korea, 96% of cross-border e-commerce transactions (in terms of number of transactions) has prices below duty-free threshold, yet 0.3% of cross-border e-commerce transactions have exceeded US\$1,000. In 2014, 150,000 e-commerce transactions totalled US\$1.2 billion, and tax loss of the Korea Customs Service (KCS) amounted to US\$230 million. This tax loss is a small cost as it is only 0.4% of Korea’s total tax revenue. The KCS explains that it is a small cost, relative to the loss of consumers (corporations) followed by delay of customs clearance and cost of KCS for tax collection.<sup>8</sup> By applying the simplified procedures of customs clearance on imports of low-value goods, Korea takes measures to deliver the product to its purchaser as soon as possible when it arrives at the airport. In spite of fast customs clearance, Korea conducts X-ray tests on all goods to avoid illegal importation or safety problems, and makes it compulsory for all transport providers to report the final destinations to the KCS after delivery.

## 5. E-commerce and Trade Facilitation in FTAs

The range of e-commerce can be as wide as from goods and plane tickets to government procurement. However, the majority of the goods for most countries are low-value shipments from e-commerce (as discussed in section 4). For ASEAN countries comprised mostly of developing countries, such phenomenon would be even more obvious. Tedious processes related to customs clearance accompanied by cross-border e-commerce, such as tariffs and domestic taxes, submission of customs clearance documents, and others may lead many consumers and corporations to give up e-commerce.

E-commerce remains relatively underdeveloped in Southeast Asia with less than 1% of total retail sales, compared to rates of 6%–8% in Europe, China, and the US (Table 9.5). However,

<sup>8</sup> For the case of Korea, refer to Sung and Choi (2016).

## E-commerce Connectivity in ASEAN

in the coming years, as purchasing power increases, Internet penetration spreads, and online offerings improve, online retail in ASEAN markets could grow as much as 25% annually.

**Table 9.5: Online Retail Sales (% of Total Retail Sales)**

	Europe	China	US	Singapore	Other ASEAN countries
Share	7.8%	7.2%	5.8%	90.7%	About or below 1%

ASEAN = Association of Southeast Asian Nations, US = United States.  
Source: A.T. Kearney (2016).

The East Asia Business Council (2017) survey on FTA utilisation shows that the concern for e-commerce use is significantly active in SMEs (17.8%) over large enterprises (9.9%). The textile industry (41.2%) was identified as the most active e-commerce user. However, 58.85% of the industry had confronted to limited channels for cross-border e-commerce. They say it urgent to develop simple rules and disciplines to utilise e-commerce. In this regard, the e-commerce environment of ASEAN is not being notably improved.

ASEAN has sought various forms of e-commerce initiatives up until now. The E-ASEAN Framework was adopted by ASEAN leaders in 2000. The ASEAN Economic Community Blueprint 2025<sup>9</sup> was to intensify cooperation on e-commerce with a view to developing an ASEAN agreement on e-commerce to facilitate cross-border e-commerce transaction in 2015. The ASEAN ICT Master Plan 2020 was launched in 2015, aiming to transform ASEAN towards a digital economy by 2020. The ASEAN Strategic Action Plan on Consumer Protection 2025 was initiated to develop a Common ASEAN Consumer Protection Framework including the e-commerce provisions in ASEAN FTAs.

In spite of ASEAN's various efforts to activate e-commerce, the environment of ASEAN's e-commerce has not been so enhanced. Further, ASEAN countries do not actively introduce provisions on cross-border e-commerce issues such as tariffs and taxes and customs clearance procedures in the ASEAN FTAs. The ASEAN Trade Facilitation Framework, adopted in Vientiane, Lao PDR on 3 August 2016, lacks in the provisions in cross-border issues for promoting e-commerce but only covering very general subjects such as scope, objectives, and principles. Individual ASEAN countries have been working arduously to establish physical infrastructure, such as an e-commerce platform, rather than institutional aspects.

<sup>9</sup>The ASEAN Economic Community Blueprint 2025 comprises five elements: (i) a highly integrated and cohesive economy; (ii) a competitive, innovative, and dynamic ASEAN; (iii) enhanced connectivity and sectoral cooperation; (iv) a resilient, inclusive, people-oriented, and people-centred ASEAN; and (v) a global ASEAN.

However, it is difficult to expect activation merely through acquiring physical infrastructure. For many consumers to use e-commerce, risks of customs clearance for low-valued shipments should be mitigated, and the burden of tariffs and taxes should be lessened. The TPP and the CPTPP, evaluated as the most comprehensive and excellent agreements amongst the FTAs currently signed, also need future supplementation. As US industrial associations suggest, the KORUS FTA could be a typical model case for supplementing the TPP.

### 5.1. The KORUS FTA

KORUS FTA's Chapter 7 on 'Customs Administration and Trade Facilitation' tries to ensure that goods between Korea and the US are traded quickly across borders. Goods are supposed to be treated with speedy and transparent procedures, whilst reducing bilateral conflicts between customs authorities of the two countries. This chapter is supposed to guide customs staffs to minimise abuses and to cooperate for fast customs clearance.

Chapter 7, Article 7.7 of the FTA (Box 1) on express shipments regulates quick customs clearance and a threshold for tariff exemption. About express shipment, which takes speed delivery as its key service, the KORUS FTA coordinates the quickest customs clearance than any other FTAs around the world. The contents of subparagraphs (a) to (d) may be similar to other FTAs, but subparagraphs (e) to (g) contain what is regulated very rarely in other FTAs or for the first time, as seen the box of Article 7.7. Both Korea and the US have agreed to deliver goods to express shippers within 4 hours when goods arrive at the airport and relevant documents are submitted. Subparagraph (e) of Article 7.7 also mandates express shippers to proceed to customs clearance without questioning weight or customs value (subparagraph f).

Korea and the US concurred on subparagraph (g) of this article as follows: 'Under normal circumstances, [Korea and the US should] provide that no customs duties or taxes will be assessed on, nor will formal entry documents be required for, express shipments valued at 200 U.S. dollars or less'. For imports with a value less than US\$200, they agreed to offer the most convenient customs clearance service and not to impose tariffs and domestic taxes.<sup>10</sup> Yet, as a footnote to subparagraph (g), goods that can be applied to import regulations could be imposed tariffs exceptionally. This is a clue for preventive measures, and goods for import regulations were not specifically introduced.

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<sup>10</sup> Although it is difficult to find the impact of the subparagraph (g) in Chapter 7, Article 7.7 of the KORUS FTA, Korea's customs services officials mention that most express shipments of lower than US\$200 from the US are requested to be exempt from tariffs and taxes, implying that this special arrangement has contributed to the expansion of e-commerce.



### Box 1: Article 7.7: Express Shipments

Each Party shall adopt or maintain expedited customs procedures for express shipments while maintaining appropriate customs control and selection. These procedures shall:

- (a) provide a separate and expedited customs procedure for express shipments;
- (b) provide for information necessary to release an express shipment to be submitted and processed electronically before the shipment arrives;
- (c) allow submission of a single manifest covering all goods contained in an express shipment, through, if possible, electronic means;
- (d) to the extent possible, provide for certain goods to be cleared with a minimum of documentation;
- (e) under normal circumstances, provide for express shipments to be cleared within four hours after the necessary customs documents have been submitted, provided the shipment has arrived;
- (f) apply without regard to an express shipment's weight or customs value; and
- (g) under normal circumstances, provide that no customs duties or taxes will be assessed on, nor will formal entry documents be required for, express shipments valued at 200 U.S. dollars or less.<sup>1</sup>

A Party may require express shipments to be accompanied by an airway bill or other bill of lading. For greater certainty, a Party may assess customs duties or taxes, and may require formal entry documents, for restricted goods.

<sup>1</sup> A Party may require express shipments to be accompanied by an airway bill or other bill of lading. For greater certainty, a Party may assess customs duties or taxes, and may require formal entry documents, for restricted goods.  
Source: KORUS Free Trade Agreement, Chapter 7, Article 7.7.

## 5.2. The TPP Agreement

Customs administration and trade facilitation are regulated in Chapter 5 of the TPP, and like other FTAs, publication of laws, regulations, and procedures; release of goods; advance rulings; express shipments; penalties; customs cooperation, and more are included. This chapter is reflected in the CPTPP without any reservation.

The USTR (2016) states that the TPP's chapter on customs administration and trade facilitation will help move express shipments more quickly across borders by streamlining documentation needed to move such shipments, and by ensuring timely release of those goods. It states: 'In addition, TPP Parties will not charge any customs duties for express

shipments valued below an amount that each government will set in order to further expedite the movement of goods and reduce documentation'. That is, the TPP, unlike the KORUS FTA, has not adopted the threshold for a custom *de minimis*.

To enhance the TPP and the ASEAN FTA, this chapter seeks to compare the articles (see Box 1 and Box 2) on express shipments of the KORUS FTA with that of the TPP. These two agreements are similar in terms of an expedited customs procedure, electronic means, a single manifest, a minimum of documentation, coverage of express shipment, and others. However, they are divergent in a way: the KORUS FTA provides that the time of sending out goods to express shippers after arriving at the airport should not exceed 4 hours; the TPP allows up to 6 hours.

**Table 9.6: Comparison of Express Shipments**

Items	KORUS FTA	TPP
Expedited customs procedure	Yes	Yes
Electronic means	Yes	Yes
Single manifest	Yes	Yes
Minimum of documentation	Yes	Yes
Maximum hours for customs clearance	4 hours	6 hours
Coverage of express shipment	Yes	Yes
Common threshold for a customs <i>de minimis</i>	US\$200	n.a.

KORUS FTA = Korea-US Free Trade Agreement, TPP - Trans-Pacific Partnership.  
 Source: Author's assessment based on the text of the KORUS FTA and the TPP

The TPP does not adopt the cost of the threshold for tariff exemption but delegates it to individual countries. Although the tariff/tax exemption threshold by domestic laws for each member country varies, mostly it is less than US\$100.<sup>11</sup> Considering the characteristic of express shipments transported via air, the maximum time for customs clearance should be as short as the customs office can set after the goods arrive at airport and customs clearance documents are submitted. Even though the TPP requires customs clearance within 6 hours, it should be coordinated as 4 hours like the KORUS FTA. Moreover, a universal standard should be applied to all member countries, instead of leaving a threshold for a customs *de minimis* to individual countries.

<sup>11</sup> The threshold of Japan is US\$90; that of Indonesia is US\$50; Viet Nam, US\$40; and the Philippines, US\$0.33, which is quite low. Various kinds of customs clearance documents are required for each country.

### Box 2: Article 5.7: Express Shipments

1. Each Party shall adopt or maintain expedited customs procedures for express shipments while maintaining appropriate customs control and selection. These procedures shall:
  - (a) provide for information necessary to release an express shipment to be submitted and processed before the shipment arrives;
  - (b) allow a single submission of information covering all goods contained in an express shipment, such as a manifest, through, if possible, electronic means<sup>1</sup>;
  - (c) to the extent possible, provide for the release of certain goods with a minimum of documentation;
  - (d) under normal circumstances, provide for express shipments to be released within six hours after submission of the necessary customs documents, provided the shipment has arrived;
  - (e) apply to shipments of any weight or value recognising that a Party may require formal entry procedures as a condition for release, including declaration and supporting documentation and payment of customs duties, based on the good's weight or value; and
  - (f) provide that, under normal circumstances, no customs duties will be assessed on express shipments valued at or below a fixed amount set under the Party's law.<sup>2</sup> Each Party shall review the amount periodically taking into account factors that it may consider relevant such as rates of inflation, effect on trade facilitation, impact on risk management, administrative cost of collecting duties compared to the amount of duties, cost of cross-border trade transactions, impact on SMEs or other factors related to the collection of customs duties.
2. If a Party does not provide the treatment in paragraph 1(a) through (f) to all shipments, that Party shall provide a separate<sup>3</sup> and expedited customs procedure that provides that treatment for express shipments.

<sup>1</sup> For greater certainty, additional documents may be required as a condition for release

<sup>2</sup> Notwithstanding this Article, a Party may assess customs duties, or may require formal entry documents, for restricted or controlled goods such as goods subject to import licensing or similar requirements.

<sup>3</sup> For greater certainty, 'separate' does not mean a specific facility or lane.

Source: Trans-Pacific Partnership, Chapter 5, Article 5.7.

### 6. Conclusion

The e-commerce market is rapidly growing. By the year 2021, the size of the global e-commerce market is perceived to reach US\$4.5 trillion. The industry that started as an experiment of a small group of corporations only 10 years ago has grown into a cutting-edge industry, which gives consumers and producers an opportunity to shop online. E-commerce corporations should improve the competence of cross-border e-commerce including for placing an order and shipping, but government must reduce the costs related to e-commerce through trade agreements.

Low-value consignments are quickly increasing and are emphasised as a vital challenge in trade facilitation. Introducing a system that suits a new logistics environment to reduce the pressures of e-commerce vendors and consumers is exigent. Customs authorities may worry about the loss of tariff revenue, security, and other risks but should also seek measures to constrain any hindrances for newly emerged e-commerce businesses by maintaining complicated customs clearance regulations to collect scanty taxes. Security management can be implemented by actively using a risk management system and close cooperation with logistics businesses which deal with delivery.

The East Asia Business Council (EABC) (2017), which raises the concerns of corporations to the attention of ASEAN+3 economic ministers, documents a series of the recommendations for facilitating e-commerce in the East Asia. Amongst the many suggestions of the EABC, the closest with the theme of this chapter is expansion of cross-border e-commerce test zones to overcome issues of import duties on cross-border e-commerce and complex customs procedures and distribution system. Although there have been numerous similar discussions until today, they are still not subject to implementation. Due to ASEAN's characteristics, they should facilitate suggestions of corporations in the perspective of ASEAN rather than of individual countries. All ASEAN+3 countries are RCEP members, and the RCEP negotiation, which began in May 2013, is still ongoing. The FTAs of the 10 ASEAN countries with China, Japan, Korea, India, Australia, and New Zealand already took effect. And the ASEAN countries are finalising the RCEP agreement. If the express shipments article from the KORUS FTA is included in the RCEP, ASEAN e-commerce could be activated in a ground breaking manner. Considering the different stages of development of ASEAN countries, it will be difficult for all members to set the same *de minimis* threshold for the exemption of tariffs and taxes. A practical approach may be to adopt the arrangement with different thresholds, although the region targets the same threshold in the long run. Lastly, an article on whether tariffs and domestic taxes are to be exempted can only be judged with a meticulous analysis of the relationship between tax revenue and collection expenses through the present system.

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# Network Cooperation in Cross-border E-commerce: A Conceptual Model of a Logistics Platform

Arkadiusz Kawa

## 1. Introduction

E-commerce is one of the main factors leading to prosperity and competitiveness in the digital era. It has significant potential that may contribute to economic growth and employment. Its further development is expected to have far-reaching effects, perhaps even exceeding changes in trade over the past several decades. Being physically present whilst shopping is becoming less and less important. Customers buy products, placing orders electronically, and the purchased goods are delivered to their workplaces, homes, pick-up drop-off points, or parcel lockers. Placing orders in this way replaces a trip to a store, and the delivery of the consignment eliminates the trip back. Goods are delivered most frequently by logistics service providers, especially courier, express, and postal (CEP) companies.

Recently, more attention has been paid to expanding business activities beyond the borders of a single country. Sellers look for new buyers abroad, whilst customers want to have a wider choice of suppliers. Cross-border e-commerce is based on selling products to customers in another country, which is one of the most important e-commerce trends along with same-day, on-demand, reverse, and crowdsourced delivery, and it has huge potential.

Although cross-border e-commerce is more evident in many countries, it has problems. Delivery – lack of it or delays – remains one of the most important barriers to fast, low-cost cross-border flow. The high cost of delivery is associated with the problem of the last mile, but also with the small flow of goods between countries through a single CEP operator; economies of scale are not present yet, especially in the case of micro, small, and medium-sized logistics companies.

A network approach could be taken to answer the question – how can the costs of international transport in the e-commerce logistics chain be reduced whilst maintaining quality of delivery? It assumes cooperation between separate and independent companies, which can be each other's suppliers, receivers, and even competitors.



They exchange knowledge and experience and share their resources to carry out specific tasks. Such cooperation may embrace an unrestricted area of activity, in terms of both spatial (relations between enterprises increasingly go beyond the borders of one country or even continents) and subject dimensions.

This research aims to develop a model facilitating network cooperation between e-commerce entities (e-tailers, logistics service providers, customs agencies, etc.) dealing with cross-border e-commerce. The model is based on a logistics platform that consolidates shipments from many retailers and delivers them to many clients all over the Association of Southeast Asian Nations (ASEAN) region.

The research relied on direct observation and analysis of primary and secondary sources. Primary materials included data obtained from companies providing logistics services in the ASEAN region, and the secondary ones were reports, studies, and Internet sources. Informal interviews were conducted with representatives of companies that offer cross-border logistics services.

Section 2 describes e-commerce logistics: four forms of organisation and the hub-and-spoke (H&S) concept used by CEP companies. Section 3 introduces cross-border e-commerce, especially the value of this market and the reasons retailers sell and customers buy abroad. Section 4 presents the challenges to cross-border e-commerce: delivery cost, time and quality of delivery, communication in a foreign language, payment currency, payment terms, legal and tax conditionings, and return services. Section 5 describes the logistics of cross-border e-commerce. To demonstrate how the distribution system works in cross-border e-commerce, section 6 shows some examples from the ASEAN region. Section 7 proposes the logistics platform, especially the assumption of the conceptual model, and describes the expectations and the benefits for customers and e-tailers. Section 8 identifies challenges and limitations related to the presented solution and indicates future work.

## 2. E-commerce Logistics

Internet sales differ from traditional-channel sales in that they also sell the promise to fulfil the customer's order in the right place, quantity, condition, at the right time and cost, apart from the products themselves. E-commerce management therefore requires tools specifically adapted to it. One is logistics (Colla and Lapoule, 2012). Thanks to the availability of goods, different forms of delivery, and low shipping cost, e-commerce attracts new customers, but timeliness and compliance of goods with the order help retain them.

E-commerce has four forms of logistics organisation: insourcing logistics, dropshipping, fulfilment service, and one-stop e-commerce (Kawa, 2017a):

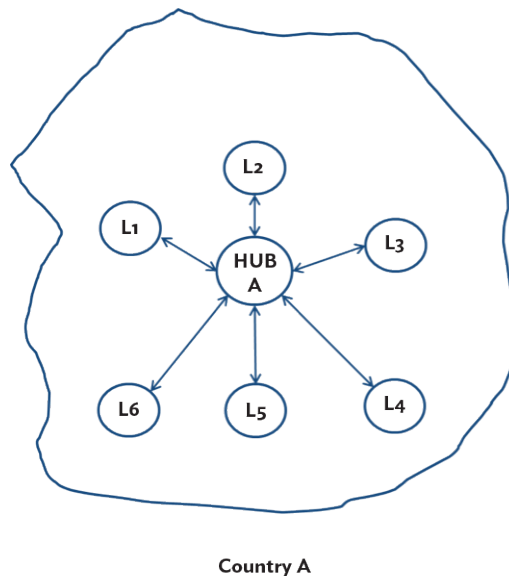
- In insourcing logistics, e-tailers conduct most of the processes on their own. This is effective for micro and small enterprises, whose scale of activity is too small to profit from the use of external logistics companies.
- Dropshipping involves shipment of goods directly from the warehouse of an external entity (the manufacturer, the distributor) to the client without the need of the vendor's warehouse (Zajac, 2014). The dropshipper stores the products, takes orders and completes them, issues sales documents, and ships packages to customers (Khouja, 2011).
- Fulfilment involves delegating part of the logistic processes to an external operator. Goods ordered by the online shop are sent to an operator's warehouse, and then unloaded, inspected, stored, picked up, and shipped (Isac, 2014).
- In contrast, one-stop e-commerce is an extension of fulfilment by additional services. This concept implies support not only in the field of logistics (as fulfilment does) but also in customer service, marketing, IT solutions, and finance and accounting by one company (Agatz, Fleischmann, Van Nunen, 2008).

The e-tailers do not distribute the goods themselves but use the services of CEP operators and, to some extent, logistics service providers (particularly for deliveries of goods on pallets). Customers can choose from a wide range of delivery or reception services. Postal services are more economical and slower but courier services are more reliable. Customers can also collect shipments from parcel lockers or pick-up drop-off points.

CEP companies' operations are based on the H&S concept, which involves a main cargo terminal (hub) and a series of smaller local cargo terminals connected by transportation lines (spokes). In the terminals, freights are assembled or dispersed. This system is mainly used to distribute small or light loads. As opposed to point-to-point (direct) deliveries, hubs connect shipment locations (Figure 10.1). H&S is simple and new spokes can be created easily, but it is inflexible because replacing a hub or changing a single route can affect the whole network. Almost every shipment must pass through the hub before reaching its destination, resulting in a longer journey (Hein, 2009).

The main objective of the H&S concept is to minimise storage costs and reduce the transportation costs of individual parcels. Although a single parcel might be transported over a long distance, the total distance for all shipments counted separately is shorter than in the case of direct deliveries. H&S works well when a large number of items are sent and received in multiple locations. An example is distribution within a country where most large cities are connected with one another by means of one or more hubs (Kawa, 2017b).

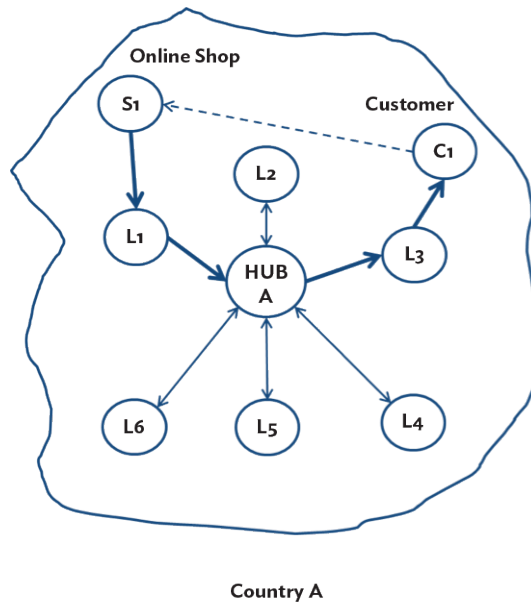
**Figure 10.1: Hub and Spoke System**



L = location.  
Source: Author.

Figure 10.2 shows the domestic delivery distribution system within country A using H&S. Customer C1 buys products via the Internet at store S1. After receipt of the order, S1 confirms it, then picks and packs the product, and orders company A to transport it. A driver picks up the package and transports it with other shipments to the original local cargo terminal L1. Then the consignment, together with items from nearby cities, is delivered to hub A. Shipments from all terminals across the country are consigned to hub A. They are then sorted and transported by line-hauls to local-destination terminals. The package goes to local cargo terminal L3. The next morning, the shipment is collected by a driver from the local branch and delivered to customer C1. Obviously, the route travelled by a consignment seems more complicated and more time-consuming and costly than if it were to travel directly from S1 to C1. H&S results in a longer journey and, in effect, delivery time, but it significantly reduces the unit cost thanks to consolidation with other shipments. Customers have to wait until the next working day but, in return, delivery cost is several dozen times lower than direct delivery of a single package (Kawa, 2017b).

**Figure 10.2:** Hub and Spoke System in Distribution Within a Single Country



C = customer, L = location, S = store.  
Source: Author.

H&S is extremely efficient in transferring a large number of consignments between hub and local terminals. When the number of shipments is smaller, however, cargo space in light commercial vehicles and trucks is underutilised, causing the unit cost of transportation to increase significantly. The total cost of delivery of a small consignment also rises considerably when it passes through many local terminals and hubs because of additional costs of sorting and handling. Section 5 will discuss how complex and costly cross-border transportation can be.

### 3. Cross-border E-commerce

E-commerce, like the Internet, is borderless, allowing customers to shop from the farthest corners of the world. Although most online customers choose national Internet shops, business activities are expanding beyond national borders (Kawa and Zdrenka, 2016). Sellers look for new buyers abroad, whilst customers want to have a greater choice of suppliers, which is why cross-border e-commerce and logistics services are trending upwards (Cho and Lee, 2017). Buying goods abroad or selling products to foreign contractors over the Internet is becoming increasingly popular. According to Accenture and AliResearch (2016), cross-border trade will reach up to US\$1 trillion in 2020 from US\$0.5 trillion in 2017.

## E-commerce Connectivity in ASEAN

Cross-border trade is not a new phenomenon (DHL, 2017b). A few thousand years ago, people in different countries exchanged spices, vegetables, fruits, and other valuable products. Trade has been shaping international cultural and economic links and created many important trade routes that still exist today. Over the centuries, however, the means of transport, types of products sold, and the scale of activity have changed. The most recent significant impact on trade is e-business. The ubiquity of the Internet has allowed companies to compete on a global scale. They can present their offerings in the same place (the Internet) without having to pay much money, which levels the playing field. Each company can sell its products globally without a global distribution and sales system, which are needed for traditional trade. The smallest companies, which often do not have financial resources for international expansion, are experienced in Internet business, are more likely to break barriers, and are increasingly competing with traditional national retailers. Manufacturers can sell directly to end customers, eliminating the cost of multilevel distribution and retail (Accenture, 2016).

Cross-border e-commerce is dominated by global marketplaces such as Alibaba, Amazon, and eBay. Other companies, however, especially traditional retailers and smaller online shops, are becoming more interested in cross-border e-commerce. Retailers sell abroad because they can

- become more competitive through internationalisation,
- enter a global market without any physical presence or trademark licence,
- access new customers,
- build their image before going to the traditional market,
- easily offer products abroad without knowing the local market characteristics, and
- fill the sales channel (towards multiple channels).

Cross-border e-commerce is also being influenced by digital natives – people who grew up in the Internet age – looking for new experiences and products and who do not want to be limited to e-tailers from one country. These customers can satisfy their desire through the Internet, which is their natural environment; they have no problem trusting foreign sellers. Customers buy abroad because of

- lower prices,
- higher quality of products (premium brands),
- access to new products or products unavailable in their countries,
- the wider range of products, and
- the need for new shopping experiences.

Although cross-border e-commerce is becoming more widespread, it has several problems.

## 4. Challenges of Cross-border E-commerce

E-shops engaged in cross-border e-commerce struggle with delivery cost, time and quality of delivery, communication in a foreign language, payment currency, payment terms, legal and tax conditions, and return services (Kawa and Zdrenka, 2016) (Figure 10.3).

**Figure 10.3: Cross-border E-commerce Challenges**



Source: Author.

One of the greatest barriers is delivery cost, which, depending on the country, can be up to over a dozen times higher than the cost of a consignment realised within the country. The lower price of the product does not often compensate for the cost of delivery, which may discourage customers from purchasing from shops abroad. Consumers and small enterprises say that delivery problems, particularly high prices, prevent them from increasing sales or purchases. Because of the smaller volume of parcels they send abroad, small and medium-sized enterprises (SMEs) are not able to negotiate with logistics operators as big enterprises do. Due to lack of scale, SMEs face higher delivery costs. Research suggests that 90% of consumers are more willing to re-purchase from the same seller if they are satisfied with the delivery cost (Copenhagen Economics, 2013). Foreign exchange in e-commerce could be completely different if these costs were significantly reduced. Detailed delivery costs in cross-border e-commerce in the ASEAN region is presented in section 6.

Another important hurdle is delivery time and quality. Due to the long distance between seller and customer, and the more complex sorting and handling operations, satisfying the customer is more difficult. Besides time, the certainty of delivery is crucial for customers. They are concerned not only about when the product will be delivered but also if it will be delivered at all and in what condition. According to The European Consumer Centres Network (2011), 49% of consumers decide not to order from foreign shops for fear of possible delivery problems. ASEAN country citizens are concerned, too.

## E-commerce Connectivity in ASEAN

For example, almost half of Singaporeans indicate delivery as the main reason they do not shop online (AT Kearney, 2015).

The next challenge for e-shops is communication in different languages. Only some offer information in more than one language (The European Consumer Centres Network, 2011). An offer in a language that the customer cannot speak discredits the seller at first contact. Websites, especially in the ASEAN region, should be run in multiple languages (those native to the customers, and international ones like English).

After language, an important factor affecting customer satisfaction is the currency in which the products are offered. Customers are more willing to pay in their national currency. One-third of consumers leave the website of an e-shop presenting prices in a foreign currency only, and almost 40% of consumers declare no desire to return to such websites (E4X Cambridge Mercantile Group of Companies, 2013). ASEAN countries have different currencies, which causes some problems and requires additional fees (i.e., commissions).

Another issue is the form of payment. The lack of familiar payment options can cause a consumer to abandon a purchase. Although international payments have recently improved (simplifying payment procedures, reducing transaction fees, and increasing the popularity of credit and debit card payments), not all online stores offer generally accepted forms of payment. The ASEAN region also has a high rate of 'unbanked' citizens. In Singapore, Thailand, and Malaysia, at least two-thirds are 'banked', but in the Philippines, Viet Nam, and Indonesia, only 20%–30% of adults have bank accounts (AT Kearney, 2015), which is why many customers choose to pay cash on delivery (COD); 70% of e-commerce transactions in Thailand are paid COD (Acommerce, 2017). E-payment (non-cash transactions) should be promoted.

Laws and taxes are another issue since they are still not clearly and unequivocally defined in cross-border e-commerce. Uncertainty of the total price of a product, taking into account all taxes, duties, and bank charges, discourages customers from buying from foreign sellers; 57% of customers do not shop online because of concerns about returning goods and faulty products (FTI Consulting, 2011). In ASEAN countries, value-added taxes and duties are high, especially in Thailand, Indonesia, Viet Nam, and the Philippines. They differ for product types. Duty-free limits are different, too. In Singapore, it is SG\$400 Singapore dollars (about US\$290), whilst in Malaysia it is RM500 (about US\$120) (A.T. Kearney, 2015).

Another important challenge is the return services' delivery cost and time. Customers often have to return the products at their own expense and are reimbursed only after the seller receives the returned product, which makes cross-border online shopping unattractive. In 57% of cases, customers do not receive the compensation they are entitled to. In ASEAN

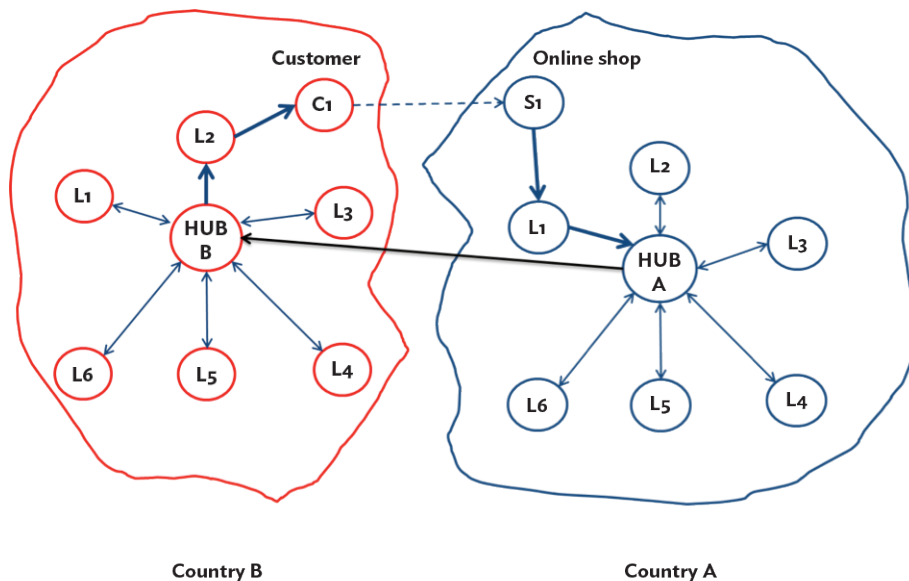
countries with high import fees (Thailand, Indonesia, Viet Nam, the Philippines), reclaiming duties are either impossible or overly expensive (AT Kearney, 2015).

Eliminating the abovementioned issues is a prerequisite for maintaining the dynamic growth of online shopping abroad. Public institutions and non-governmental organisations are working to make cross-border e-commerce more competitive (Kawa and Zdenka, 2016).

## 5. Logistics of Cross-border E-commerce

Logistics operations in cross-border e-commerce are more complex and costlier than distribution within a single country. Figure 10.4 illustrates the delivery route of products bought by customer C1 at store S1. C1 is in country B, whilst S1 is in country A. Although the customer and the shop are close to each other, the product passes through individual points in the H&S system, especially the additional hub B. If the connection between countries A and B is not too popular, there is little flow of goods between hubs A and B, and cargo space is not fully utilised. Scant competition causes CEP operators to use their bargaining power, resulting in international freight rates that are several times higher than for domestic transport, discouraging customers and resulting in further underutilisation of cargo space.

**Figure 10.4:** Hub and Spoke System in Distribution Between Two Countries



C = customer, L = location, S = store.  
Source: Author.

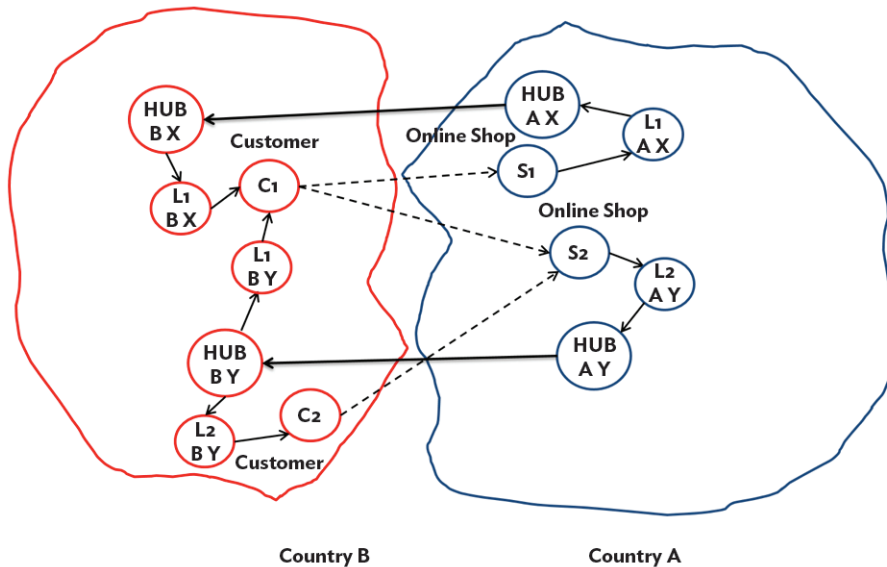


## E-commerce Connectivity in ASEAN

The situation presented in Figure 10.4 can be more complicated when there is more than one customer and e-tailer from one country. Figure 10.5 illustrates a simplification of cross-border e-commerce with two online shops in country A (S1 and S2) and two customers from country Y (C1 and C2). C1 places an order at shops S1 and S2, whilst C2 buys from S2. Both stores are served by CEP operators X and Y; X delivers shipments to C1, Y to C1 and C2. Company Y benefits from economies of scale (Okholm, 2016) because it transports the products together to C1 and C2 from point S2 to hub B Y. Then the shipments are separated and delivered to points L1 B Y and L2 B Y.

The small flow of shipments between hubs A X and B X, A Y and B Y, and the existing separate systems of H&S in cross-border e-commerce are ineffective. High delivery costs appear due to underutilisation of cargo space and a large number of additional operations. A solution is needed to overcome this problem, reduce the number of the sorting and handling operations, and thus reduce the costs of cross-border deliveries.

**Figure 10.5: Hub and Spoke System in Distribution Between Two Countries With Two Customers and Two Online Shops**



C = customer, L = location, S = store.  
Source: Author.

## 6. System of Distribution in Cross-border E-commerce in the ASEAN Region

Some examples from the ASEAN region will show how the system of distribution of goods in cross-border e-commerce works. Let us imagine that a customer from Sungai Petani in Malaysia wants to buy a specific product (e.g., a wooden mask) from Indonesia. After searching through the Indonesian websites, the customer finds the best offer (e.g., for US\$40<sup>1</sup>) from a shop that promises to deliver it in up to 2 working days. This e-tailer has a warehouse in Yogyakarta. Regardless of the chosen logistics model (cf. section 2), products from each order have to be collected and packed. Then the products are picked up by the driver working for the external operator. In this case (and in most cross-border e-commerce shipments), the driver represents the international courier company. There is no great choice because we can indicate only three companies that have a global operational network covering most countries and territories: DHL, UPS, and FedEx. Some companies such as Pahala Express operate but they often cooperate with the three logistics service providers. DHL Express is used here because its DHL Capacity Tool provides rate and time quotes for cross-border shipments after one provides information about the origin country and city, the destination country and city, number of pieces, weight (kilogram [kg]), length (centimetre [cm]), width (cm), and height (cm), and, optionally, other shipment details such as shipping date and declared value.

The shop orders a courier to pick up the package. After that, a consignment is handled and goes through different parts of the operational network (explained in the next section). Finally, the product is delivered to the customer in Sungai Petani in Malaysia.

The package is medium-sized: 2 kg; 30 x 20 x 10 cm. After the customer enters this information into the DHL Capacity Tool (Figure 10.6), it quotes the rate and time (Figure 10.7). The system proposes three types of services:

- Drop off. Documents and parcels are sent to the nearest DHL Service Point.
- Ship online. Documents and parcels shipments are ordered online; a courier to pick up the parcel from home or office is scheduled by the customer.
- Call for a pickup. Document and parcel shipments are ordered over the phone; a courier to pick up the parcel from home or office is scheduled by the DHL office with suggestions from the customer.

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<sup>1</sup> Personal items and items of low value (about US\$50 or below) should generally be duty free.

**Figure 10.6: Information About the Origin, Destination, Dimensions, and Weight of Shipment**

The screenshot shows a shipping form with three main sections:

- 1 FROM:** Country: Indonesia, Postcode: 55111, City: YOGYAKARTA.
- 2 TO:** Country: Malaysia, Postcode: 08000, City: SUNGAI PETANI.
- 3 DIMENSIONS AND WEIGHT:** Packaging: Your Packaging, Dimensions: 30 x 20 x 10 cm, Weight: 2 kg. There is a checkbox for "Dutiable (subject to Customs Duty and Taxes)".

Source: <https://dct.dhl.com>

**Figure 10.7: Delivery Options to be Chosen by Customers**

Option	Description	Price (IDR)	Key Features
Drop Off	An easy way to send documents and parcels – just drop off your parcel at the nearest DHL Service Point.	1,030,951.00	<ul style="list-style-type: none"> <li>No account required</li> <li>Ideal for single parcels</li> <li>Convenient opening hours</li> <li>Competitive rates</li> <li>Major credit cards accepted</li> </ul>
Ship Online	The most convenient way to send your documents and parcels! Ship online and schedule a courier to pick up your parcel at your home or office.	1,080,227.00	<ul style="list-style-type: none"> <li>No account required</li> <li>No registration required</li> <li>Pickup from your home or office</li> <li>Ideal for single or multiple parcels</li> <li>Competitive rates</li> <li>Major credit cards accepted</li> </ul>
Call for a Pickup	Our friendly team will help you schedule a courier pickup over the phone.	1,131,666.00	<ul style="list-style-type: none"> <li>No account required</li> <li>Pickup from your home or office</li> <li>Insurance available - call for a quote</li> <li>Parcels over 70 kg - call for a quote</li> </ul>

Source: <https://dct.dhl.com>.

The ‘drop off’ option is the cheapest solution: IDR1,039,951 (about US\$78). ‘Call for a pickup’ is the most expensive: IDR1,131,666 (about US\$84.87) (Figure 10.7). Delivery time is the next working day but DHL Express notes that the transit time is indicative because it depends on the actual pick up time, service requested, characteristics of the shipment tendered, or regulatory clearance requirements. DHL Express also says that the prices quoted may not include duties, taxes, customs charges, or all surcharges and fees (DHL, 2017a). Regardless of these additional fees, the cost of delivery is twice the price of the ordered

product. The alternative, however, is postal service, which is cheaper but slower, less secure, and unreliable.

High delivery costs are characteristic of the ASEAN region. Rates from all ASEAN members (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) are calculated on the basis of the DHL Capacity Tool (Table 10.1). The main assumptions are weight = 2 kg, length = 30 cm, width = 20 cm, height = 10 cm, no declared value, and no additional services. The package should be delivered from the capital of an ASEAN member to another by the end of the second working day. ‘Call for a pickup’ was chosen because ‘drop off’ and ‘ship online’ are not available in all the studied connections. The highest delivery costs are for shipment from Singapore and Brunei to other ASEAN countries. The lowest costs are for senders from the Philippines and Malaysia. The customers from Myanmar and Lao PDR have the highest delivery prices but are charged the least for shipments from Singapore and Thailand.

**Table 10.1: Rates of Shipment Between the ASEAN Members States (US\$)**

From/to	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Brunei	x	94.24	80.80	94.24	74.73	94.24	80.80	74.73	80.80	94.24
Cambodia	84.24	x	84.24	84.24	84.24	84.24	84.24	84.24	75.64	75.64
Indonesia	84.87	84.87	x	84.87	84.87	84.87	84.87	63.46	84.87	84.87
Lao PDR	77.53	43.41	77.53	x	77.53	43.41	77.53	77.53	43.41	43.41
Malaysia	53.35	58.75	53.35	58.75	x	58.75	53.35	33.01	53.35	58.75
Myanmar	65.98	65.98	65.98	65.98	65.98	x	65.98	65.98	60.47	78.52
Philippines	31.55	36.23	31.55	36.23	31.55	53.47	x	25.92	31.55	36.23
Singapore	71.09	122.64	71.09	122.64	45.76	122.64	71.09	x	71.09	71.09
Thailand	83.71	83.71	83.71	83.71	65.47	83.71	83.71	65.47	x	83.71
Viet Nam	69.03	69.03	69.03	69.03	65.09	91.10	69.03	65.09	65.09	x

Source: Author.

The lowest price is from the Philippines to Singapore (US\$25.92) and the highest is from Singapore to Cambodia, Lao PDR, and Myanmar (USD\$122.64), about 370% higher. The average price for cross-border shipment in the ASEAN region is US\$70.31. It is a barrier to the development of cross-border e-commerce; the average order value is about US\$80 (Statista, 2017) and only 10%–20% of cross-border purchases are worth over US\$200 (DHL, 2017b). It is a great challenge for new initiatives to reduce these costs.

Another problem is the asymmetrical costs between the origin and destination countries. For example, the transport of a package from Lao PDR to Thailand costs US\$43.41 but the same shipment in the opposite direction costs US\$83.71 (Table 10.1). Singapore has the lowest import rates (average US\$61.71) but it also has the highest export rates (average US\$85.46). From a shipment-cost perspective, cross border e-commerce is more beneficial for Singaporean customers than for e-tailers. The lowest differences are observed in Viet Nam.

Interviews with representatives of logistics companies show that the main reason for the highest cost of cross-border shipment is not the distance between the sender and the receiver but the transfer between international gateways. The shipment from Banda Aceh in Indonesia to Denpasar (Bali) (over 2,700 km in a straight line) costs only US\$6.52, but from Singapore to Kluang in Malaysia (under 100 km in a straight line) costs US\$45.76, and from Bandar Seri Begawan in Brunei to Miri in Malaysia (under 120 km in a straight line) costs US\$74.73. The cost of domestic delivery is relatively low whilst international service is expensive.

Let us come back to the example of the customer from Sungai Petani (Malaysia) shopping on a Yogyakarta (Indonesia) website and divide the shipment route into two domestic paths – Yogyakarta–Medan (Figure 10.8) and Kuala Lumpur–Sungai Petani (Figure 10.10) – and one international path – Medan–Kuala Lumpur. In Figure 10.9, the rate of shipment from Yogyakarta to Medan<sup>2</sup> is calculated. In the ‘ship online’ option it is IDR69,922 (US\$5.24). Transport of the package from Kuala Lumpur to Sungai Petani costs 74.61 ringgit (US\$17.41) (Figure 10.11). Total domestic shipments cost US\$22.65. If we subtract this cost from the total cost of the cross-border shipment (IDR1,080,277 = US\$81.02 in the ‘ship online’ option [Figure 10.7]),<sup>3</sup> the cost of the international transfer is US\$58.37, which is too expensive, especially since there is a good flight connection between Medan and Kuala Lumpur (340 km in a straight line).

**Figure 10.8: Parameters of Domestic Shipment from Yogyakarta to Medan**

The image shows a DHL shipping form with three main sections highlighted in yellow:






- 1 FROM:** Country: Indonesia, Postcode: 55111, City: YOGYAKARTA.
- 2 TO:** Country: Indonesia, Postcode: 20111, City: MEDAN.
- 3 DIMENSIONS AND WEIGHT:** Your Packaging: [dropdown], Dimensions: 30 x 20 x 10 cm, Weight: 2 kg. There is a checkbox for "Dutiable (subject to Customs Duty and Taxes)" which is currently unchecked.

Source: <https://dct.dhl.com>.

<sup>2</sup> In Medan, DHL Express has a gateway ([http://www.dhl.co.id/en/country\\_profile/key\\_facts.html](http://www.dhl.co.id/en/country_profile/key_facts.html)).

<sup>3</sup> The shipment rate for Yogyakarta–Sungai Petani is the same as for Medan–Kuala Lumpur.

**Figure 10.9:** Rates of Domestic Shipment from Yogyakarta to Medan

 <p><b>Drop Off</b> An easy way to send documents and parcels – just drop off your parcel at the nearest DHL Service Point.</p> <p>• by end of day <span style="background-color: #FFC000; padding: 2px;">On request</span></p>  <p style="background-color: #C00000; color: white; text-align: center; padding: 5px;">Find a Location</p>	 <p><b>Ship Online</b> The most convenient way to send your documents and parcels! Ship online and schedule a courier to pick up your parcel at your home or office.</p> <p>DELIVERY ON JUL 20, 2017</p> <p>• by end of day <span style="background-color: #FFC000; padding: 2px;">69,922.00 IDR</span></p>  <p style="background-color: #C00000; color: white; text-align: center; padding: 5px;">Ship Online Now</p>	 <p><b>Call for a Pickup</b> Our friendly team will help you schedule a courier pickup over the phone.</p> <p>DELIVERY ON JUL 20, 2017</p> <p>• by end of day <span style="background-color: #FFC000; padding: 2px;">73,251.00 IDR</span></p> <p style="text-align: center;">Call 0800 1 333 333</p>
<ul style="list-style-type: none"> <li>• No account required</li> <li>• Ideal for single parcels</li> <li>• Convenient opening hours</li> <li>• Competitive rates</li> <li>• Major credit cards accepted</li> </ul>	<ul style="list-style-type: none"> <li>• No account required</li> <li>• No registration required</li> <li>• Pickup from your home or office</li> <li>• Ideal for single or multiple parcels</li> <li>• Competitive rates</li> <li>• Major credit cards accepted</li> </ul>	<ul style="list-style-type: none"> <li>• No account required</li> <li>• Pickup from your home or office</li> <li>• Insurance available - call for a quote</li> <li>• Parcels over 70 kg - call for a quote</li> </ul>

Source: <https://dct.dhl.com>.

**Figure 10.10:** Parameters of Domestic Shipment from Kuala Lumpur to Sungai Petani

**1 FROM**

Malaysia ▼

50000      KUALA LUMPUR

**2 TO**

Malaysia ▼

08000      SUNGAI PETANI

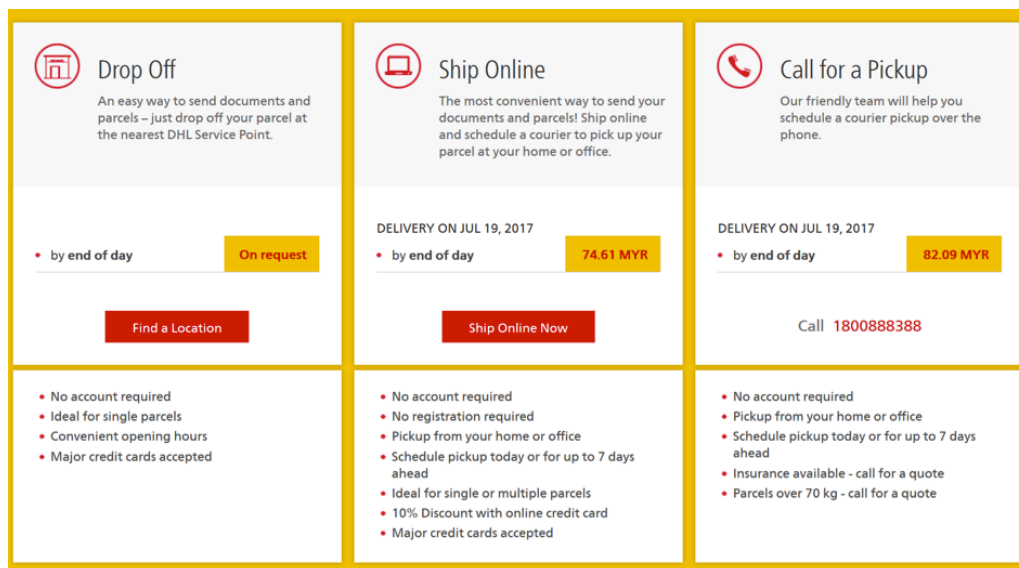
**3 DIMENSIONS AND WEIGHT**

My Packaging ▼    30    20    10    cm    2    kg    +

Dutiable (subject to Customs Duty and Taxes)

Source: <https://dct.dhl.com>.

**Figure 10.11: Rates of Domestic Shipment from Kuala Lumpur to Sungai Petani**



Source: <https://dct.dhl.com>.

## 7. Logistics Platform Proposal

The high cost of delivery is mainly associated with the small flow of goods between countries, which is realised by a single logistics service provider along the whole route of the package. Thus, economies of scale do not take place, especially in the case of micro, small, and medium-sized logistics companies.

This problem can be solved by introducing a logistics platform, which starts from the assumption that a single company’s capability does not necessarily imply the whole system’s capability. Through cooperation, companies should rationalise their logistics processes, obtain cost savings, and reduce empty shipments. At the moment, companies are not collaborating as they are traditionally managed like family enterprises, which limits their opportunities.

The proposed logistics platform is a kind of a middleperson between the supply and the demand sides of the logistics service market, organising up-to-date information about CEP, transport, and forwarding companies and their services, capacities, and prices, which helps decide which company will deliver the shipments. The platform assumes cooperation between separate and independent companies, which can be each other’s suppliers and receivers. These companies exchange information and share their resources to carry out specific tasks. Such cooperation may embrace an unrestricted area of activity, both in terms

of spatial (relations between enterprises increasingly go beyond the borders of one country or even continents) and subject dimensions (Kawa, 2012).

The proposed cross-border platform may seem similar to logistics intermediaries, already present in a number of markets for several years, because neither possesses any logistics infrastructure. The difference between them is that the intermediary only wins transport orders and passes them on to logistics companies, which decide how to transport the consignments, whilst the cross-border platform additionally allows selection of the transport companies.

The cross-border platform allows configuration of a temporary supply chain for the needs of a specific transaction, using the resources of other organisations. Its main goal is to choose the right transport companies assigned to individual routes and synchronise the time of operation of individual vehicles within the country and between countries. The logistics platform, receiving transport orders from many e-tailers, becomes a significant customer of CEP and logistics service providers, increasing its bargaining power and allowing much better cooperation.

The proposed solution is based on an IT system that integrates all physical resources of the engaged companies. Information about all terminals, hubs, and means of transport of many different logistics companies should be merged, requiring interoperability between systems and mutual access to data. Processes and infrastructure (loading units, labels, etc.) should be standardised. For example, shipments are transported in certain loading units, and the barcode labels describing the shipment (details of the sender and recipient, terms of delivery, etc.) must be processed by the various entities dealing with the shipments (Kawa, 2017b).

The proposed logistics platform will allow consolidation of shipments from many retailers and delivery to many clients scattered around ASEAN's 10 member states, which could create 10 domestic connections and possibly 90 international ones with each other (Table 10.1). The proposed logistics platform has to include offers from logistics service providers that cover all those directions. Domestic services can be offered by local couriers and smaller transport and forwarding companies. They should have good connections with international airports in their country from where consignments are picked up and at where they are dropped off. International logistics service providers or forwarding companies can specialise in one or more international links. The connections between some countries can be served by road transport if the distance is not too long (e.g. between Singapore and Thailand, Lao PDR and Viet Nam). The international gateways should be in stable places such as the capital cities, and additional gateways may be available in larger or insular countries (e.g. Thailand or Indonesia).



## E-commerce Connectivity in ASEAN

Based on specific criteria such as place of origin and delivery and parcel dimensions and weight, the system takes into account transport connections of logistics companies and their capacities and gives users appropriate cross-border offers. The platform is similar to flight search engines (such as Skyscanner, Google Flights) but has more features.

It automatically recommends shipping options that are adjusted to the ordered products. For example, for a larger package, it suggests courier or mail services rather than delivery to a parcel locker. Depending on the planned date of delivery, the system may offer different prices. Express deliveries will be more expensive than regular transport.

An important feature of the logistics platform is flexible pricing. Traditional courier companies such as DHL, UPS, and FedEx have fixed shipping prices independent of market demand. On the logistics platform, shipping cost is dynamically determined and depends on the number of packages sent by or to the different companies. For example, where demand for a particular transport connection is high, the rate may be lower. The mechanism works similarly to that of low-cost airlines.

This platform enables users to not only find offers and compare them but also to monitor shipments and make payments. Customers always know where the consignment is and when it will be delivered thanks to the track-and-trace system, which also automatically generates the shipping documents (picking list to the warehouse, package labels). The platform includes information such as foreign trade rules and customs regulations, fees, and taxes, as well as customers' reviews of the services. It can be connected to e-shops, auction platforms, and search engines. After deciding to buy a product, the customer receives delivery service offers and can choose the best one.

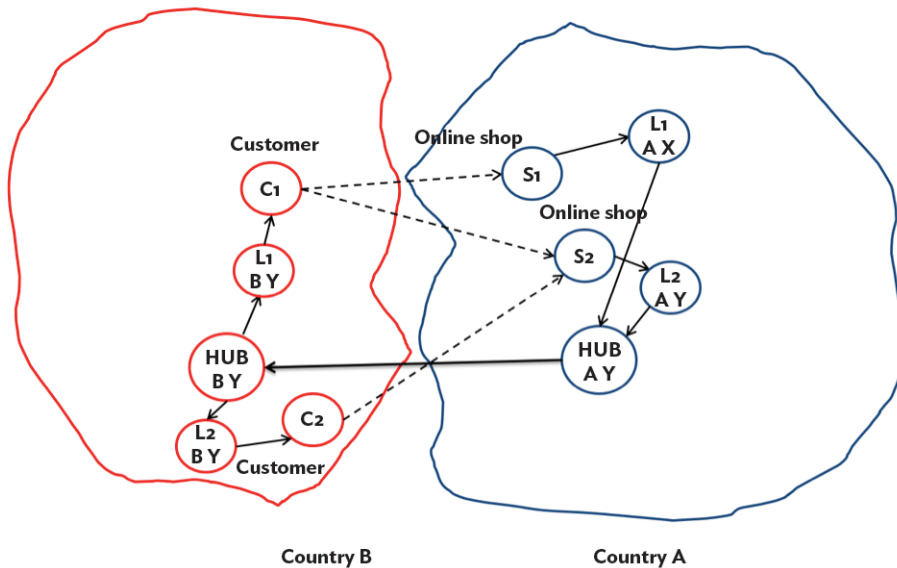
Transport companies may add fixed as well as time-definite or disposable connections to the logistics platform. They have a preview of other carriers operating in other markets, and even access to their timetables. For example, they know that Jakarta–Kuala Lumpur airplanes fly out at 1:00 AM, so they need to deliver the consignments to the airport by 11:00 PM.

Figure 10.12 presents the idea of a logistics platform operation based on the example from section 5. In each ASEAN country, local transport companies have access to the hubs (A Y and B Y), which are managed by separate logistics service providers. Within the countries, these hubs are connected to local terminals by domestic line-hauls, whilst between countries, they are connected by international line-hauls. The process presented in Figure 10.12 is a bit different from that in Figure 10.5: stores S1 and S2 are operated by separate local transport companies, which pick up and deliver goods to hub A Y through terminals L1 A X and L2 A Y, which may belong to one or two local carriers (depending on which carrier's offer will be better at a given time). The next process is the transportation of the consolidated shipments from the A Y hub to the B Y hub. It can be done by an international transport company, but

it can also be served by a CEP operator if that is a better solution. After the shipments arrive at the B Y hub, they are unloaded, sorted, and sent by one or two local carrier companies through their terminals (L1 B Y and L2 B Y) to customers A1 and A2.

Using the logistics service platform eliminates hubs A X and B Y, the local terminal L1 B X, and connections between them (compare Figure 10.12 and Figure 10.5), resulting in less handling and sorting and fewer line-hauls. By selecting offers that are competitive with those of the logistics companies, the system helps reduce transportation costs between terminals and hubs: e-tailers and their customers can get a lower price for foreign shipments.

**Figure 10.12: Cross-border E-commerce with a Logistics Platform**



C = customer, L = location, S = store.  
Source: Author.

In conclusion, the proposed logistics platform offers advantages for customers and e-tailers. The main benefits for customers are

- possibility to buy products abroad with lower total costs (lower delivery costs),
- more predictable shipping costs,
- ability to decide on the time and cost of delivery, and
- access to current information about the delivery progress irrespective of the logistics service provider.

For the e-tailer the benefits could be

- greater possibilities to sell products,
- access to new customers,
- lower costs of international shipments,
- possibility to cooperate with more than one logistics service provider, and
- increase in consumers' confidence in e-tailers.

### 8. Summary

One of the biggest barriers to foreign trade conducted via the Internet in the ASEAN region is the cost of shipping, which, depending on the country, is several times greater than the cost of shipping within a country. The leading logistics companies (DHL, UPS, FedEx) provide expensive and premium services mainly reserved for e-commerce giants. Often, the high cost of shipping from smaller companies exceeds customers' savings from lower product prices.

The proposed logistics platform assumes integration along the whole supply chain of e-commerce. It enables logistics enterprises to cooperate, especially to gain access to data about customers' needs and about supply capacities. With all the necessary information such as purchase orders, terms and place of delivery, and payment confirmation, the logistics platform system can commission the best transport provider.

This platform is expected to help lower cost and accelerate delivery by significantly reducing sorting and handling operations, and by consolidating shipments from various senders depending on the country of delivery. Thanks to economies of scale gained by consolidating parcels from different e-shops, e-tailers will be able to negotiate rates and service terms with logistics operators. This solution is flexible because the logistics platform can adapt to variable demand by, for example, increasing or decreasing capacity or number of means of transport.

The presented idea faces challenges. It requires interoperability amongst all cross-border e-commerce actors and smart and coherent policies between countries. ASEAN should emphasise integrating companies' systems throughout the e-commerce supply chain, particularly amongst smaller logistics companies providing cross-border transport. Increased interoperability can accelerate the exchange of information; facilitate the consolidation of transportation, parcel delivery, and invoicing; develop multimodal transport; and reduce administrative costs (Kawa, 2017b).

To lift the barriers to cross-border e-commerce, policymakers can establish and harmonise regulations; promote non-cash transactions; improve logistics infrastructure (invest in roads, transport infrastructure, warehouses, distribution centres); and encourage partnerships between retailers, suppliers, and logistics service providers. Governments can provide

subsidies or tax breaks to logistics and transport companies focusing on online retail (A.T. Kearney, 2015). Understanding cultural differences, social trends, and generation gaps is important, too.

An independent entity should provide the proposed platform. ASEAN would be a better choice than a commercial company. The project would be non-profit and more transparent. It would require a lot of investment and time. Many potential stakeholders would need to be convinced, taking into account local regulations and conditions. The project would also require large-scale operations in ASEAN countries. The massive undertaking is worth considering because there is no retreat from cross-border e-commerce.

The proposed logistics platform, however, has limitations. The needs of e-commerce and individual stores vary significantly and this solution will not meet every e-tailer's requirements. Customers of the logistics platform may mainly be micro, small, and, partly, medium-sized companies that run their business via the Internet. Large-scale e-tailers can negotiate rates with leading logistics service providers and cooperating with smaller carriers may not be profitable.

A further direction of this study will be to develop and test a prototype of the platform. Countries besides ASEAN members can be included in the model; a reverse logistics process may be added; or start-up companies and crowdsourcing solutions can be used to provide local courier services, among others.

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# Reconfiguring ASEAN and East Asian Global Production and Logistics Networks under the Global E-commerce Environment

Jin Young Hong  
Ha Neul Han

## 1. Introduction

The exponential growth of Internet users has led to the emergence of a new type of sale and purchase structure – cross-border e-commerce. E-commerce refers to buying and selling in virtual markets via the Internet. As there are no time constraints, spatial restrictions, or additional fixed costs incurred by the operation of physical stores, e-commerce expanded rapidly in major developed countries throughout the 1990s. The massive production of smartphones has enabled e-commerce to expand significantly in developing countries, as well.

In online marketplaces, consumers can have higher flexibility in making purchases and easily obtain information by their fingertips, ie. alternative products and prices offered by various suppliers. Suppliers also face no time constraints on their sales activities, nor do they require any physical space to display their products, so their distribution and advertising costs are lower. Such benefits have been highlighted in several studies. Brown and Goolsbee (2002) and Baye, Morgan, and Scholten (2005) found that by reducing the asymmetry in information and the cost of searching for information, e-commerce increases the efficiency of the market, ultimately bringing prices down. Goldmanis et al. (2010) concluded that e-commerce not only reduces market prices but also encourages competition amongst firms, thereby increasing economic efficiency and influencing the industrial structure.

To ensure the vitalisation of e-commerce, balanced development of infrastructure, social and institutional systems, and other logistics infrastructure are necessary. With the advent of mobile devices, including smartphones, the need for wired high-speed Internet networks in e-commerce has decreased drastically, and with the expansion of various mobile wallet payment solutions such as Alipay and Grab Pay, it has become possible to build low-cost electronic payment systems available even to those without a bank account. The spread of mobile devices has given developing countries a greater opportunity to share in the benefits

of e-commerce. E-commerce vitalisation policies in developing countries should prioritise the institutional systems that help build trust between buyers and sellers.

E-commerce is characterised by non-face-to-face transactions, making it difficult for consumers and suppliers to immediately establish trust. It is therefore of utmost importance to confirm the identities of the parties to transactions; electronic authentication is key to ensuring the reliability of e-commerce. Customers also face security problems such as leaks of personal information, and because customers do not handle the product directly, company policies on exchange and refund are also a concern. To establish an institutional system to ensure credibility of purchases, countries should prioritise e-authentication, last-mile logistics, and consumer protection.

The implementation of the ASEAN Economic Community (AEC) Blueprint 2025 and the ASEAN Socio-Cultural Community (ASCC) Blueprint 2025 has been promoting the deepening and expansion of logistics networks that inter-regional links with ASEAN as well as those between the region and the global economy.

The logistics sector is complex because its activities include delivery, storage, warehousing, tracking, customs, and services. The nature of logistics services of a country depends on its development stage (ISEAS, 2018). Logistics infrastructure differs according to population, area of territory, size of foreign direct investment, amongst others. At the country level, infrastructure connectivity, efficiency, and service quality need to be significantly improved. Logistics also needs to be integrated regionally. But investments can overlap, giving rise to inefficiency. The biggest problem is meeting customers' demand and reducing delivery time and cost. Most ASEAN countries should, therefore, maintain competitive neutrality and a dynamic private sector, even if it means the government must intervene to establish the supply chain between consumers and sellers, and they should ensure reliable tracking, exchange, and refund. A well-managed, efficient, and effective supply chain capable of handling logistics can benefit business organisations directly and indirectly.

Redundant investments should, therefore, be avoided and logistics connections strengthened. The role of post offices, especially those that already have capable staff, vehicles, and information systems, has become more important. Many post offices worldwide have launched highly competitive e-business strategies. Combined, post offices all over the world are possibly the largest business-to-consumer (B2C) logistics fulfillment agents and operators.



Analyses in this chapter are mainly based on the data published by the International Postal Network (IPN), which is under the administration of the Universal Postal Union (UPU). Due to regulatory reporting requirements and the capabilities of automated data capturing technologies such as radio-frequency identification (RFID) tags, the records of individual postal items maintained by UPU represent a rich record of human activity, which reflects local, regional, and national economic activity and international economic relations. But this data does not provide trade data between countries, so we use United Nations International Trade Statistics data for Commodity Trade (UNCOMTRADE) data as a proxy for the postal cross-border e-commerce network.

The study also uses UPU data on the logistics performance of ASEAN post offices and analyses connectivity strategies to identify which e-logistics logistics trends are popular. Finally, we suggest a set of strategic e-commerce and logistic options, which are available to national postal authorities in ASEAN countries, except Singapore.

## 2. Postal Electronic Services and Cross-border E-commerce

A country's postal e-services are provided in a designated operators directory or through agreements with third parties such as governments or business. We refer to postal electronic services as services delivered by post to end-customers through digital channels. UPU classifies postal e-service into e-post and e-government, e-finance and payment solutions, e-commerce, and support services. But some of these are integrated: for instance, an e-commerce service requires e-finance and payment service.

E-commerce services are the priority in postal product innovation plans (website integration and payment solutions, and online management of delivery options). E-commerce services consist of buying and selling products and services using information and communication technology (ICT), and processing and delivering items physically or electronically (Table 11.1).

**Table 11.1: Universal Postal Union Definitions of E-commerce Services**

Service	Description
Online philatelic and postal products shop	Customers can purchase philatelic and postal products through the postal website and have them delivered to a physical address
Online postal shopping portal (shopping mall)	Postal website or web portal showcasing goods from a variety of merchants. Merchants' websites are often integrated with the post's website.
Online customs declaration	Customers can provide the necessary information through the postal website to the relevant authority before importing or exporting an item.
Integration of postal web services with merchants' sites	Provides e-merchants with software tools such as application programming interfaces, to allow for the integration of the post's online shipping and tracking capabilities with their e-commerce applications.
Performance reports and analytics	The post provides e-merchants with customised performance reports (on returns, delays, delivery times, etc.) to help them manage costs, operations, and customer matters.
Virtual international address	The post provides an international physical address in another country to allow customers to easily purchase goods from that country's e-merchants, and have them forwarded through the post
Calculation of estimated total landed costs	Provides online shoppers with detailed information on all the costs associated with the delivery of documents/merchandise.
Online management of documents/merchandise delivery options	Enables customers to notify the post electronically (e.g., via apps, Web, etc.) where document/merchandise items should be delivered (parcel locker, home, local retailer, etc.).

Source: Universal Postal Union (2015a).

Post office e-commerce services consists of eight areas but six ASEAN countries provide fewer than two services, and Viet Nam does not provide any of the services (Table 11.2) (UPU, 2015a). Even though the position of postal authorities in the new e-commerce environment might change, the post offices will remain in their traditional roles.

**Table 11.2: Development of Postal E-commerce in ASEAN**

Service	Cambodia	Indonesia	Singapore	Thailand	Viet Nam
Online philatelic and postal products shop	X	O	O	O	X
Online postal shopping portal (shopping mall)	X	O	O	O	X
Online customs declaration	X	X	O	X	X
Integration of postal web services with merchants' sites	X	X	O	X	X
Performance reports and analytics	X	X	X	X	X
Virtual international address	X	X	X	X	X
Calculation of estimated total landed costs	X	X	X	X	X
Online management of documents/merchandise delivery options	X	X	X	X	X

Note: O = with service provided, X = without service provided.

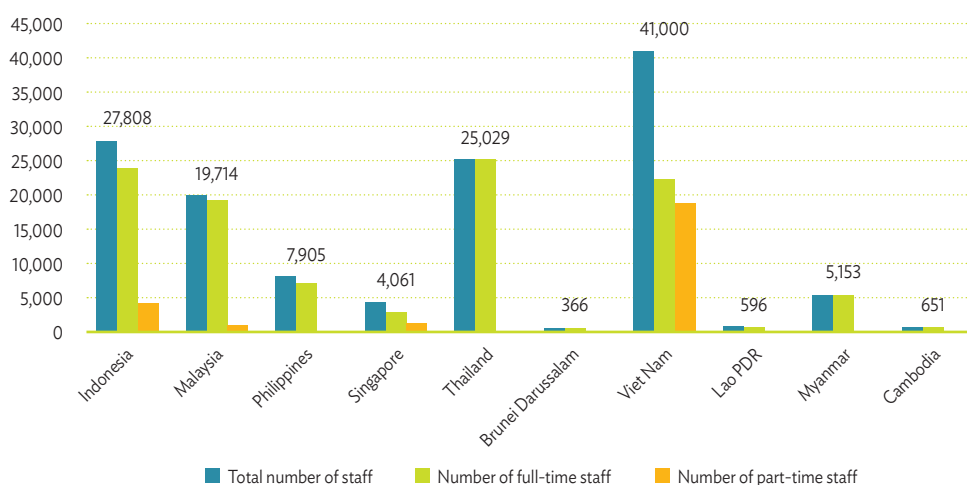
Source: Universal Postal Union (2015a).

## E-commerce Connectivity in ASEAN

### 2.1. The Size of Post Offices in ASEAN Countries

According to the UPU database, the country with the largest number of post office employees in ASEAN is Viet Nam (41,000), where the ratio of full-time and part-time staff is similar. Indonesia has 27,808 post office employees, most of whom are full-time, and Thailand has 25,029, all of whom are full-time (Figure 11.1).

**Figure 11.1: Post Office Staff in ASEAN**



ASEAN = Association of Southeast Asian Nations.

Note: \* = Singapore data are from 2015; and other countries' data are from 2016.

Source: Universal Postal Union database.

Indonesia operates 55,511 permanent post offices, covering the whole country (Table 11.3).

**Table 11.3: Average Coverage Area per Post Office**

	Area of Territory (km <sup>2</sup> )	Total Number of Permanent Offices	Average Area Covered by a Permanent Office (km <sup>2</sup> )
Malaysia	329,847	1,040	317.16
Indonesia	1,904,569	55,511	34.31
Philippines	300,000	1,309	229.18
Thailand	513,115	1,290	397.76
Viet Nam	331,689	3,022	109.76
Myanmar	676,578	1,381	489.92
Cambodia	181,035	83	2,181.15
Brunei Darussalam	5,765	23	250.65

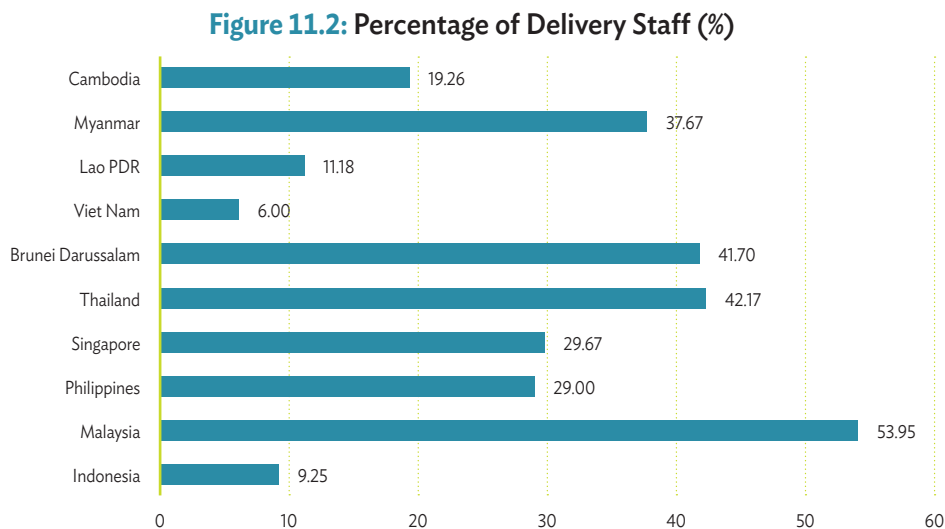
km<sup>2</sup> = square kilometre.

Source: Universal Postal Union database

Unexpectedly, economic, social, and technological shifts are reviving the relevance of post offices. A growing microbusiness community, an ageing population, isolation amongst older people as well as young people in rural areas, and the development of community-based approaches to public service reform are amongst the trends creating the need for community enterprise hubs. Other research suggests that post offices are present in nearly every community and are widely trusted; they can be used as business and communication hubs.

### 2.2. Performance of Post in E-commerce Logistics

Normally, e-commerce items are delivered as international parcels or sent as international express items.<sup>1</sup> In Brunei Darussalam, Myanmar, Thailand, and Malaysia, the ratio of delivery staff to total staff was close to half. In Viet Nam and Indonesia, the ratio is less than 10%, so it can be assumed that there is another delivery option (Figure 11.2).



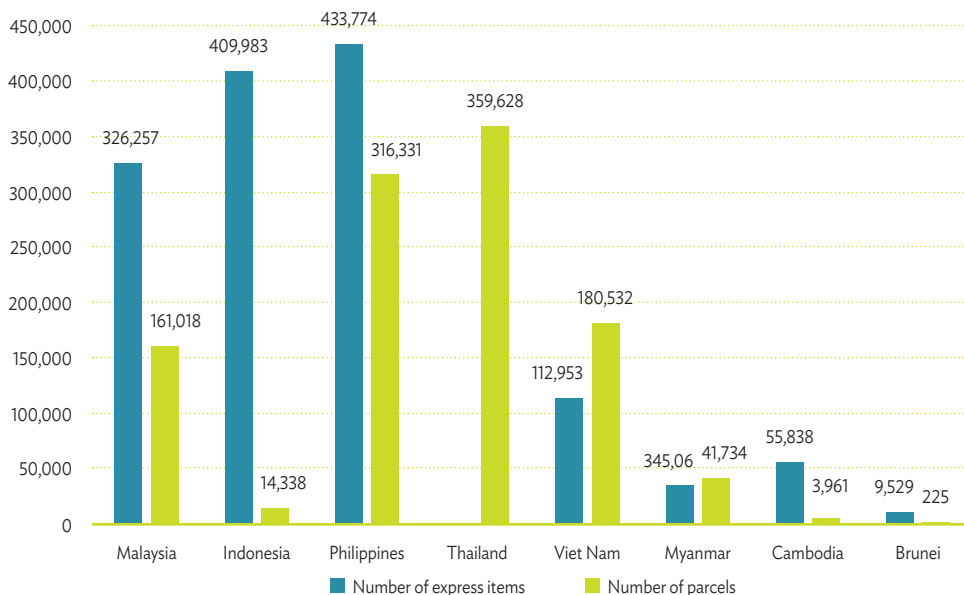
Source: Calculated from Universal Postal Union database.

Generally, universal service providers offer parcels and express services in addition to mail services. Many private firms provide parcel and express services, including global operators such as UPS, FedEx, DHL, and TNT, as well as many national and local operators. The fact that universal service providers offer parcel and express services in addition to mail services raises the question as to whether they can provide a combination of these services more efficiently than each service individually. If they can, this will have important implications for the economics of postal services. Generally, parcels and express items are taken by customers to post offices or collected from business premises rather than collected from post boxes. Few sorting offices have automatic parcel-sorting machines, so most sorting is done manually.

<sup>1</sup> Parcel and express item delivery by Post Office are the same in that they are delivered as packages. However, international parcel delivery is cheaper and slower than express items delivery.

The parcels and express items, which indicate the cargo throughput of the post office, showed that the Philippines had the highest number of parcels treated with 780,000. Malaysia had 510,000 and Viet Nam 430,000 express items for international service (Figure 11.3).

**Figure 11.3: Number of Express Items and Parcels for International Service Dispatch, 2016**



Source: Calculated from Universal Postal Union database.

Indicators such as post-office size and logistics performance alone do not tell the whole story about the role the post office can play in e-commerce.

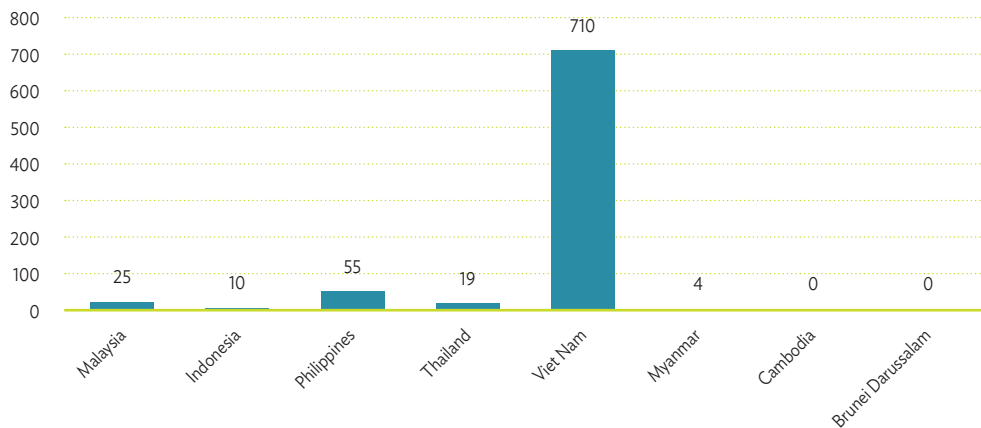
Large-scale world-quality parcel handling requires competitive postal authorities to manage more complex fulfilment and other difficulties. The future postal environment must embrace e-commerce and seriously consider profit-making strategies.

A key feature of the postal network is the sortation process. This is where cost efficiencies through mechanisation can most easily be achieved. There are several stages as the mail is consolidated and sorted into increasingly localised areas and eventually walk-sorted for final delivery. Whilst the focus of cost-reducing automation is on sortation, operators have also introduced machines that automate initial segregation (separation between different classes of mail), facing (ensuring all items are stacked in the same direction and orientation), and cancellation and culling (removing non-machinable items).

The use of automated sorting machines to replace manual sortation provides an opportunity to reduce costs (a manual sorter can generally sort around 2,000 items per hour, whereas

automatic sorting machines can achieve rates of more than 30,000 items per hour) and improve quality of service (error rates are generally much lower using automatic sorting machines than manual sortation). The relative benefits in terms of cost saving and quality of service improvement and the proportion of mail handled by automatic machinery depend on several factors.

**Figure 11.4: Number of Sorting Centres**



Source: Calculated from Universal Postal Union database

The sorting centre is responsible for the core function of e-commerce – fulfilment.<sup>2</sup> Viet Nam has the most sorting centres – 710 (Figure 11.4).

### 3. Competitive Neutrality Frameworks

The most problematic aspect of the post office's entry into the logistics industry is competitive neutrality. There have been many discussions on competitive neutrality centred on the Organisation for Economic Co-operation and Development. The principles of competition law must be applied to the public sector as they are to the private sector. Because it is a discussion of competition neutrality that it is necessary to eliminate the benefits of public enterprises, if possible, because they can reduce competition in the market.

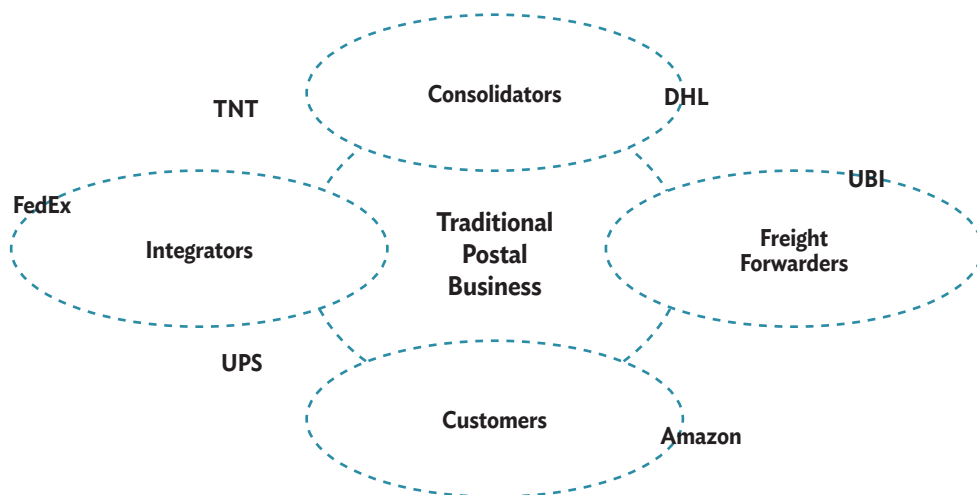
Can the post office's entry into the logistics industry be used to create a virtuous cycle of improving the market structure through competition neutrality?

In cross-border e-commerce logistics, competition is becoming more complex as not only large global companies such as DHL, FedEx, and UPS participate but also local logistics companies. When these new competitors in the private sector enter the business areas in

<sup>2</sup> Singpost's new regional fully automated e-commerce logistics hub can sort up to 100,000 parcels a day.

which the traditional national posting system used to be the sole, dominating provider, they appeal for fair competition with public enterprises. For example, the public enterprises receive preferential treatment for financing from the government and receive unseen benefits, such as being exempted from various regulations.

**Figure 11.5: Competitive Convergence Patterns in Cross-border E-commerce Logistics**



Source: Cope (2014).

Competitive neutrality frameworks create an environment where public and private companies compete. The legislative and administrative environment where public enterprises operate should be reviewed and it should be as consistent as possible with the environment where the private sector operates.

The competitive neutrality framework should aim to improve the transparency and accountability of public enterprises requiring them to disclose the cost of their activities in the same way that private enterprises do. Competitive neutrality aims to promote efficient competition by narrowing the advantage gap between public and private corporations.

In general, the principle of competitive neutrality should not be uniformly applied to all public enterprises. But it is necessary to select public enterprises that need to realise the principle of competitive neutrality in accordance with certain criteria (Step 1) judging the competition neutrality (step 2). Then, if one violates certain competitive neutrality, it needs to be corrected. Australia, which applies the competitive neutrality principle most stringently, follows the following criteria: (1) whether it is necessary for users to pay fees and prices for goods and services provided by public institutions, (2) whether there are actual or potential competitors in the field, and (3) whether prices and supply of goods and services are provided by public agencies and whether independent decision-making is possible. Competitive

neutrality should also consider the cost–benefit of applying competitive neutrality to the business.

Table 11.4 shows several types of E-commerce business models in the market. Singapore has privatised the post office to make its logistics more competitive and has investing huge national funds in massive logistics infrastructure.

**Table 11.4: Types of E-commerce Business Models by Relationship**

E-commerce Business Model	Description
Business-to-business (B2B)	Companies doing business with companies
Business-to-consumer (B2C)	Companies selling merchandise and services to consumers
Business-to-employee (B2E)	Companies selling merchandise and services to employees
Consumer-to-consumer (C2C)	Individuals selling merchandise and services to individuals
Business-to-government (B2G)	Companies offering services to government, such as in public e-procurement
Government-to-business (G2B)	Government offering services to businesses
Government-to-citizen (G2C)	Government offering services to citizens
Government-to-government (G2G)	Government institutions offering services to other government institutions

Source: Universal Postal Union (2015b).

**Table 11.5: Logistics Demand by Relationship**

Relation	Demand	Parcel Profile	Delivery	Sellers	Consumers	Distribution	Negotiation
B2B	Regular	Grouped items	Non-express	One	Known	Concentrated	Flexible pricing Case-by-case Negotiations are common
B2C	Irregular		Express and non-express		Unknown	Diffuse	Non-flexible pricing
B2E			Express		Known	Concentrated	
C2C	Regular	Small packages	Express and non-express	Many	Unknown	Diffuse	Flexible pricing Online auctions and face-to-face negotiations are optional
B2G							Concentrated
G2B	Irregular	Grouped items	Express	One	Known	Diffuse	Non-flexible pricing
G2C						Concentrated	
G2G							

Note: Please refer to Table 11.5 for the list of abbreviations.

Source: Universal Postal Union (2015b).



Each type of relationship demands different logistics. That is important to provide a clear vision of opportunities and competitive advantages are, as well as to find strategies enhancing the Post's competitive in cross-border e-commerce. Another benefit is that it can reduce resource waste by preventing redundant investment between the public sector and private companies.

### **4. Enhancing Connectivity Strategies of Post Offices in Cross-border E-commerce**

#### **4.1. Last-mile Logistics**

Last-mile logistics is the movement of goods from a transport hub to the final delivery destination, which is typically a personal residence. The focus of last-mile logistics is to deliver items to the end user as fast as possible.

Traditional transport methods such as UPS, FedEx, and USPS are not successful in all regions, and retailers are beginning to search for alternatives. To accommodate faster shipping times, changing regulations, and infrastructure limitations, retailers and their transport partners have started to look for alternatives, including click-to-collect locations, local regional carriers, drones, and many more.

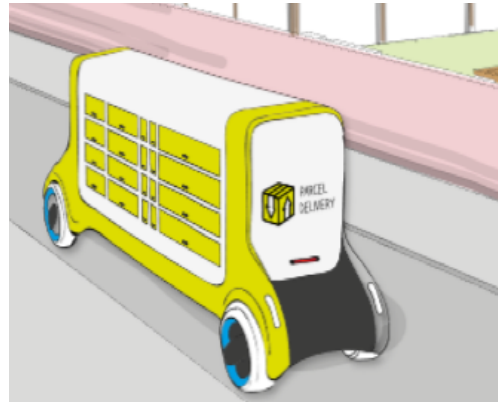
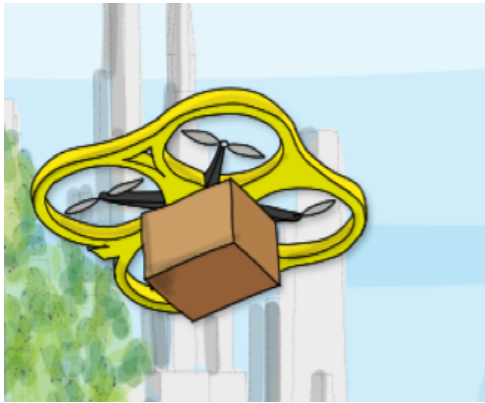
By focusing on last-mile delivery alternatives, retailers can provide and guarantee exceptional service levels to their customers and adapt to the growing cross-border e-commerce environment.

With the rise of e-commerce, consumer preferences have moved more and more to the centre of attention in the formerly business-oriented parcel delivery market. Large e-commerce players have identified last-mile services as a key differentiator in a competitive market. The variety of delivery options and the perceived quality of the delivery service are major decision criteria for online customers and directly impact e-commerce players' success. Most retailers and vendors are working hard to provide their customers with the best experience possible, especially by improving delivery times.

However, it is extremely costly to offer delivery within a specified time or on the same day in rural areas due to the large distances. But post offices with sufficient vehicles and employees could offer delivery at the right time and at the right place. In recent years, most post offices have been forced to change because of competition from the private sector. Like private companies, post offices can reduce costs and increase efficiency and customer satisfaction by using new technology such as drones and autonomous ground vehicles (AGVs) (Figure 11.6).

Drones have turned out to be surprisingly cost-competitive in rural areas, at only 10% more costly than the modern delivery model (McKinsey & Company, 2016). With their higher speeds, they are even better suited for same-day delivery of smaller items. Drones may be the only solution to offer fast delivery services in rural areas because fulfilment centres are simply too far away from recipients.

**Figure 11.6: Identified Delivery Models of Drones and Autonomous Ground Vehicles**



Drones. Autonomous aircrafts, e.g., copters or vertically starting planes, carry parcels (up to 15 kg) to their destination along the most direct route and at relatively high average speed. Like droids and AGVs, they too need to be supervised. We believe that one supervisor per roughly eight drones is a reasonable assumption.

Autonomous ground vehicles (AGVs) with lockers. AGVs deliver parcels without any human intervention. Customers are notified of the exact arrival time. Upon arrival at their door, customers are asked to pick up the parcel from the specified locker mounted on the van or truck – picture a mobile parcel locker. Granted, such vehicles would need to be supervised. We assume that a central supervisor could manage roughly eight to ten AGVs.

Source: Mckinsey&Company (2016).

If drones in rural areas prove feasible, they will be a major delivery model in urban areas, too. Like drones, AGVs with parcel lockers will have a high degree of automation and asset intensity. Autonomous vehicles, including drones, will deliver close to 100% of B2C, G2C, and C2C, and 80% of all items. But unlike drones, AGVs are most efficient in urban areas due to related infrastructure.

In ASEAN countries, last-mile services are often still in their infancy because they require large investments in IT and technology. But Malaysia and Indonesia are catching up fast to Singapore, and in some ways may have already overtaken Europe and Japan.

### 4.2. Regional Logistics Hub as Gateway

A case study is an in-depth study of specific phenomenon rather than a sweeping statistical survey. It is used to narrow down a broad field of research into one easily researchable topic. We have been analysis for two major trends that regional logistics hub and business center.

Logistics is the combination of material, information, and financial flows. A regional logistics hub focuses on the material and information flows that meet customer demand such as order fulfilment and minimum delivery costs and time. The hub requires a large space for warehousing and advanced skills in handling numberless goods. A regional logistics hub often means the same thing as a distribution centre or logistics centre. Products may come from hundreds of suppliers and be delivered to thousands of customers. The purpose of the logistics hub is to improve the supply chain and even save on total costs. Proper warehouse management in the logistics hub will also enable fast delivery lead times and raise the level of customer service.

**Table 11.6: Comparison of E-commerce Logistics Hubs**

Country	Location	Administrator	Name	Area	Completion Year	Sorting Capacity (hour)
Singapore	Greenwich	Singpost	Regional E-commerce Logistics Hub	51,375 m <sup>2</sup>	2016	100,000 parcel / day
Malaysia	KLIA Aeropolis	Alibaba Malaysia Post	E-commerce Logistic Hub	5,260,000 m <sup>2</sup>	2022	-
Myanmar	Thilawa Special Economic Zone	Yusen Logistics (Japan)	-	5,000 m <sup>2</sup>	2017	-
Japan	Narita International Airport Kansai International Airport	DHL FedEx	DHL Competence Centre North Pacific Regional Hub	200,000 m <sup>2</sup> 25,000 m <sup>2</sup>	2017 2014	9,000 pieces
Republic of Korea	Incheon International Airport	Korea Post KCS	Regional E-commerce Logistics Hub	35,830 m <sup>2</sup> 35,885 m <sup>2</sup>	2007 2016	30,000 pieces

Source: Homepages of Alibaba, Korea Post, DHL, FedEx.

Market characteristics vary by region or country, postponement strategies are used to meet customer needs.<sup>3</sup> One of the traditional corporate management strategies is that if there is no difference between quality and function due to the global standardisation, the company establishes production facilities in the region where economies of scale lead to the lowest production costs. In recent years, however, more foreign companies chose to send the semi-finished goods to local logistics centres to produce final products there to maximize benefits from different time points and characteristics of each market. And this is why global distribution centres (GDC) are established in various areas in ASEAN.

<sup>3</sup> Postponement strategy refers to the production and processing of goods at the local airport of the consumer or near the airport.

GDCs will mainly use the airport logistics complexes due to the importance of air transport networks that can respond to customer needs promptly. Since GDCs must engage in production, manufacturing, distribution, and processing, they will contribute to the local economy by procuring facilities and the workforce.

The Malaysian government announced on 4 June 2015 a plan to set up an e-commerce hub in collaboration with Alibaba to develop the Electronic World Trade Platform promoted by Jack Ma, the chairperson of Alibaba Group. Alibaba's logistics platform Cainiao and its e-commerce website Lazada plan to lead other Alibaba subsidiaries and affiliates to develop a regional e-commerce and logistics hub near the Kuala Lumpur International Airport. The Malaysian e-commerce logistics hub is the biggest in the world. Alibaba and the Malaysian government see the first overseas e-hub as empowering small and medium-sized enterprises as well as the younger generation. (Figure 11.6).

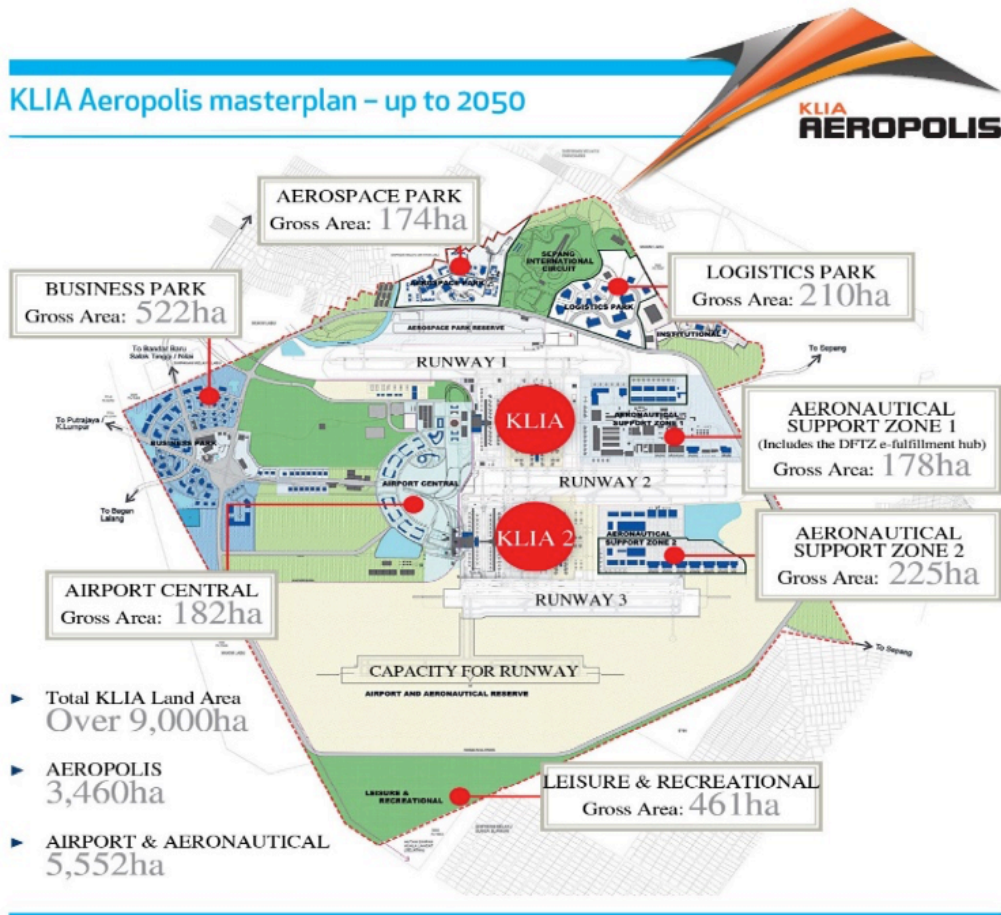
### 4.3. Business Centres for Training and Service

A notable trend in cross-border e-commerce is the development of business centres for training and service. DHL's centre of excellence refers to a facility that performs a specific role in global operation activities. Established as a supply centre of excellence in Singapore in 2007, it launched a new facility as a global centre of excellence in 2015. It works at improving customer satisfaction by setting and driving quality standards within the DHL global network.

These facilities are not traditional logistics facilities, but in the rapidly changing cross-border e-commerce market, logistics cannot become competitive simply through physical facilities or equipment. On 7 March 2018, DHL announced the establishment of another global centre, in Iskandar, Malaysia. Malaysia's first Global Center of Excellence will offer supply chain consultation services and help businesses design logistics solutions (DHL, 2018). It will also serve as a bridge between companies and major stakeholders, then boost its value in the cross-border e-commerce hub as well as the logistics hub facility.

The new centre will connect companies with key stakeholders within Iskandar and help it become the hub for not just Asia but also for global markets. DHL says that the region's logistics ambitions will be enhanced by the new centre as workshops and networking sessions will be set up for companies and industry professionals to collaborate and share ideas and best practices. According to, Datuk Ir. Khairil Anwar Ahmad, President and CEO for Iskandar Investment Berhad, the Global Center of Excellence first it will be a strong base of logistics solutions and talent that provide vital trade connectivity between its core industries and overseas markets; and second, it will play a strategic role in creating the job opportunities and export growth (DHL, 2018).

Figure 11.7: Malaysia's E-commerce Logistics Hub



ha = hectare, KLIA = Kuala Lumpur International Airport.  
 Source: Wong, J. (2017), 'Bright start for KLIA Aeropolis'.

In general, the GDC and logistics companies' business centres are the convergence sites that facilitate international cargo distribution and therefore make global supply chains more competitive via increasing added value of the content rather than just restructuring the channels.

## 5. Conclusion

The research on post offices' e-commerce strategies started a long time ago. In the Delphi survey, experts selected the e-marketplace as a strategy for post offices, but the emergence of strong private competitors such as Amazon and e-Bay rendered the strategy ineffective. We propose a strategy to strengthen the connectivity of ASEAN and make logistics more competitive.

The establishment of a postal e-commerce service is the most significant strategy for enhancing connectivity across all sectors (B2C, B2B, B2G, G2C, G2B, etc.). This study will contribute to accentuating postal e-commerce service in ASEAN as enhancing connectivity and international logistics analysis. The study will improve our understanding of the emerging ASEAN trade network configuration and will generate empirical evidence to shape policy direction and business strategies to expand trade, stimulate growth, and improve logistics capacity. This study will develop research on postal e-commerce, centred on ASEAN, to help governments, industry, and academia shape e-commerce policies and economic strategies in a bid to promote sustainable development and resource cooperation between countries.

This chapter demonstrated most critical and prominent factors that can have severe impacts on the efficiency and effectiveness of enhancing connectivity of the ASEAN countries. Analysis results showed several aspects of each post office for cross-border ecommerce which can give a better understanding to key performance criteria as the base for the main process.

Since transportation, distribution, and last-mile service have a great impact on efficiency, they should be specifically considered to identify the root causes of inefficiencies and to successfully implement logistics processes.

Also key to enhancing ASEAN connectivity is support for e-commerce in rural areas. Before the collision between the post offices and DHL and FedEx, the priority is to strengthen connectivity and improve the basic infrastructure. The post office serves as a gateway and way of personal authentication in rural areas, where it is difficult to access the Internet. In India, which will be the most populous country in the near future, private companies are not seeking to enter rural areas due to high logistics costs and lack of infrastructure for distribution and delivery. However, post offices are in rural areas of every region and provide users with easy access to the Internet through public Wi-Fi and consultation services such as digital authentication and settlement. Post offices can handle all tasks, including receipt and return of goods, even leasing warehouses, facilities, or offices to private companies and serving as a bridge to provide high-quality services for private companies whilst generating revenue.

The postal model is a way to expand rural connectivity and markets without conflict between private and public services. Even in countries with well-established cross-border e-commerce, there are needs to improve the capacity and efficiency of services that the traditional posting system can provide, i.e. via establishing logistic hubs. The ASEAN e-commerce market is expected to grow steadily along with populations and economies. The market will not grow if only private enterprises enter the big cities. The increasing density of the logistics network, including the post office, will enable the continuous growth of the e-commerce market by connecting everyone in the region with companies and allowing them to enter the e-commerce market.

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# E-commerce Development in the Lao PDR: Some Policy Concerns

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## 1. Introduction

The Lao People's Democratic Republic (Lao PDR) is a landlocked, least-developed, lower-middle-income country of about 6.7 million people, with a gross domestic product (GDP) per capita of US\$2,601 in 2017. In 2016, the government approved a long-term development vision to transform the Lao PDR into an upper-middle-income country and achieve the Sustainable Development Goals by 2030, one of which is to develop a science and technology bank. The 10-year development strategy for 2016–2025 focuses on, among others, industrialisation and modernisation. The 8th Five-Year Plan for 2016–2020 aims to lift the country out of its least-developed country status.

E-commerce plays a significant role in achieving these goals. The Ministry of Post and Telecommunications has declared e-commerce development as one of its strategic aims for 2016–2025. The Lao PDR will complete essential information and communications technology (ICT) infrastructure and draw up the legal documents to support e-commerce by 2025. The global wave of e-commerce has reached the country. The use of computers, mobile phones, and the Internet for e-commerce has become increasingly popular. Despite the potential benefits brought about by the new technology, the development of the digital economy needs support from the market and the regulatory system as well.

This chapter identifies some key challenges faced by the Lao PDR in promoting e-commerce, suggests policies to unlock the country's economic potential, reviews global e-commerce developments, and examines lessons learnt from successful countries, such as Japan. From a comparative perspective, it reviews the progress of digitalisation in the Lao PDR, examines the existing barriers, and proposes policy suggestions to overcome these difficulties.



### 2. Global E-commerce Development

#### 2.1. Review of Global E-commerce Development

E-commerce includes selling and purchasing goods and services through electronic networks, which encompass a broad range of commercial activity, using web-based technologies. E-commerce provides services, including accounting, auditing, business law and ethics, computer science and management information systems, finance, marketing, and management. E-commerce helps increase productivity and create and maintain relationships with clients, distributors, suppliers, and strategic partners. E-commerce is generally considered to be the sales aspect of e-business. It also consists of the exchange of data to facilitate the financing and payment aspects of business transactions. This is an effective and efficient way of communicating within an organisation and one of the most effective and useful ways of conducting business. It is a market entry strategy where the company may or may not have a physical presence (Fraser, Fraser, and McDonald, 2000). According to Ducass and Kwadjane (2015), in an e-commerce eco-system, actors like digital platforms, logistics and distribution, and payment platforms will link up others, such as e-merchants, public authorities, manufacturers and buyers, and improve the efficiency of the business cycle.

The United Nations Conference on Trade and Development (UNCTAD) estimated that global e-commerce sales comprising business-to-business (B2B) and business-to-consumer (B2C) transactions amounted to US\$16.1 trillion in 2013. In 2014, 40% of 3 billion people participated online in e-commerce (World Customs Organization, 2014). Factors contributing to e-commerce growth include changes in information technology and connectivity, increasing sophistication of business models, and a supportive regulatory and legal environment in many countries.

Although the bulk of e-commerce transactions occurs in developed markets particularly the United States (US), the United Kingdom, and Japan, developing countries have started to catch up, led by China, which now has the largest B2C market in the world, surpassing the US. China's Alibaba Group has grown by 120% since 2013 and has 24,000 employees. Indonesia and India are expected to show the fastest growth in this market segment. The combined share of Asia and the Pacific in the world's B2C market is projected to further increase to 37% in 2018 from 28% in 2013 (E-Marketer, 2014).

Global telecommunications and ICT have been evolving rapidly, stimulating small and large e-businesses. The number of Internet users increased from 1.03 billion in 2005 to 2.02 billion

in 2010 and to 3.42 billion in 2016. Of these users, 48.4% were in Asia, 21.8% in North and South America, 19% in Europe, 9.8% in Africa, and 0.9% in the Pacific Islands. China had more than 721 million Internet users, followed by India (462 million) and the US (286 million). The Lao PDR was ranked at 128, with only 1 million users (15% of total population). (World Bank, 2018).

Increased broadband access accelerates economic growth, as evidenced by the close link between ICT diffusion and firm-level productivity (Qiang, Rossotto, and Kimura, 2009). Digitalisation created 6 million jobs globally and provided a US\$193-billion boost to world economic output in 2011 (WEF, 2013). By 2020, about 20% of all jobs will be contracted online (World Bank, 2013). Whilst changes in the labour market cause frictional unemployment, Internet access has helped small and medium-sized enterprises (SMEs) in eight developing countries create 3.2 jobs for every job lost (McKinsey Global Institute, 2011).

E-commerce lowers barriers to entry by eliminating the costs of having a physical storefront. It improves market access as it connects the supply to the demand side without physical limitations and certain transaction costs. Digital channels provide opportunities where distance to markets is a big barrier to trade. In the landlocked economies of Central Asia, e-commerce reduces trade costs by 60%. In India, only 9.6% of all firms engage in export, but 98% of them are online.

E-commerce helps local businesses access global value chains. It enables them to trade and to tap foreign suppliers, and to raise productivity through more efficient use of technology, heightened competition, and greater consumer choice. As firms expand, they create jobs.

### 2.2. E-commerce Lessons from Japan

Japan's e-commerce growth rate was ranked fourth in the world and the highest in Asia in 2012. Japan has a well-functioning and efficient e-commerce infrastructure and is highly competitive in e-services, with 73 Internet service companies. If e-commerce functions well, it will grow because it lowers the cost of Internet service and postal fees. Japan has not only a high rate of Internet usage for mobile phones but is also the world's most advanced mobile market and fastest Internet speed for mobile phones. Buyers and sellers can use this channel at any time.

Another factor that led to rapid expansion of e-commerce in Japan is its modern and efficient shipping system. Buyers can order and receive goods within one day. Private post offices have been increasing continually, lowering prices and increasing competition amongst service

providers who must guarantee on-time delivery. Creative and novel products are also strong points that attract buyers from around the world. Websites such as Tenso, From Japan, Amazon.co.jp, Mandarake, and Rakuten can ship products from Japan.

### 3. E-commerce Development in the Lao PDR

E-commerce and ICT have been developing rapidly over the last 10 years, but the lack of a full set of e-commerce laws and regulations keeps e-commerce in the realm of informal trade. E-commerce remains to be defined, managed, and promoted by a national policy, strategy, and regulatory framework.

#### 3.1. Government Policy Framework for E-commerce

E-commerce is an important component of the Association of Southeast Asian Nations (ASEAN) Economic Community Blueprint 2025. Although it is still in the early stage of developing a national policy and regulatory framework for e-commerce, the Lao PDR has committed to implement the ASEAN Work Programme on Electronic Commerce 2017–2025. The government's effort emphasises (i) infrastructure, (ii) education and technology competency, (iii) consumer protection, (iv) modernising of the legal framework, (v) security of electronic transactions, (vi) competition, (vii) logistics, and (viii) an e-commerce framework.

##### 3.1.1. *Vision 2030, the 10-Year Development Strategy (2016–2025), and the 8th National Socio-Economic Development Plan for 2016–2020*

The government development strategy has the following main goals:

- 1) Vision 2030 aims to transform the Lao PDR from a lower-middle-income to an upper-middle-income country and achieve the Sustainable Development Goals by 2030, one of which is to develop a science and technology bank.
- 2) The 10-Year Development Strategy (2016–2025) focuses on industrialisation and modernisation, including the development of e-commerce.
- 3) The 8th National Socio-Economic Development Plan for 2016–2020 aims to raise the country from its least-developed status.

The government will also develop essential ICT infrastructure and draw up the legal documents to support e-commerce by 2025.

### 3.1.2. Laws and Regulations on E-commerce

The government passed the Consumer Protection Law in 2010, the Law on Telecommunications in 2011, and a law on electronic transactions in 2012, paving the way for e-commerce growth. The government also enacted the Law on Prevention and Combating of Cyber Crime in 2016 and a law on national payment system in 2017, providing much-needed digital financial services (DFS) regulations. A regulatory framework to enable interbank payments is being developed. There is still no law on privacy and protection of consumers online. The government is concerned about potential revenue losses, particularly from sales on Facebook and Instagram, due to the absence of e-commerce regulations.

### 3.1.3. E-commerce Platform

The government is encouraging the development of an e-commerce platform to improve access of SMEs to Asian and international markets. An online trade website, Plaosme, specialising in Lao PDR goods, is now fully operational; it is a trade platform for online and offline businesses and provides investment opportunities. Plaosme is an initiative of the Ministry of Commerce and Industry and the Lao PDR National Chamber of Commerce and Industry and is operated and managed by Barterfli Holdings. It was created with support from a US\$562,000 loan from the Asian Development Bank to promote SMEs and improve access to ASEAN markets (UNCTAD, 2018b; Plaosme, 2019).

Plaosme has the following key objectives:

- 1) Encourage and facilitate trade and investment between Lao PDR SMEs and ASEAN.
- 2) Actively help SMEs export within and beyond ASEAN.
- 3) Create a conducive and transparent regional trading environment in ASEAN and encourage the use of ASEAN Free Trade Area (AFTA) and related free trade agreements (FTAs).
- 4) Equip SMEs with the tools and resources that will enable them to compete internationally. Plaosme will help SMEs, including microenterprises, get the support and services needed to enhance their export success and to help the Lao PDR become active in the ASEAN Economic Community. Plaosme has three components:
  - a) a connection portal to help SMEs connect seamlessly;
  - b) online-enabling tools to help SMEs know if their products are covered by an FTA, how to qualify to use an FTA, and how to receive marketing support; and
  - c) hands-on support to provide training and marketing assistance to SMEs that do not know how to get started.

## E-commerce Connectivity in ASEAN

Through Plaosme, SMEs can find business partners, buyers, and sellers from the 118 companies registered with the portal and offering more than 413 products and services (Yap, 2018).

One online company reveals that its primary reason for engaging in e-commerce is the low cost of building an online store and the opportunity to sell products at a low price. The store's main products are spare parts, luggage, clothing, information technology equipment, and others that customers order. The company can also order products from other websites, mainly Alibaba.com and Taobao.com. The company advertises through Facebook; about 70% of its customers buy retail. Products are transported through shipment agencies or companies. Customers in the capital, Vientiane, pick up their orders but customers in the provinces can have their orders delivered by bus or plane. The company offers payment by bank transfer, online payment (BCEL One), amongst others. The challenges facing e-commerce companies are (i) delay in delivery, (ii) inconvenience in payment as some customers do not have a bank account and cannot transfer money, and (iii) customers who cannot be contacted because most have no written purchase contract. Some customers fail to pick up the products, so the company needs to sell them at a low price.

### 3.1.4. E-government Action Plan

A basic building block of e-commerce development is a comprehensive e-government action plan. On this front, the Lao PDR government, through the Ministry of Post and Telecommunications (MPT), has developed ICT policies and programmes as well as e-government initiatives, which support the 7th and 8th National Socio-Economic Development Plan, to promote administrative and civil service reform and support infrastructure development (Table 12.1).

**Table 12.1: Stages of E-government Action Plan**

Stage1: Present stage (2013–2015)	Focus on G2G applications (maintain and stage (2013–2015) rebuild applications established under previous E-government Action Plan).
Stage 2: Interaction stage (2016–2018)	Integrate government data into a single service; initiate G2B service applications
Stage 3: Transaction stage (2019–2020)	Fully computerise the administration system and e-services, especially e-commerce by government officers; initiate G2B service applications

G2B = government-to-business, G2G = government-to-government.  
Source: E-Government Development Plan (2013–2020), 2014.

The E-government Action Plan (2013–2020) has the following scope (Table 12.2):

- 1) Establish an e-government service centre consisting of a national e-government centre at the Ministry of Post and Telecommunications and establish an e-government office in each ministry and provincial office.
- 2) Build the national e-government infrastructure.
- 3) Develop e-government applications (for e-commerce, e-revenue, e-banking, government cross-sectoral information sharing, e-health, ICT for the blind).
- 4) Deploy an e-governance system throughout the country for human resource development.
- 5) Develop e-government procedures, laws, and regulations.
- 6) Develop and define the national standards, especially for data exchange and security concerns.

**Table 12.2: E-government Action Plan Targets**

	Area of territory (km <sup>2</sup> )	Total Number of Permanent Offices	Average Area Covered by a Permanent Office (km <sup>2</sup> )
End-users	Central government (2,000)	Provincial government officers and business people (10,000)	National government officers (10,000) and Lao PDR citizens (25,000)
Regulations	G2G	G2B	G2C
Data	Online government publications, information in standalone mode	Integration with government data	Advanced integrated government data
Applications	G2G: online document management, employee management, work permit, workflow, inventory	G2B: online registration services, customs declaration and quarantine, online market, and online procurement	G2C: online learning, e-citizen and passport and travel documentation
Teleconference	Central government	Provincial government	Nationwide government

G2B = government-to-business, G2C = government-to-consumer, G2G = government-to-government.  
Source: E-government Development Plan, 2013–2020 (2014)..

### 3.2. Recent E-commerce Development Performance

Two general proxies often used to provide an overview of e-commerce development are the UNCTAD B2C E-commerce Index and the International Telecommunication Union (ITU) ICT Development Index (IDI) (Table 12.3). The 2018 UNCTAD B2C E-commerce Index lists the Lao PDR in 98th place out of 151 countries surveyed, whereas in the 2017 ITU IDI the country scores 139th out of 176 participating countries. The B2C E-commerce Index consists of four indicators: (i) account ownership at a financial institution or a mobile-money-service provider, (ii) individuals using the Internet, (iii) secure Internet servers, and (iv) Postal Reliability Index. Meanwhile, the ITU IDI comprises 11 indicators that measure key aspects of access, use, and skills of the ICT.

## E-commerce Connectivity in ASEAN

The overall performance of the Lao PDR in the 2017 ITU IDI hints at a more promising future. The country managed to climb up to 139th place from 144th in 2016, running behind India and Myanmar which ranked at 134 and 135, respectively (Table 12.3). In the 2018 B2C E-commerce Index, the Lao PDR fared incredibly well in postal reliability despite scoring rather low in the other three indicators. The country successfully obtained 85 marks out of 100 in postal reliability, surpassing China (61), India (54), and even Malaysia (80) which ranks fifth in the top 10 developing economies list (UNCTAD, 2018a). This serves as a strong impetus for the Lao PDR to strengthen its postal system whilst improving the performance of the other three indicators to better develop the country's e-commerce readiness.

**Table 12.3: IT Development Ranking in Selected Countries in Asia**

Country	ITU IDI Ranking	Total Number of Permanent Offices
Brunei Darussalam	53	-
Cambodia	128	118
Indonesia	111	90
Lao PDR	139	98
Malaysia	63	34
Myanmar	135	125
Philippines	101	92
Singapore	18	2
Thailand	78	43
Viet Nam	108	69
China	80	63
India	134	80

IDI = ICT Development Index, IT = information technology, ITU = International Telecommunication Union.  
Source: ITU (2017), UNCTAD (2018).

### 3.2.1. Development of ICT Systems

The provision of quality ICT systems is fundamental to ensure the infrastructure needed for e-commerce is sufficient. In the Lao PDR, the majority of ICT users (96%) who access the Internet via mobile devices highly favour mobile broadband. This is also evidenced in the proportion of mobile phone subscriptions per 100 inhabitants that reached a staggering 51.8%, eclipsing that of the fixed-broadband subscriptions that stood at only 0.4% (Table 12.4). To a lot of individual users and private companies, the limited availability and high price of fixed-broadband Internet is a massive disincentive that stirs them away from using the service (UNCTAD, 2018b).

**Table 12.4: Internet Access in the Lao PDR, 2017**

Population	6.7 million
Households	1.2 million
Fixed-telephone subscriptions per 100 inhabitants	17.7
Mobile-cellular subscriptions per 100 inhabitants	51.8
Fixed (wired)-broadband subscriptions per 100 inhabitants	0.4
Mobile-broadband subscriptions per 100 inhabitants	13.9
Households with a computer (%)	12.3
Households with Internet access at home (%)	11.7
Individual using the Internet (%)	24.8
Internet users who go online through mobile phone devices (%)	96

Source: UNCTAD (2018b).

As of 2017, there were seven ICT companies, five of which were major players in the market where the government held some shares, albeit small. Mobile broadband has seen the most extensive growth, with 91% and 65% of Laotians having been able to access 2G and 3G networks, respectively. Meanwhile, the 4G network has covered 13% of the country, accessible in some central parts of Vientiane and other major provinces despite some instability in terms of speed (UNCTAD, 2018b; World Bank, 2018).

To improve the provision of quality ICT systems, a supportive regulatory environment is indispensable. A master plan that clearly outlines the targets for different time frames or milestones (short, medium, and long term) will enable the government to better monitor their progress whilst allowing some flexibility in policy adoption. Some short-term strategies such as price control, for example, might work for a short period to help the mobile broadband market to grow. However, such a policy may not be sustainable in the long run as it can act as a disincentive for new investment and innovation.

### 3.2.2. *Payment Methods for E-commerce*

Payment methods for e-commerce have been identified as the most important technical assistance essential to foster the adoption of e-commerce in the Lao PDR (UNCTAD, 2018b). There are two general routes for the country to establish secure, reliable, efficient, and affordable payment methods for e-commerce to enhance Laotians' experience while transacting online. These two routes are interlaced, and accomplishing one necessitates improving the other. The first is to increase account ownership among the unbanked population, and the other is to develop DFS involving the public and the private sectors.

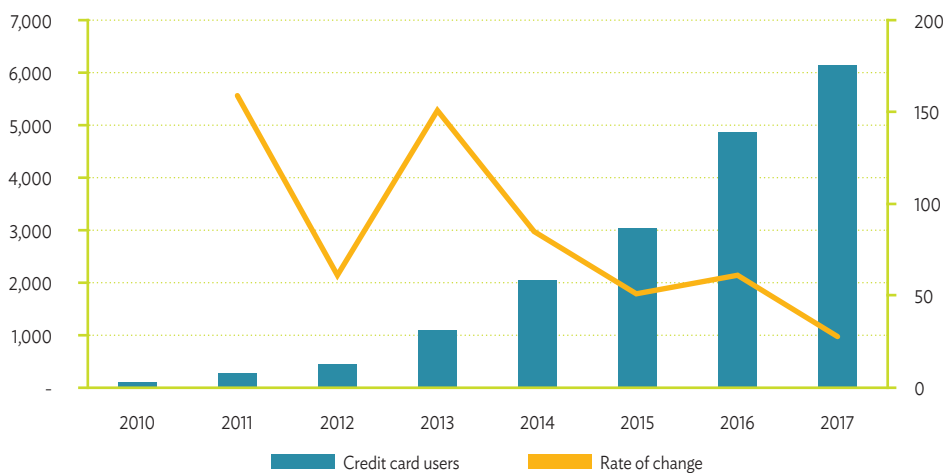


## E-commerce Connectivity in ASEAN

Increasing the number of account ownerships would entail addressing some of the fundamental barriers that cause the prevailing low rate of formal banking and credit or debit card use. The first barrier relates to the society's strong preference for cash-only transactions. This goes with the second constraint revolving around the current DFS services that are inefficient and expensive. Interbank money transfers, for example, require many days to complete and are quite costly – enough to deter people from using the services and make them stay content with cash-based dealings (UNCTAD, 2018b).

Any attempt to alter the society's penchant for cash-only transactions might call for a concerted whole-of-government approach. This is because the preference for cash payments is prevalent across various transactions, including payroll disbursement in the public sector (UNCTAD, 2018b). The majority of Laotians are also inclined to keep their money at home. This might partially explain the persistent low level of account ownership in the country. According to the 2017 Global Findex database, the proportion of adults with a bank account in the Lao PDR stood at only 29%, considerably below the average level of the East Asia and the Pacific at 71% (World Bank, 2017).

**Figure 12.1: Credit Card Users**



Source: Banking Supervision Department (2018), The Bank of the Lao PDR.

The use of credit and debit cards also remains low, albeit with some upward movements following the growing trend of the middle-class traveling overseas and using debit or credit cards (Figure 12.1). In 2018, 42 banks were operating in the Lao PDR – a surge in number from only 12 banks listed in 2006 (World Bank, 2019). Yet, fewer than half of these banks were providing international financial services such as Visa and MasterCard, limiting the means of financial transactions for Laotians especially when paying overseas. Hence, an

overall improvement of the country's financial regulations becomes a necessity since an unequivocal regulatory framework is needed not only for traditional banking services (e.g. savings, withdrawals, and loans) but also for the DFS.

Developing the DFS is the second route towards providing secure, reliable, efficient, and affordable payment methods for e-commerce. Albeit it is still in the early stages, the government has taken necessary steps including appointing the the Bank of the Lao PDR (BOL) as the lead agency responsible for ensuring consultation and coordination on DFS development, as well as convening the DFS working group meetings (MAFIPP, 2015). In 2015, BOL issued draft guidelines for DFS providers of both banks and non-banks. The guidelines were meant to provide a legal structure for financial service providers and payment service providers on developing digital financial products for the Lao PDR's market (UNCTAD, 2018b).

A successful example of the DFS is offered by the Lao PDR's major commercial bank, Banque pour le Commerce Exterieur Lao Public (BCEL). BCEL's DFS products come in the form of Internet banking and a mobile application. The Internet banking, known as the i-Bank, provides individual customers with a 24/7 access to their accounts for them to carry out different transactions, such as bill and tax payments as well as funds transfer to ID cardholders, and other domestic and international banks (BCEL, 2019a). The mobile application or BCEL One offers services similar to that of the i-Bank including fund transfers and bill payments (e.g. electricity and water). The application is available for installation on desktops or personal computers and mobile devices operating on Android and iOS (BCEL, 2019b). As the DFS ecosystem evolves towards maturity, more commercial banks and non-bank actors are expected to introduce DFS services into the market.

### 3.2.3. *Logistics Infrastructure and Connectivity*

Hard and soft infrastructure is fundamental to facilitating physical and economic connectivity and allowing domestic and cross-border trade, including e-commerce, to flourish.

The Government of the Lao PDR has exerted substantial efforts to develop domestic infrastructure by allocating 35%–50% of its total investment to the transport infrastructure (MPWT, 2010). Road transport plays an important role and accounts for nearly 80% of the total transport in the country. Meanwhile, river and air transport make up only 18% and 2%, respectively. The effort to improve connectivity materialises in the expansion of road network where the total length has increased from 39,585 kilometres (km) in 2010 to 51,597 km in 2014 (Nolintha, 2019).

## E-commerce Connectivity in ASEAN

In the context of cross-border trade, the Lao PDR is geographically endowed with opportunities that come from being surrounded by several countries. It is situated at the centre of the Lower Greater Mekong Subregion (GMS) and shares borders with all other GMS countries. This can potentially create seamless connectivity crucial for fostering e-commerce development, as well as enabling the country to become the hub of trade, transport, finance, and tourism in the GMS.

Several initiatives aimed at connecting all GMS countries have been rolled out since the early 1990s. In 1992, the six GMS countries – Cambodia, China, the Lao PDR, Myanmar, Thailand, and Viet Nam – came together to establish the very first initiative with the assistance from the Asian Development Bank. The initiative, the GMS programme, supports the implementation of high-priority subregional projects, including the development of three major economic corridors that would link networks of roads, rails, and ports of the six countries.

The three major GMS economic corridors can strategically connect the Lao PDR to seaports via the (i) North–South Economic Corridor passing through China, Myanmar, the Lao PDR, Thailand, and Viet Nam; (ii) East–West Economic Corridor passing through Myanmar, Thailand, the Lao PDR, and Viet Nam; and (iii) Southern Economic Corridor passing through Myanmar, Thailand, Cambodia, the Lao PDR, and Viet Nam (ADB, 2016).

Currently, the Lao PDR's involvement in the two closest corridors (the East–West Economic Corridor and the North–South Economic Corridor) remains limited and the capital city (Vientiane) is not yet part of any economic corridor. There are several possibilities for the Lao PDR to increase its participation in the GMS economic corridors. One feasible undertaking is to strengthen two routes where cross-border trade is found the largest. The first route connects Boten (Lao PDR) with Mohan (China), while the other route connects Vientiane (Lao PDR) with Nong Khai (Thailand). The two cities in the latter route are not yet part of any GMS economic corridor. Therefore, integrating the two cities into the economic corridors can help intensify the route's ongoing cross-border trade including e-commerce.

The aforementioned two trade routes connect cities relatively adjacent to each other. Some other cross-border routes serve trade flows between cities at a much greater distance. Two examples of primary trade routes linking faraway cities include the one that is part of the North–South Economic Corridor and connects Kunming (China) to Bangkok (Thailand) via the Lao PDR; the other serves trade flows between Bangkok (Thailand) and Vientiane (Lao PDR).

Another promising opportunity for the Lao PDR comes from its involvement in China's Belt and Road Initiative, particularly in the development of the Kunming–Vientiane (K–V) railway. The railway project is part of the six-country Pan-Asia railway network development; the financing arrangement is being managed through a joint venture with a 70%/30% ownership between China and the Lao PDR. Set for completion by the end of 2021, the route will allow direct transport from Kunming (China) to Bangkok (Thailand) and Singapore via Vientiane (Lao PDR) (Morris, 2019). This will further facilitate efficient cross-border trade and transport between the Lao PDR and its surrounding neighbours.

As part of the supportive infrastructure for e-commerce, the postal system of the country plays an instrumental role in goods delivery by offering services that cover all provinces, districts, and villages. The performance of The Lao PDR's postal reliability in the 2017 ITU IDI is impressive (see section 3.3) considering the country's mountainous terrain and irregular addressing system. This provides a sound foundation on which domestic and cross-border e-commerce can rely.

Today, six companies provide postal services. These are the state-owned Lao Postal and the following five privately owned businesses: NT Lao Logistics Service Company, LCT Company, PT Air Cargo Company, OCS Lao Company Limited, and Express Laos Sole Company. Since the majority of e-commerce transactions between buyers and sellers take place on online social media platforms (e.g. Facebook, Instagram, WhatsApp, Line, and WeChat), these companies employ a rather similar business model. They develop websites or social media accounts to reach out to their prospective customers and cater to their needs. To better serve growing customers' needs of both domestic and international markets, delivery companies will need to be able to integrate online payment processes, packaging, and delivery into the chain of their services.

The development of hard infrastructure combined with soft infrastructure will enable the country to develop its domestic and cross-border e-commerce. In addition to the government's policy approach to e-commerce (see section 3.2), the Lao PDR and the other GMS countries have set up a single comprehensive legal instrument, the Greater Mekong Subregion Cross-Border Transport Agreement (GMS-CBTA). This transport agreement is expected to promote a hassle-free movement of vehicles, people, and goods by reducing non-physical barriers, such as harmonisation of health inspection and recognition of driving licences to eliminate the number of intermediary stops, hence, reducing the amount of time spent in crossing borders (GMS-CBTA, 2019).

The Lao PDR expects that active participation in this regional trade and transport agreement will give the needed momentum to improve domestic trade regulations and increase the country's international trade value. This will subsequently lead to a reduction in the number of export–import procedures and expedite trade, making the country internationally competitive and simultaneously attractive to more foreign investment – an environment desirable to encourage and support e-commerce's growth.

On the domestic front, establishing solid infrastructure will propel the country closer to achieving the objective of the National Socio-Economic Development Plan, the 10-Year Development Strategy, and Vision 2030 (see section 3.2.1). Specifically, this will help the Lao PDR boost its economic growth that has accelerated at the rate of nearly 8% over the past 10 years (World Bank, 2019). It will also help the country improve its trade openness by increasing the trade-to-GDP ratio, which grew by 53% in 2014 to 64% in 2015, to 70% by 2020.

## 4. Conclusion

Digital economic policies will open opportunities for many businesses, but entry into the digital society also presents challenges for traditional businesses, including a workforce lacking digital skills and the need to adapt to change. Policymakers and entrepreneurs face barriers, including:

- 1) Online-business legislation, such as laws covering data protection and cybercrime, is insufficient, which discourages foreign investors.
- 2) Technology development and transfer are slow and hamper companies' competitiveness.
- 3) Internet access is still limited and expensive.
- 4) The postal system does not have an efficient data collection system for households, which impedes delivery of goods.
- 5) The transport system is limited and expensive.
- 6) Online payment systems are insecure.

In order to improve the country's international competitiveness, a priority is to construct affordable high-speed Internet access and enable consumers to use applications via mobile phone. A secure e-payment system, fast and reliable postal service, and reasonable delivery prices are all needed to reduce SMEs' transaction costs. Internet access, however, is mostly by mobile phone, and access to high-speed Internet is still limited to Vientiane. Using the Internet to buy and sell is still not well understood and the inability to communicate in English

makes online trading difficult. Trade via Facebook, WhatsApp, Line, and other means is becoming popular, especially amongst young people, but such transactions are highly risky.

In short, some key obstacles of developing e-commerce in the Lao PDR, which urgently need to be solved, are (i) goods delivery is usually hand to hand, especially in large cities; (ii) the system of national postal system does not function well; and (iii) most users are still use cash on delivery for payment rather than banking transition. The following policy interventions will help improve digital connectivity in the country:

- 1) Speed up the improvement and development of an e-commerce policy and regulatory framework. E-commerce is booming but remains informal.
- 2) Prepare short- and medium-term e-commerce work programmes that are consistent with the ASEAN Economic Community Blueprint 2025, particularly the ASEAN Work Programme on Electronic Commerce 2017–2025.
- 3) Improve e-commerce infrastructure. In particular, make the Internet system more effective, faster, and cheaper than neighbouring countries', and accessible to all. Upgrade the logistics system to meet international standards. Improve the database system for producers and consumers to facilitate delivery of goods and services.
- 4) Encourage the use of e-money instead of cash.
- 5) Build the capacity and strengthen the technological skills of the Lao PDR workers, including by cooperating with the private sector to provide training expertise.

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# An Integrated E-commerce Platform for the ASEAN Tourism Industry: A Smart Tourism Model Approach

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## 1. Introduction

The invention of the Internet, the rapid growth of digital devices, and the rise of user-friendly mobile apps motivate more than 3 billion people across the world to go online and use search engines, visit social networks, check email, play games, watch online videos, search for products, look up maps and directions, or listen to music. Electronic commerce (e-commerce) is the buying and selling of goods and services or conducting financial transactions via the Internet (Cao and Yang, 2016). In tourism, advanced information and communication technologies (ICTs) have facilitated not only cross-border e-commerce but also the use of smart technologies that shape the smart tourism ecosystem, aiming to improve tourism management and governance, facilitate service and product innovation, enhance tourist experiences, achieve competitive advantages for tourist firms and destinations, and increase the importance of ICTs themselves as strategic tools to develop tourism (Werthner et al., 2015).

The tourism industry, an important generator of gross domestic product (GDP) for the Association of Southeast Asian Nations (ASEAN), primarily adopted the digital economy and e-commerce applications such as flight ticket booking websites, online hotel reservation apps, and purchasing of tourist packages. However, while various countries have been taking advantage of smart technologies and social media platforms to create, manage, and deliver touristic services and experiences (Gretzel et al., 2015), ASEAN tourism has neglected to develop an integrated smart tourism platform to collect, process, and exchange tourism-relevant data to facilitate cross-border e-commerce (Werthner et al., 2015).

A smart tourism platform not only offers around-the-clock availability, access, trustworthiness, competitive prices, a wide selection of services, and co-creation experiences to visitors, but also fully utilises smart technologies and digital ecosystem benefits in the destination and helps reduce costs, enhance the operational system, remove market entry

barriers, hone countries' competitive advantage, increase stakeholder cooperation, and enhance cross-border e-commerce (Cao and Yang, 2016; Buhalis, 2000).

In the ASEAN Economic Community (AEC) Blueprint 2015, tourism was a priority for economic integration. Tourism's significant contribution to ASEAN's economic growth prompted the ASEAN national tourism organisations (ASEAN NTOs) to execute the ASEAN Tourism Strategic Plan (ATSP) 2016–2025 to (i) make ASEAN more competitive as a single tourism destination and (ii) ensure that ASEAN tourism is a sustainable and inclusive contribution to the socio-economic well-being of the ASEAN people. The proposed strategic directions and action programme address the core challenges facing the sustainable development of quality tourism and its integration within ASEAN member states: balancing the distribution of the benefits of tourism amongst ASEAN member states, reducing safety and security concerns, making cross-border formalities more convenient and less costly, and reducing transportation and destination infrastructure congestion (ASEAN, 2017).

ASEAN NTOs are responsible for targeting the ATSP 2016–2025's two strategic directions via 10 strategic actions. However, only six strategic actions – marketing and promotion, product development and standards, human resource development, tourism investment, quality tourism and sustainable growth, and inclusive tourism development – are under the control of ASEAN NTOs. The other four strategic actions – travel facilitation, safety and security, connectivity and infrastructure, and responsiveness to climate change – are beyond the NTOs' control, meaning they need the cooperation and actions of other entities. For example, to encourage tourists to choose ASEAN regional products over others and to stay longer and to spend more within the region, cross-border travel must be seamless and cost-competitive, not only well connected by air, sea, and land but also by more accommodative border control policies and procedures.

Most ASEAN member states continue to require visas from residents of non-ASEAN countries and, in some cases, from ASEAN residents. This makes multiple country visits, especially by long-haul travellers, expensive and inconvenient, reduces the price competitiveness of the region as a destination, and works against the goal of inclusive economic development. As the provision of cross-border customs, immigration, quarantine, and security (CIQS) services is outside the purview of NTOs and destination managers, a convergence strategy needs to be adopted between NTOs and the CIQS national agencies so that they can move towards a more integrated system of cross-border management and provide for the multi-country destination travel needs of the long-haul tourism markets (ASEAN, 2017).

This research aims to use the smart tourism model to (i) determine the barriers and opportunities of cross-border e-commerce in the ASEAN tourism industry, using the literature and available statistical data; (ii) identify the characteristics of ASEAN smart tourism; and (iii) develop an integrated e-commerce platform based on smart tourism indicators. Section 2 reviews the literature and statistical data of cross-border e-commerce and tourism annual reports to determine the challenges and opportunities of cross-border e-commerce, then conceptualises the smart tourism concept for ASEAN. Section 3 details the evaluation elements of the smart tourism destination platform (STDP) and the research methodology. The final two sections discuss the findings from the experts' evaluations and their managerial implications.

## 2. Literature Review and Statistical Background

ICTs have become a core part of every economy and are progressively underlying all aspects of socio-economic growth and development. In particular, the Internet and digital ecosystem offer an immense landscape of advanced and real-time communications; paperless and borderless transactions with easy access to comprehensive references; increased market networking; an elevated selling and advertising medium; and an innovative recreation and entertainment environment (ASEAN, 2016; Park et al., 2016; Gretzel et al., 2015). Internet penetration has been an important measure of a country's digital economic development. However, other factors indicate how much people can use the Internet and digital devices, such as mobile connection access, Internet speed, payment method options, transportation, regulatory support, and user-friendly websites and applications (Buhalis and Law, 2008; GSMA, 2016).

The ASEAN ICT Masterplan 2020 foresees a region that is digitally enabled, secure, and sustainable, with a transformative, innovative, inclusive, and integrated community (ASEAN, 2016). To realise this target, ASEAN countries must be prepared for the challenges and opportunities of digital-economy enablers.

Generally speaking, economic growth leads to an expanding middle class and increased purchasing power. ASEAN countries' economic growth has also advanced online markets. Indeed, ASEAN tourism partner countries' high economic growth allows the ASEAN tourism industry to increase its presence in the target partners' online markets. Brunei Darussalam and Singapore, with reported GDP per capita of US\$87,117 and US\$85,021, respectively, have the highest opportunities to expand their digital economies. Malaysia, Thailand, and Indonesia, all of whom report average GDP per capita, also have the opportunity to increase their market share of the digital economy and e-commerce. (Table 13.1).

**Table 13.1: ASEAN Economy and Internet Penetration**

Country	GDP at Current Prices	GDP per Capita at Current Prices	International Merchandise Trade			Internet Penetration
			Exports	Imports	Total Trade	
	US\$ million	US\$ PPP	US\$ million	US\$ million	US\$ million	
Brunei	12,909	87,117	6,350	3,042	9,392	71.40%
Cambodia	18,463	3,578	8,839	10,838	19,676	25.50%
Indonesia	857,603	11,108	150,282	142,695	292,977	50.40%
Lao PDR	12,639	5,466	3,714	3,049	6,763	19.90%
Malaysia	294,390	26,515	199,869	175,961	375,830	69.60%
Myanmar	65,392	5,275	11,432	16,844	28,275	22.40%
Philippines	289,503	7,241	58,648	70,295	128,944	52.00%
Singapore	291,938	85,021	366,344	296,765	663,109	81.20%
Thailand	395,726	16,064	214,396	202,751	417,147	60.00%
Viet Nam	193,407	6,083	162,014	165,730	327,744	52.10%
<b>ASEAN</b>	<b>2,431,969</b>	<b>11,009</b>	<b>1,181,889</b>	<b>1,087,970</b>	<b>2,269,859</b>	<b>50.45%</b>

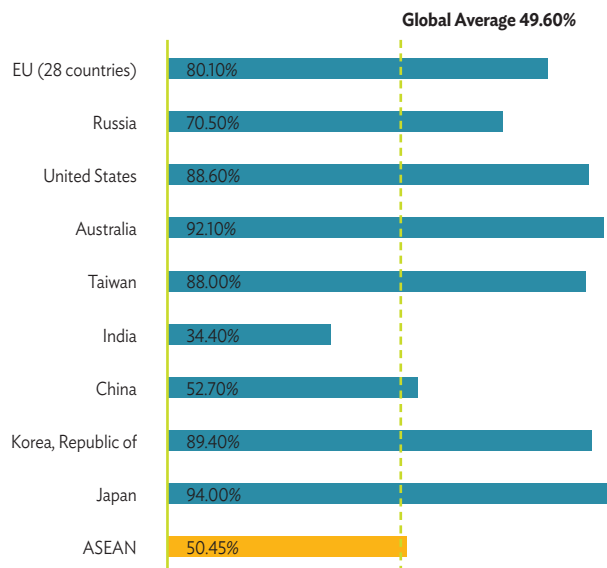
ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, PPP = purchasing power parity.  
Sources: Internetworldstats (2017), ASEANSTATS (2017).

Internet penetration is defined as Internet users as a percentage of the total population. When people are provided with an accessible, secure, and high-speed Internet connection, they are motivated and empowered to buy and/or sell online. Table 13.1 shows that Cambodia, Lao PDR, and Myanmar (CLM) have Internet penetration lower than the world average level. In general, they are lagging behind to attract travellers using digital economy platforms such as social media and tourism websites.

When comparing ASEAN's digital economy and e-commerce data with that of selected ASEAN tourism partners, including China, the European Union (EU 28), Republic of Korea (hereafter, Korea), Japan, Australia, the United States (US), India, the Russian Federation (hereafter, Russia), and Taiwan. Figure 13.1 shows that all ASEAN tourism partner countries, except for India, have higher Internet penetration.<sup>1</sup> This provides good conditions for the ASEAN tourism sector to develop cross-border e-commerce using the digital economy.

<sup>1</sup> Amongst the selected tourism partners, Japan has the highest rate of Internet penetration (94%), followed by Australia (92%). However, China (with 731 million Internet users), India (462 million), EU 28 (412 million), and the US (287 million) have the largest populations of Internet users (ASEANSTATS, 2017; Internetworldstats, 2017).

**Figure 13.1: Global Internet Penetration Comparison**



ASEAN = Association of Southeast Asian Nations, EU = European Union.  
Source: Internetworldstats (2017), ASEANSTATS (2017).

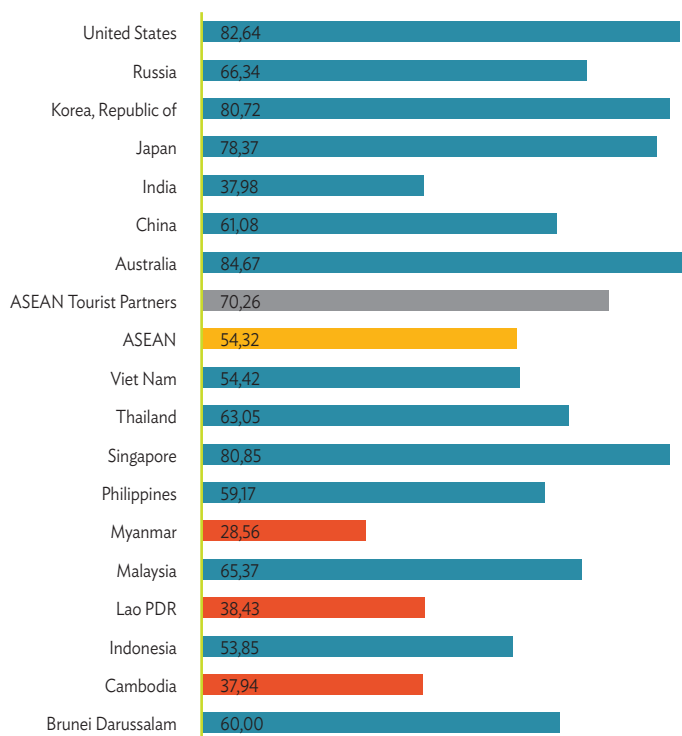
Cross-border e-commerce development requires multi-stakeholder involvement to overcome its challenges. Regulatory issues, payment methods and processing, transportation, and organisation readiness are amongst the challenges faced by cross-border e-commerce expansion. In particular, to develop smart tourism, there are needs to prioritise development in (i) infrastructure, availability and quality of high-performance Internet coverage, (ii) affordability, availability of services and devices at price points that reflect the level of income across a national population, (iii) consumer awareness of the value of the Internet and capacity of using ICT tools, and (iv) service content availability of online content and services that are accessible and relevant to the local population (GSMA, 2016).

Above all, tourism practitioners, regulatory parties, and policymakers need to apply an integrative strategy to cross-border e-commerce that increases the trustworthiness, reliability, and responsiveness of online services (Szopiński and Staniewski, 2016).

Mobile and smartphones are ubiquitous platforms that afford everyone an Internet connection and allow them to use apps and communicate with others. Travellers use their mobile and smartphones to search for places of visit, track hiking routes, or share destinations with their friends. The mobile connectivity index score is a measurement of a country's mobile service development. GSMA introduced a connectivity index consisting of four enablers: infrastructure, affordability, consumer, and content. Figure 13.2 shows

that ASEAN’s main sourcing countries and/or regions of tourists all (except India) score high on mobile connectivity, whilst ASEAN’s mobile connectivity average score is lower than its tourism partners’. Myanmar, Lao PDR, and Indonesia need to improve their mobile connectivity enablers, as opposed to Singapore, Malaysia, and Thailand, which scored highest on connectivity in ASEAN.

**Figure 13.2: Mobile Connectivity Index Score**



ASEAN = Association of Southeast Asian Nations.  
Source: GSMA.com.

Most ASEAN countries scored below 50 on mobile infrastructure, which means they face the insurmountable task of developing mobile connections encompassing 2G, 3G, and 4G coverage and providing high speed for download. Without network coverage, people cannot go online, and without high-performing networks, it is difficult to access the Internet’s full potential. Aside from prices and incomes, the affordability score shows that ASEAN countries provide affordable Internet access to their citizens, which is also affected by the level of taxation and inequality. However, without the necessary skills and supporting cultural environment, individuals may not understand how to use mobile Internet or appreciate how it can benefit them. Some, especially women, might find themselves prevented from accessing the mobile Internet in some countries. Table 13.2 indicates that CLM countries struggle with

## E-commerce Connectivity in ASEAN

the lack of Internet content. Consumers are less likely to connect to mobile Internet unless there is online content and services that are relevant and of benefit to them. This might be as simple as having content in their native language, or it could be the availability of certain apps or services such as social media, banking, or education (GSMA, 2016). In short, ASEAN tourism must improve Internet infrastructure and provide it at an affordable price, increase consumer readiness, and enhance tourism service content.

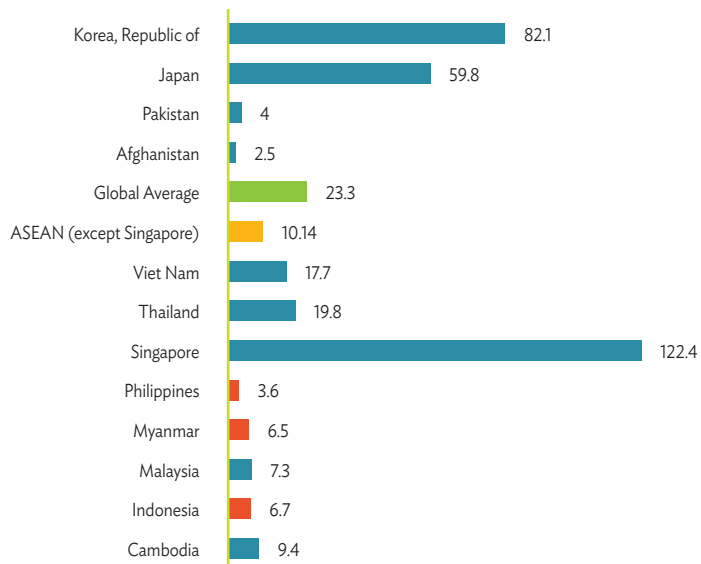
**Table 13.2: Mobile Connectivity Indicators**

Country	Infrastructure	Affordability	Consumer	Content
Brunei	43.51	73.50	75.08	59.85
Cambodia	39.40	59.50	52.25	16.91
Indonesia	40.41	68.55	68.96	44.02
Lao PDR	34.12	60.62	56.60	18.63
Malaysia	53.11	72.76	74.14	63.74
Myanmar	22.55	44.89	60.70	10.83
Philippines	49.22	62.64	75.56	52.62
Singapore	76.43	75.48	85.70	86.43
Thailand	49.66	71.96	77.23	57.24
Viet Nam	39.72	66.76	72.68	45.52
ASEAN	44.81	65.67	69.89	45.58
ASEAN tourism partners	61.52	73.40	79.96	69.22
Australia	73.16	82.37	94.90	89.88
China	43.23	69.21	71.53	65.01
India	25.41	57.52	42.60	33.42
Japan	76.08	80.44	83.91	73.47
Korea, Republic of	82.70	81.04	86.64	73.13
Russian Federation	49.31	70.66	87.88	63.27
United States	80.72	72.53	92.25	86.36

ASEAN= Association of Southeast Asian Nations.  
Source: GSMA.com.

Internet speed is an important challenge facing ASEAN countries as well. Google and Temasek (2016) reported that all ASEAN countries, except Singapore, have Internet speeds lower than the global average of 23.3 megabits per second (Mbps). Singapore reports a significantly higher Internet speed than most of the world at 122.3 Mbps, whilst Indonesia and Philippines report the slowest at 3.6 Mbps and 2.5 Mbps, respectively (Figure 13.3) (Temasek and Google, 2016).

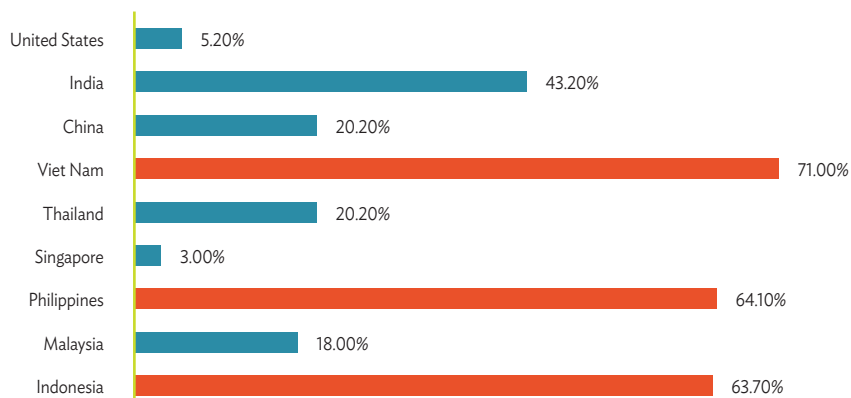
**Figure 13.3: Global Internet Speed (Mbps)**



ASEAN= Association of Southeast Asian Nations, Mbps = megabits per second.  
Source: Temasek and Google (2016).

Payment is also vital in developing e-commerce and the digital economy. Google and Temasek (2016) estimates that globally, around one-third of adults aged above 25 are without at least one banking account (so call the ‘unbanked’ population). The share of unbanked population is much higher in some ASEAN countries such as Viet Nam (71%), the Philippines (64.1%), and Indonesia (63.7%) (Figure 13.4). Their low rate of banking adoption will prevent them unleashing the potential in digital economy. In this regard, ASEAN needs to improve the banking system, especially online banking and e-payment, more quickly.

**Figure 13.4: Share of Unbanked Adults Aged Above 25 (%)**



Source: Temasek and Google (2016).



## E-commerce Connectivity in ASEAN

It is worth noting that the lack of customer trust could also hinder the adoption of online purchasing. There seems to be higher risks of doing business online – more fraudulent incidents occurred in online transactions. Temasek and Google (2016) show that ASEAN has a high rate of fraudulent activities. For instance, in Indonesia, online users are 12 times more likely to experience fraud than they are in a normal transaction.

According to the technology acceptance model, travellers' perceived usefulness, trust, and risks are determinants of their attitudes towards e-purchasing, which, in turn, significantly influence e-purchase intent (Szopiński and Staniewski, 2016; Chung et al., 2015). Bloggers' recommendations may influence several components of the purchasing process, such as needs recognition, product information seeking, or recommendation seeking, which will, in turn, influence the final purchase decision. Sellers have mastered ways to monitor Internet user behaviour.

Website content is one of the main factors determining the frequency of visits. When preparing their tourism (including hotel booking, looking for restaurants, plan the itinerary, etc.), normally visitors try to obtain detailed information online such as addresses, pictures, map, facilities, reference rates, and reviews. As Cao and Yang (2016) points out, the websites serve not only as a key promotional vehicle but also as a major distribution channel for domestic and international tourism.

Regarding access to the website and social media, Table 13.3 shows the divide amongst ASEAN member states. Countries like Myanmar, Lao PDR, Cambodia, Viet Nam, and Indonesia have relative low scores of either website access and Facebook user penetration, e-government, or mobile application access. Viet Nam has very low website access. In comparison, Thailand, Singapore, the Philippines, Malaysia, and Brunei have higher rates of website access, Facebook penetration, mobile application access, and e-government in general.

**Table 13.3: Website and Social Media Accessibility**

Country	Online Service Index Score for E-Government	Websites Accessible to Population	Accessibility of Mobile Applications	Facebook User Penetration
Brunei Darussalam	36.22	39.15	79.89	81.75
Cambodia	17.32	0.35	2.87	22.14
Indonesia	36.22	0.71	57.9	31.6
Lao PDR	14.17	0.24	0	15.64
Malaysia	67.72	34.66	72	72.6
Myanmar	2.36	0.05	14.22	14.96
Philippines	48.03	56.3	59.22	53.13
Singapore	99.21	91.32	96.72	85.07

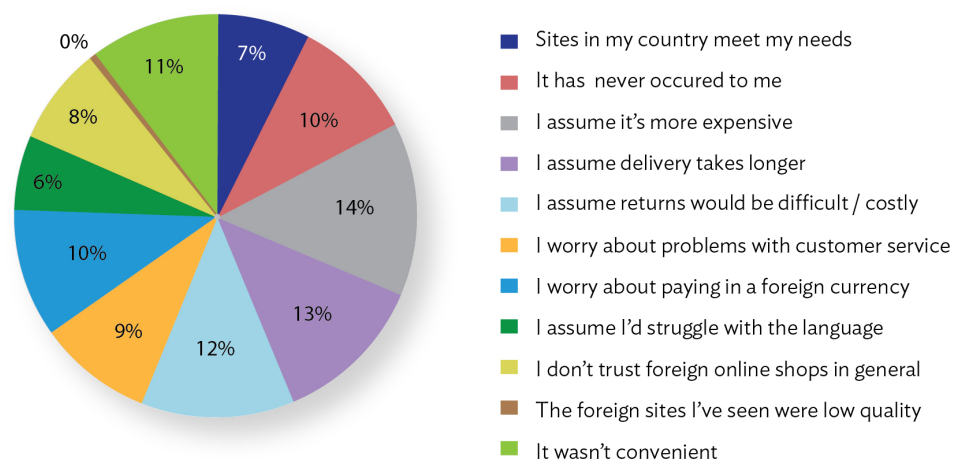
## An Integrated E-commerce Platform for the ASEAN Tourism Industry: A Smart Tourism Model Approach

Country	Online Service Index Score for E-Government	Websites Accessible to Population	Accessibility of Mobile Applications	Facebook User Penetration
Thailand	44.09	27.52	72.18	59.5
Viet Nam	41.73	0.69	51.63	37.52
ASEAN	40.707	25.099	50.663	47.391
ASEAN tourism Partners	80.77	34.73	85.70	30.56
Australia	92.91	99.4	100	65.99
China	60.63	6.24	100	0
India	54.33	18.39	25.09	11.84
Japan	94.49	8.86	97.44	26.73
Korea, Republic of	97.64	1.03	95.49	30.66
Russian	70.87	14.38	83.02	10.65
United States	94.49	94.83	98.89	68.07

ASEAN= Association of Southeast Asian Nations.  
Source: GSMA.com.

However, some other studies show that the information overload on the Internet has a negative impact on the destination's image. Lepp, Gibson, and Lane (2011) concluded that customers with little or no Internet experience had a better perception of their destination than those who used the Internet to gather information, due to information overload. Figure 13.5 shows some factors that prevent people from purchasing online from abroad.<sup>2</sup>

**Figure 13.5: ASEAN Country Respondents' Reasons to not Make a Cross-border Purchase**



Source: Consumer Barometer (2015)

<sup>2</sup>The results are based on the feedback of an online survey by the Consumer Barometer.

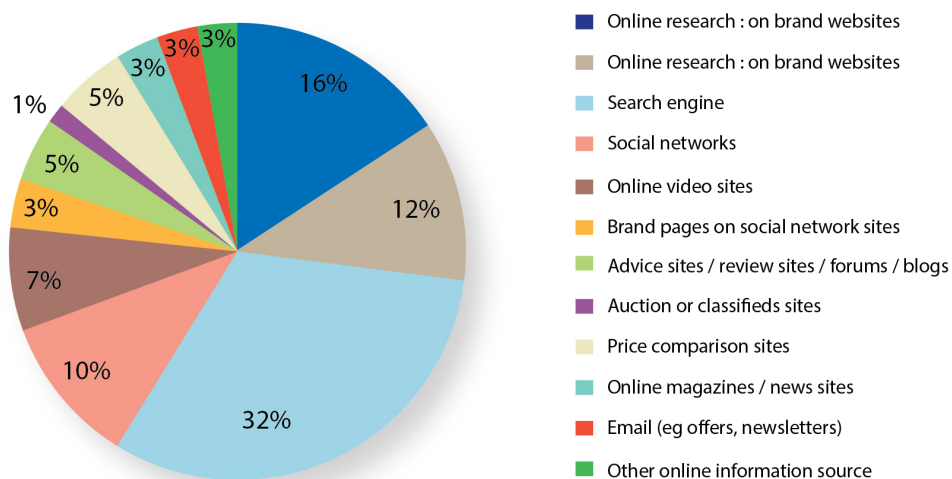
## E-commerce Connectivity in ASEAN

There are two main factors preventing people in ASEAN tourism partner countries from engaging in cross-border e-purchase are that national websites meet their needs and that the return process of purchased products is difficult and costly. Equally important is the longer delivery time and inconvenience, which makes people in ASEAN tourism partners believe that cross-border purchase is not profitable. However, ASEAN-country respondents stated that price, delivery, and return options are the main reasons why they consider cross-border e-commerce (Consumer Barometer, 2015).

Roughly, online tourism information sources can be divided into four types: blogs, public websites, company websites, and social media websites (Werthner et al., 2015). Information shapes the destination's images. Tourists are not simply receivers of destination image information but also actively construct and share their own images via the Internet. An image is a reference of beliefs and impressions arising from information processing, which results in an internally accepted mental construct of a product (Chung et al., 2015). Information presented via the pictorial channel is salient and better remembered than information presented via verbal channels. A persuasive website effectively instils confidence in the consumers and helps them form attitudes that are more resistant to counter-arguments (Lee and Gretzel, 2012).

The findings from the Consumer Barometer, provided by Google, indicate the online source that people use to make a purchase decision (Figure 13.6). Online research on search engines, brand websites, and retail websites are the most important sources people in ASEAN tourism partner countries use when they want to search for product information. Social networks, online video websites, review websites, blogs, and forums are other important sources of information. ASEAN-country respondents pointed out that search engines, online research on retail websites, and brand websites are important sources of information when making a purchase decision. It seems that social networks are more prevalent amongst ASEAN countries than amongst their tourism partner countries.

**Figure 13.6: ASEAN Countries: Online Sources Used to Make a Purchase Decision**



Source: Consumer Barometer (2015).

### 3. Conceptualising a Smart Tourism Destination Platform Model

The notion of smart tourism is introduced as a holistic and sustainable approach to planning, development, operation, and marketing of tourism on the basis of smart technologies and ICT infrastructure and capabilities in improving tourism management and governance, enhancing tourist experiences, and achieving competitive advantages (Li et al., 2017; Werthner et al., 2015; Buhalis and Law, 2008). Smart tourism includes not only sensors application and data mining (location-based service information collation and dissemination) but also other techniques such as positioning technology, the social network system, and social networks (Li et al., 2017). Smart tourism is defined by the United Nations World Tourism Organization (UNWTO) as clean, green, ethical, and offering high-quality services at all levels of the service chain.

Park et al. (2016) describe smart tourism as a combination of tourism and smart technologies. The literature on sustainable tourism development says that tourism can be assessed in terms of human activities and biological diversity of the environment (Lee and Hsieh, 2016). Ko (2005) suggests that the tourism industry can be considered as two sub-systems: the human system or the tourism stakeholders and the tourism ecosystem. The smart tourism destination can be conceptualised as the utilisation of smart technologies and advanced ICTs to connect the human system and tourism ecosystem.

To conceptualise the Smart Tourism Destination Platform Model, this section will elaborate on the smart tourism destination ecosystem, which has three sub-systems: tourism ecosystem, human and stakeholder system, and digital ecosystem. In stakeholder theory, the human and stakeholder system consists of nine players: tourists, residents, local community, non-governmental organisations (NGOs), government, destination management organisations (DMOs), touristic suppliers, support services, and other industries (Gretzel et al., 2015). The digital ecosystem in tourism is formed from three main components: cloud services, Internet of Things (IoT), and end-user Internet service (Wang et al., 2016).

#### 3.1. Tourism Ecosystem

The literature on sustainable tourism planning and development defines the tourism ecosystem as the main physical and soft infrastructure, resources, and elements that tourism stakeholders provide or that are provided to the destination (Lee and Hsieh, 2016; Ko, 2005). The tourism ecosystem is composed of six dimensions: transportation, accommodation, food and beverage, attractions, things to do, and travel information (Brandt et al., 2017; Gretzel et al., 2015) (Figure 13.7). In the smart tourism destination model, the tourism stakeholders are connected with the tourism ecosystem dimensions. For example, touristic suppliers provide various services to tourists, and information on usage of these services is given to touristic suppliers to enhance their services. Unlike traditional tourism

planning, the smart tourism model engages all tourism stakeholders to realise common goals. Residents can use the Airbnb website to rent out their homes or utilise Uber and Grab mobile applications to earn an income using their own automobiles.

**Figure 13.7: Tourism Ecosystem: Main Components**



Source: Authors.

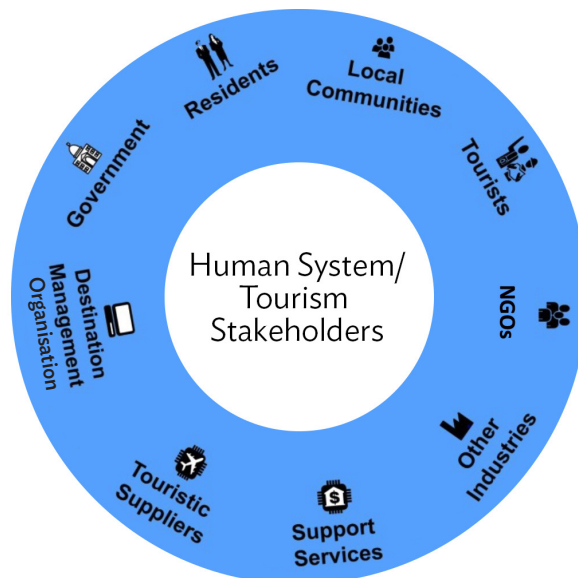
In the STDP, accommodation refers to various kinds of lodging and housing services, which can be provided, rated, and facilitated by different stakeholders. For instance, the official tourism website of Korea, [visitkorea.or.kr](http://visitkorea.or.kr), classifies accommodations into four categories: Goodstay – motels and inns whose facilities and operations meet high standards endorsed by Goodstay; Koreastay – selected homestays and guesthouses providing international visitors with a special opportunity to experience Korean culture and lifestyle by living with a Korean family; BENIKEA – premium vacation accommodations at a reasonable price; and hotels – classified according to the number of stars, from five to one, with five stars being the highest rating. The Korea Tourism Organization not only branded every accommodation for niche marketing and provision of good experiences but also sorted accommodations so that they are connected to other tourism stakeholders. Similarly, in the smart tourism destination model, other tourism ecosystems will be sorted according to their main components and search engine keywords. For example, K. Kim et al. (2017) pointed out that all online reviews can be classified into 14 categories: ‘restaurants, sightseeing, hotels, things to do, night life, transportation, shopping, sporting & outdoors, favourites, off the beaten path, what to pack, tourist traps, warnings and danger, and local customs’.

### 3.2. Human System and Tourism Stakeholders

Many researchers identify stakeholder engagement as an important factor in sustainable tourism development (Ko, 2005; Lee and Hsieh, 2016). Stakeholders comprise tourists, residents, local communities, NGOs, government, DMOs, touristic suppliers, support services, and other industries. (Figure 13.8). They provide information and services to other stakeholders using digital devices, social media and network platforms, and tourism websites.

For instance, Chung et al. (2015) describe the information provided by DMOs as more reliable and trustworthy than user-generated content, which is provided by a blend of amateur, semi-professional, and professional entities, and is easily manipulated or abused. In Korea, the government-led Brain Korea 21 Plus supports research programmes in Korean universities to promote the government's creative economy policy, which includes the development of smart tourism. The Electronics and Telecommunications Research Institute, a non-profit and the largest government-funded research institute, developed Korean-English interpretation applications, which boast an 80% success rate in real-life situations. The Tourism Marketing Group, a travel agency based in New Zealand, provides guests and visitors with personalised itinerary services. This smart service allows its users to 'create tourism'. Peru, Colombia, and Ecuador have agreed to collaborate on a smart visa electronic system in the region to replace traditional visa procedures. Taiwan's Board of Science and the Institute for Information Industry worked with the Taipei City Government, the Taipei Computer Association, the External Trade Development Council, and Chunghwa Telecom Co. to establish 'Smart Tourism Taiwan', a web platform that can be synced across multiple platforms such as smartphones and web browsers.

**Figure 13.8: Human System or Tourism Stakeholders**



NGOs = non-governmental organisations.  
Source: Authors.

### 3.3. Digital Ecosystem

Smart tourism destination has six elements of smartness: (1) adapting: modifying behaviour to fit the environment; (2) sensing: bringing awareness to everyday things; (3) inferring: drawing conclusions from rules and observations; (4) learning: using experience to improve performance; (5) anticipating: thinking and reasoning about what to do next; (6) self-organising: self-generating and self-sustaining at the cellular or nanotechnology level (Wang, Li et al., 2013; Gretzel et al., 2015; Wang et al., 2016; Li et al., 2017).

The application of advanced ICTs and digital tools in tourism has three main components: (i) cloud services, (ii) IoTs, and (iii) end-user Internet services (Buhalis and Law, 2008; Gretzel, 2011; Wang, Li, and Li, 2013; Gretzel et al., 2015). First, cloud services provide convenient and scalable access to application, software, and data via web browsers. For example, a tour guide system can serve a large number of tourists without being installed on any personal devices. A centralised distribution system can serve any travel agent on a pay-per-use basis (K. Kim et al., 2017).

Second, the IoTs is the ubiquitous presence around us of things or objects such as Radio-frequency identification (RFID) tags, sensors, actuators, and mobile phones, which, through unique addressing schemes, are able to interact with each other and cooperate with their neighbours to reach common goals. The IoTs supports smart tourism in two ways:

- (i) Information and analysis. For instance, entrance tickets are embedded with RFID reader chips that help track tourists' location and consumer behaviour at tourist sites, and provide presence-based advertising and payments to visitors.
- (ii) Automation and control. For example, carrying capacity of heritage sites is monitored by a variety of sensors to control air quality, crowdedness, and electricity consumption. The monitoring system is connected to the ticketing system to implement pricing strategies that influence the number of visitors (Wang, Li, and Li, 2013; Wang et al., 2016).

Third, end-user Internet services are applications and equipment support of cloud services and the IoTs at various levels of end users. For example, the design of individual payment systems is based on personal telecommunication devices such as smartphones and tablets; wireless connections and touch screens are set up to serve tourists; tourism service providers and government organisations are equipped with portals and connections to the cloud service.

Accordingly, the smart tourism destination platform will have four key features as follows (Gretzel et al., 2015; Park et al., 2016; Brandt, Bendler, and Neumann, 2017):

- (i) Interaction and engagement. Communities of interaction between individual agents or groups of agents.
- (ii) Balance. Prevents system collapse.
- (iii) Loosely coupled actors with shared goals. Proactively try to increase individual benefits and achieve shared goals.
- (iv) Self-organisation. Considering ecosystems in their entirety rather than centring on specific actors and elements allows for more holistic perspectives, recognises that small changes can have substantial effects, encourages a focus on complex relationships, emphasises dynamic change, and acknowledges the importance of the physical environment or infrastructure that supports the system. Digital ecosystems are therefore focused on interactions amongst technological agents (devices, databases, programmes, etc.) and the respective information flows, and form the infrastructure for digital business ecosystems.

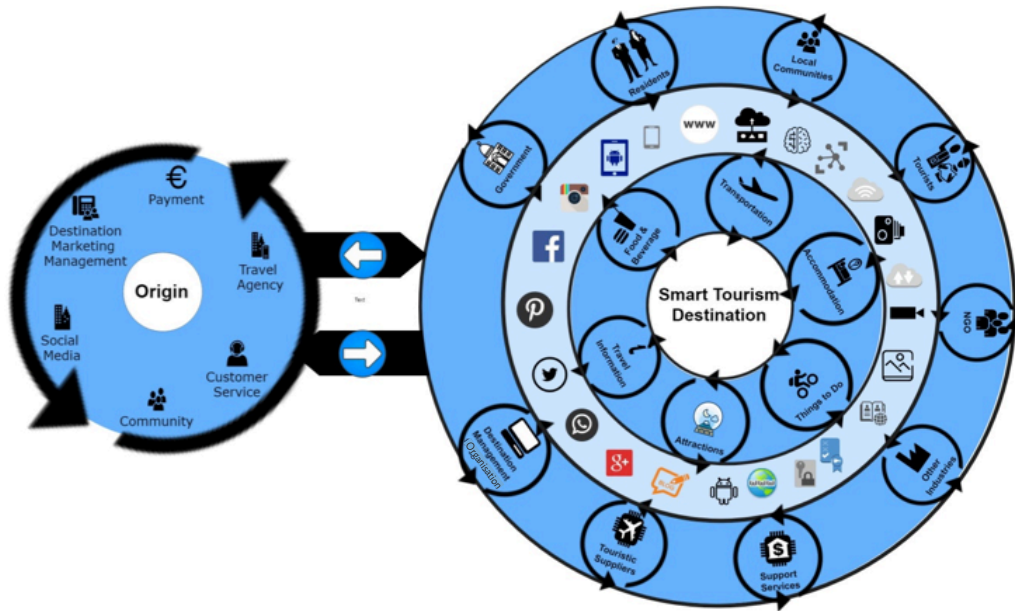
### 3.4. Smart Tourism Destination Platform

To identify the STDP indicators, this study summarises the digital ecosystem key attributes that interconnect and facilitate tourism ecosystem and human system interactions. As per Gretzel et al. (2015) and Wang et al. (2016), this study lists eight main digital ecosystem features that tourism ecosystem and human system elements employ to interact with other species in a smart tourism destination ecosystem: smart information system, smart sightseeing, intelligent tourism management, e-commerce system, smart forecast, smart traffic, smart safety, and virtual tourism attraction.

The STDP is underlined within three initiatives: transformation of tourist experiences (co-created value); changes in destination marketing strategies (relationship management); and destination competitiveness (operant resources, big data) (Del and Baggio, 2015; Gretzel et al., 2015; Wang et al., 2016). For instance, a mobile application for smartphones provides comprehensive information about local attractions and location-based service, and tourists can instantly share photos and stories to receive and share the experience and feedback. This gets them involved in creating a unique experience. Co-creation is in real time and multidirectional (service provider–tourist, tourist–tourist, tourist–service provider). The STDP enhances destination marketing strategies and tools. For example, social media provides two-way and instant communication between tourist and DMO, unlike the traditional one-way communication tools such as advertisements, brochures, and road shows.



**Figure 13.9:** Smart Tourism Destination Platform (STDP) Graphical Framework



NGO = non-governmental organisation.  
 Source: Authors.

Figure 13.9 indicates how every species of tourism stakeholder, tourism ecosystem, and digital ecosystem is shaping smart tourism destination big data. Woo et al. (2016) point out that using big data to support decision making and optimal resource allocation ultimately leads to sustainable tourism development. Analysing big data can exact new insights in ways that influence markets, organisations, and relationships between citizens and governments. The application of the cloud service, the IoTs, and contacts with tourists via the Internet result in big data – information relating to business transactions, tourism attractions, and tourist behaviour. China has proposed four modules of big data within 3–5 years: quality assurance (complaints filing system, mega-event coordinating system); tourist scenic area measurement (ticketing system, tourist geographic information system, parking statistics); travel agency (contract-filing system, tour guide system, GIS positioning of tourist coaches); and accommodation monitoring (online transaction filing system) (Wang, Li, and Li, 2013; Gretzel et al., 2015; Woo et al., 2016).

## 4. Methodology

This study employs the fuzzy Delphi method to evaluate the importance of STDP indicators vis-à-vis ASEAN tourism. The Delphi method is a useful technique that helps integrate expert knowledge by maintaining anonymity and controlled feedback. However, the traditional Delphi method’s weakness of subjectivity and time-consuming features pushed scholars

to optimise this method using the fuzzy set theory (Zhang, 2017; Bouzon et al., 2016). In the fuzzy Delphi method, experts' judgements are represented by fuzzy numbers, where subjective opinions are transformed into objective data via a fuzzy operation. The final decision is obtained from only one round of survey, which reduces the time and costs of data collection. The procedures of the fuzzy Delphi used in this study are the following:

**Step 1:** Collect the decisions of the group experts. The judgment of every expert on every evaluation indicator is obtained using the semantic variables in the questionnaire. In this study, the evaluation linguistic term is set, and the triangular fuzzy numbers are shown in Table 13.4.

**Step 2:** Calculate the evaluation values of every indicator according to the triangular fuzzy number. Suppose that the evaluation value of the importance of the  $K$ th indicator given by the  $i$ th expert is  $w_{ik} = (a_{ik}, b_{ik}, c_{ik})$ ,  $i = 1, 2, \dots, m$ . Then, the fuzzy weight of the  $K$ th indicator is defined as:

$$W_k = (\alpha_k, \beta_k, \gamma_k) \quad (1)$$

$$\text{Where: } \alpha_k = \min(a_{ik}), \beta_k = \frac{1}{m} \sum_{i=1}^m b_{ik}, \gamma_k = \max(c_{ik})$$

**Table 13.4: Evaluation Linguistic Term Set and Its Corresponding Triangular Fuzzy Numbers**

Fuzzy Linguistic Scale	Evaluation Linguistic Term Set	Triangular Fuzzy Number (a,b,c)
9	Very important	(7,9,9)
7	Important	(5,7,9)
5	Moderate	(3,5,7)
3	Unimportant	(1,3,5)
1	Very unimportant	(1,1,3)

Source: Bouzon et al. (2016).

**Step 3:** Defuzzification. To obtain the final weight  $S_k$ , the fuzzy weight of every evaluation indicator is defuzzied using a simple centre of gravity method by Equation (2)

$$S_k = \frac{\alpha_k + \beta_k + \gamma_k}{3} \quad (2)$$

**Step 4:** Set a threshold  $r$  so as to select the more important evaluation indicators from the total group. If  $S_k \geq r$ , the  $K$ th indicator is retained; if  $S_k < r$ , the  $k$ th indicator is abandoned. In practice, if we want more indicators,  $r$  is set at a smaller value; whilst conversely,  $r$  is set at a larger one.

### 5. Findings

To find the STDP indicators and determine the importance of each evaluation item, this study extracted the smart tourism indicators from Gretzel et al. (2015) and Wang et al. (2016) and consulted with the expert to prepare the questionnaire. The panel for this research consists of nine experts. Considering previous studies using the fuzzy Delphi method, Zhang (2017) with 5 experts, Hsu, Lee, and Kreng (2010) with 9, Bueno and Salmeron (2008) with 10, and Bouzon et al. (2016) with 10, this panel size is acceptable. The total nine selected experts include two government tourism officials, two industry experts, and five academic experts (Hsu, Lee, and Kreng, 2010; Bueno and Salmeron, 2008). The experts were asked to assess the importance of every STDP indicator for each tourism ecosystem element and the tourism stakeholders according to evaluation linguistic terms presented in Table 13.4.

The results of the initial calculation of fuzzy weights are presented in Annex I and II, where the data collected from the respondents and equation 1 were utilised to calculate the fuzzy weights  $\alpha_k$ ,  $\beta_k$ , and  $\gamma_k$ . The final weights in the tables are calculated using equation 2. To assess the importance of each indicator, the final fuzzy weights are imported to Table 13.5.

To determine the best threshold  $r$  for this research, the average of final weights for all smart tourism indicators of each tourism ecosystem and tourism stakeholder is used. Indicators that rated above the average are selected as important elements for every single species of the tourism ecosystem and tourism stakeholder.

A comparison of the average weights of smart tourism indicators of the total tourism ecosystem and the stakeholders shows, for each smart tourism dimension, which indicators are rated as important parameters for developing the STDP for ASEAN tourism. In the 'smart information system', from seven evaluation items, 'tourist attraction home page', 'mobile application', 'online information access', and 'blogs of tourist attractions' are highlighted as very important STDP indicators. 'Free Wi-fi', electronic touch screen, and quick response code are indicated as unimportant.

In the category of 'smart sightseeing', the evaluations show that 'intelligent guide system', 'personal itinerary design', and 'e-tour map' are relatively important for an integrated e-commerce platform for ASEAN tourism. As for 'intelligent tourism management', two elements, 'e-complaint handling' and 'electronic ticketing system', have been highlighted. Factors like 'mobile payment' and 'online booking' turned out to be the most important for the 'e-commerce system'. Regarding 'smart safety', 'traffic safety protection', 'smart emergency response system', and 'smart environment' are all important. Other representative indicators include 'weather forecast' in 'smart forecast', 'smart vehicle scheduling' in 'smart traffic', and 'virtual tourist experience' in 'virtual tourism attraction'. Table 13.6 summarizes the selection and presents a shorter list of most important/relevant factors of ASEAN STDP.

Table 13.5: Final Weights of Evaluation Indicators Using Fuzzy Delphi Method

Smart Tourism Dimension	Smart Tourism Indicators	Accommodation	Transportation	Attraction	Food	Thing to do	Travel Information	Touristic Consumer (TC)	Resident Consumer (RC)	Touristic supplier (TS)	Other industry supplier (OS)	Government	Non-Government Organization (NGO)	Destination Management Organization (DMO)
S1	S11	Tourist attraction home page	7.59	5.67	5.74	4.93	5.52	7.52	6.26	5.22	4.26	3.59	3.59	5.44
	S12	Mobile application	5.30	6.04	5.07	4.48	5.07	5.30	5.37	5.07	4.48	3.44	3.44	4.93
	S13	Free Wifi	4.78	3.22	2.48	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	2.56
S2	S14	Online information access	6.04	6.04	5.30	4.48	5.07	5.30	5.37	5.07	4.48	3.44	3.44	4.93
	S15	Quick response code	4.78	3.74	2.48	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	4.93
	S16	Electronic touch screen	4.78	3.22	2.48	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	3.74
S3	S17	Blogs of tourist attractions	7.37	5.59	5.74	4.85	6.41	6.33	7.52	6.26	5.15	4.26	3.59	5.44
	S21	Intelligent-guide system	5.30	6.04	4.48	4.48	5.07	5.07	5.30	5.37	5.07	4.48	3.44	4.93
	S22	Personal-itinerary design	5.30	6.04	4.56	4.48	5.07	5.07	5.44	5.37	5.07	4.48	3.44	5.44
S4	S23	E-tourism-recommendation system	5.07	4.78	4.56	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	4.56
	S24	E-tour map	5.30	6.04	4.56	4.78	5.07	5.07	5.44	5.37	4.48	3.44	3.44	5.44
	S25	Guiding-information service	4.78	3.22	4.56	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	4.56
S5	S31	Smart card (band)	4.78	4.78	4.78	2.56	2.41	5.07	4.56	5.00	4.33	3.22	2.63	4.78
	S32	Electronic-entrance guard system	4.78	4.56	4.78	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	2.56
	S33	Tourist-flow monitoring	4.56	4.78	4.78	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	5.37
S6	S34	Crowd handling	4.56	4.78	4.78	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	5.37
	S35	Smart education	4.78	3.22	4.70	2.56	2.41	4.70	4.78	4.56	5.00	4.33	4.70	4.78
	S36	E-complaint handling	5.30	6.04	4.56	4.48	4.56	5.07	6.04	5.37	5.07	4.41	5.00	5.07
S7	S37	Electronic-ticketing system	4.33	6.04	4.56	4.48	2.56	4.33	4.56	5.07	4.41	2.41	2.63	4.93
	S38	Short-messaging service and multimedia-messaging service	4.78	4.56	4.56	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	2.56
	S39	Call-service center	4.78	3.22	4.70	2.56	2.41	4.70	5.07	4.56	5.00	4.33	2.41	4.78
S8	S41	Mobile payment	5.30	6.04	4.56	4.48	4.56	5.07	6.04	5.37	5.07	3.22	2.41	4.93
	S42	Online coupons	4.78	5.07	4.70	2.56	2.41	4.70	4.78	4.56	5.00	4.33	2.48	4.78
	S43	Online booking	7.59	5.67	5.74	4.93	5.52	5.52	7.52	6.26	5.22	4.26	3.59	5.44
S9	S45	Festival-activity forecast	4.56	4.70	4.70	2.56	2.41	4.70	4.78	4.56	5.00	4.33	2.48	4.78
	S51	Tourist-flow forecast	5.07	4.70	4.70	2.56	2.48	4.70	4.78	4.56	5.00	4.33	2.48	4.78
	S53	Queuing-time forecast	2.56	2.41	4.70	2.56	2.41	4.70	4.70	4.56	5.00	4.33	2.48	4.78
S10	S54	Weather forecast	4.56	4.70	4.56	4.56	5.07	5.00	4.70	5.07	4.48	3.44	3.44	4.70
	S61	Electronic toll collection	2.56	5.07	4.70	2.56	2.41	3.37	4.63	4.85	5.00	5.07	4.56	4.78
	S62	Smart vehicle scheduling	4.56	5.52	4.70	2.56	2.41	4.70	5.07	5.00	5.00	4.93	4.56	4.78
S11	S63	Real-time traffic broadcast	2.56	5.07	4.70	2.56	2.41	4.70	4.56	4.78	5.00	4.93	2.48	4.78
	S71	intelligent-environment monitoring	4.78	3.22	4.70	2.56	2.41	4.70	4.78	4.56	5.00	4.33	4.70	4.78
	S72	Traffic-safety protection	5.30	6.04	4.56	2.56	5.07	5.07	5.30	5.37	5.07	4.41	4.70	4.93
S12	S73	Smart emergency response system	4.56	4.48	5.30	2.56	2.41	5.07	5.30	5.37	5.07	4.70	4.48	4.93
	S74	Smart Environment	5.30	6.04	4.56	4.48	2.41	5.07	5.07	5.37	5.07	4.41	4.70	5.07
	S81	Virtual Tourism experience	6.04	4.48	5.30	2.41	4.56	4.70	5.30	4.70	5.07	4.41	2.63	4.93
S13	S82	Virtual travel community	4.70	4.70	4.56	2.56	2.41	4.78	4.56	5.00	4.33	3.22	2.63	5.96
	S83	Augmented reality	5.07	4.41	5.30	2.41	4.56	4.70	4.56	5.30	4.70	2.56	2.56	4.93

Source: Authors.

**Table 13.6: Overview of Final Weight Evaluation Result**

Tourism Industry Ecosystem		Smart Tourism Indicators							
		Smart Information System	Smart Sightseeing	Intelligent Tourism Management	E-commerce System	Smart Forecast	Smart Traffic	Smart Safety	Virtual Tourism Attraction
Tourism Ecosystem	Accommodation	5.80	5.15	4.74	5.89	4.19	3.22	4.98	5.27
	Transportation	4.79	5.22	4.66	5.59	4.13	5.22	4.94	4.53
	Attractions	4.19	4.85	4.69	5.00	4.67	4.70	4.78	5.05
	Food	3.77	3.77	2.98	3.99	3.06	2.56	3.04	2.46
	Things to do	4.19	4.01	2.88	4.16	3.09	2.41	3.07	3.84
	Travel Information	4.17	4.01	3.43	5.10	4.80	4.26	4.98	3.94
Human System / Tourism Stakeholders	Touristic Consumer (TC)	5.71	5.15	4.96	6.11	4.81	4.75	5.11	4.88
	Resident Consumer (RC)	5.28	5.04	4.65	5.40	4.59	4.88	5.17	4.85
	Touristic supplier (TS)	5.07	5.04	5.02	5.10	5.02	5.00	5.06	4.93
	Other industry supplier (OS)	4.35	4.42	4.35	4.33	4.37	4.90	4.39	4.38
	Government	3.39	3.36	3.40	3.10	2.72	4.68	4.70	2.80
	Non-Government Organization (NGO)	3.10	3.03	3.11	2.83	2.69	2.48	4.93	2.56
	Destination Management Organization (DMO)	4.57	4.99	4.45	5.05	4.76	4.78	4.89	5.27

The key indicators for each tourism ecosystem and human system are demonstrated in Appendix III.

Source: Authors.

## 6. Concluding Remarks

This study proposes a framework of an integrated e-commerce platform for the ASEAN tourism industry based on a smart tourism model and then identifies its key components using the fuzzy Delphi method.

In the case of ASEAN, there are 17 important STDP indicators received most concern: tourist attraction home page, mobile application, online information access, blogs on tourist attractions, intelligent-guide system, personal-itinerary design, e-tour map, e-complaint handling, e-ticketing system, mobile payment, online booking, traffic-safety protection, weather forecast, smart vehicle scheduling, smart emergency response system, smart environment, and virtual tourism experience.

In general, the development of cross-border e-commerce in ASEAN still face challenge from low Internet speed; the high rate of unbanked people; the high rate of fraud incidents; and difficulties in cross-border customs, immigration, connectivity, security, and safety. Moreover, promoting cross-border online tourism service needs support from high Internet penetration, high mobile connection access, and high social media and social network

penetration. In practice, adapting STDP in practices may help national tourism organisations set the priority and overcome the challenges strategically.

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Annex I: Tourism Stakeholder-Related Fuzzy Weights and Final Weight of Smart Tourism Destination Platform Evaluation Indicators, Using Fuzzy Delphi Method

Smart Tourism Dimension	Touristic Consumer (TC)			Resident consumer (RC)			Touristic supplier (TS)			Other industry supplier (OS)			Government			Non-Government Organization (NGO)			Destination Management Organization (DMO)											
	α	β	γ	α	β	γ	α	β	γ	α	β	γ	α	β	γ	α	β	γ	α	β	γ									
																						Final Weight	Final Weight	Final Weight	Final Weight	Final Weight	Final Weight	Final Weight	Final Weight	Final Weight
S1	S11	5.00	8.56	9.00	7.52	3.00	6.78	9.00	6.26	1.00	5.67	9.00	5.22	1.00	2.78	9.00	4.26	1.00	2.78	7.00	3.59	1.00	2.78	7.00	3.59	1.00	6.33	9.00	5.44	
	S12	1.00	5.89	9.00	5.30	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	4.78	9.00	4.93	
	S13	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.43	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	1.67	9.00	2.56	
	S14	1.00	5.89	9.00	5.30	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	4.78	9.00	4.93	
	S15	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	1.67	9.00	2.56	
	S16	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	1.67	9.00	2.56	
S2	S17	5.00	8.56	9.00	7.52	3.00	6.78	9.00	6.26	1.00	5.44	9.00	5.15	1.00	2.78	9.00	4.26	1.00	2.78	7.00	3.59	1.00	2.78	7.00	3.59	1.00	6.33	9.00	5.44	
	S21	1.00	5.89	9.00	5.30	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	4.78	9.00	4.93	
	S22	1.00	6.33	9.00	5.44	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	6.33	9.00	5.44	
	S23	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	3.67	9.00	4.56	
	S24	1.00	6.33	9.00	5.44	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	6.33	9.00	5.44	
	S25	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	3.67	9.00	4.56	
S3	S31	1.00	5.22	9.00	5.07	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	4.33	9.00	4.78	
	S32	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	1.67	9.00	2.56	
	S33	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	6.11	9.00	5.37	
	S34	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	6.11	9.00	5.37	
	S35	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	4.33	9.00	4.78	
	S36	3.00	6.11	9.00	6.04	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	5.00	9.00	5.00	5.22	9.00	5.00	5.22	9.00	5.07	1.00	4.78	9.00
S4	S37	1.00	3.67	9.00	4.56	1.00	3.67	9.00	4.56	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	1.22	5.00	2.41	1.00	1.89	5.00	2.63	1.00	4.78	9.00	4.93	
	S38	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	1.67	9.00	2.56	
	S39	1.00	5.22	9.00	5.07	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41	1.00	4.33	9.00	4.78	
	S41	3.00	6.11	9.00	6.04	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	1.67	7.00	3.22	1.00	1.22	5.00	2.41	1.00	4.78	9.00	4.93	
	S42	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.44	5.00	2.48	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S43	5.00	8.56	9.00	7.52	3.00	6.78	9.00	6.26	1.00	5.67	9.00	5.22	1.00	2.78	9.00	4.26	1.00	2.78	7.00	3.59	1.00	2.78	7.00	3.59	1.00	6.33	9.00	5.44	
S5	S51	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.44	5.00	2.48	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S52	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.44	5.00	2.48	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S53	1.00	4.11	9.00	4.70	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.44	5.00	2.48	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S54	1.00	5.00	9.00	5.00	1.00	4.11	9.00	4.70	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	2.33	7.00	3.44	1.00	1.89	7.00	3.30	1.00	4.11	9.00	4.70	
	S61	1.00	3.89	9.00	4.63	1.00	4.56	9.00	4.85	1.00	5.00	9.00	5.00	1.00	5.22	9.00	4.93	1.00	3.67	9.00	4.56	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S62	1.00	5.22	9.00	5.07	1.00	5.00	9.00	5.00	1.00	5.00	9.00	5.00	1.00	4.78	9.00	4.56	1.00	3.67	9.00	4.56	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
S6	S63	1.00	3.67	9.00	4.56	1.00	4.33	9.00	4.78	1.00	5.00	9.00	5.00	1.00	4.11	9.00	4.70	1.00	4.78	9.00	4.93	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S71	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	4.11	9.00	4.70	1.00	1.44	5.00	2.48	1.00	4.33	9.00	4.78	
	S72	1.00	5.89	9.00	5.30	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	4.11	9.00	4.70	1.00	5.22	9.00	5.07	1.00	4.78	9.00	4.93	
	S73	1.00	5.89	9.00	5.30	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	4.11	9.00	4.70	1.00	5.22	9.00	5.07	1.00	4.78	9.00	4.93	
	S74	1.00	5.22	9.00	5.07	1.00	6.11	9.00	5.37	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	4.11	9.00	4.70	1.00	5.22	9.00	5.07	1.00	4.78	9.00	4.93	
	S81	1.00	5.89	9.00	5.30	1.00	6.11	9.00	4.70	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	1.89	5.00	2.63	1.00	1.44	5.00	2.48	1.00	4.78	9.00	4.93	
S8	S82	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	5.00	9.00	5.00	1.00	3.00	9.00	4.33	1.00	1.67	7.00	3.22	1.00	1.89	5.00	2.63	1.00	5.89	9.00	5.96	
	S83	1.00	3.67	9.00	4.56	1.00	5.89	9.00	5.30	1.00	4.11	9.00	4.70	1.00	3.22	9.00	4.41	1.00	1.67	5.00	2.56	1.00	1.67	5.00	2.56	1.00	4.78	9.00	4.93	

Source: Authors.

**Annex II: Tourism Ecosystem-Related Fuzzy Weights and Final Weight of Smart Tourism Destination Platform Evaluation Indicators, Using Fuzzy Delphi Method**

Smart Tourism Dimension		Accommodation			Transportation			Attraction			Food			Thing to do			Travel Information									
		$\alpha$	$\beta$	$\gamma$	$\alpha$	$\beta$	$\gamma$	$\alpha$	$\beta$	$\gamma$	$\alpha$	$\beta$	$\gamma$	$\alpha$	$\beta$	$\gamma$	$\alpha$	$\beta$	$\gamma$							
S1	Smart information system	S11	5.00	8.78	9.00	7.59	1.00	7.00	9.00	5.67	1.00	7.22	9.00	5.74	1.00	4.78	9.00	4.93	1.00	6.56	9.00	5.52	1.00	6.56	9.00	5.52
		S12	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	5.22	9.00	5.07	1.00	3.44	9.00	4.48	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07
		S13	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	1.44	5.00	2.48	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S14	3.00	6.11	9.00	6.04	3.00	6.11	9.00	6.04	1.00	5.89	9.00	5.30	1.00	3.44	9.00	4.48	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07
		S15	1.00	4.33	9.00	4.78	1.00	3.22	7.00	3.74	1.00	1.44	5.00	2.48	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S16	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	1.44	5.00	2.48	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S17	5.00	8.11	9.00	7.37	1.00	6.78	9.00	5.59	1.00	7.22	9.00	5.74	1.00	4.56	9.00	4.85	3.00	7.22	9.00	6.41	3.00	7.00	9.00	6.33
		S21	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	3.00	6.11	9.00	6.04	1.00	3.44	9.00	4.48	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07
		S22	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07
		S23	1.00	5.22	9.00	5.07	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S24	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	4.33	9.00	4.78	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07
		S25	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	3.67	9.00	4.56	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S31	1.00	4.33	9.00	4.78	1.00	4.33	9.00	4.78	1.00	4.33	9.00	4.78	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S32	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	4.33	9.00	4.78	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S33	1.00	3.67	9.00	4.56	1.00	4.33	9.00	4.78	1.00	4.33	9.00	4.78	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
		S34	1.00	3.67	9.00	4.56	1.00	4.33	9.00	4.78	1.00	4.33	9.00	4.78	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41
S35	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S36	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	3.67	9.00	4.56	1.00	5.22	9.00	5.07		
S37	1.00	3.00	9.00	4.33	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	3.67	9.00	4.56	1.00	3.00	9.00	4.33		
S38	1.00	4.33	9.00	4.78	1.00	3.67	9.00	4.56	1.00	3.67	9.00	4.56	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41		
S39	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S41	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	3.67	9.00	4.56	1.00	5.22	9.00	5.07		
S42	1.00	4.33	9.00	4.78	1.00	5.22	9.00	5.07	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S43	5.00	8.78	9.00	7.59	1.00	7.00	9.00	5.67	1.00	7.22	9.00	5.74	1.00	4.78	9.00	4.93	1.00	6.56	9.00	5.52	1.00	6.56	9.00	5.52		
S51	1.00	3.67	9.00	4.56	1.00	4.11	9.00	4.70	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S52	1.00	5.22	9.00	5.07	1.00	4.11	9.00	4.70	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.44	5.00	2.48	1.00	4.11	9.00	4.70		
S53	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S54	1.00	3.67	9.00	4.56	1.00	4.11	9.00	4.70	1.00	3.67	9.00	4.56	1.00	3.67	9.00	4.56	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07		
S61	1.00	1.67	5.00	2.56	1.00	5.22	9.00	5.07	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	2.11	7.00	3.37		
S62	1.00	3.67	9.00	4.56	1.00	6.56	9.00	5.52	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S63	1.00	1.67	5.00	2.56	1.00	5.22	9.00	5.07	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S71	1.00	4.33	9.00	4.78	1.00	1.67	7.00	3.22	1.00	4.11	9.00	4.70	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	4.11	9.00	4.70		
S72	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	1.67	5.00	2.56	1.00	5.22	9.00	5.07	1.00	5.22	9.00	5.07		
S73	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	5.89	9.00	5.30	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	5.22	9.00	5.07		
S74	1.00	5.89	9.00	5.30	3.00	6.11	9.00	6.04	1.00	3.67	9.00	4.56	1.00	3.44	9.00	4.48	1.00	1.22	5.00	2.41	1.00	5.22	9.00	5.07		
S81	3.00	6.11	9.00	6.04	1.00	3.44	9.00	4.48	1.00	5.89	9.00	5.30	1.00	1.22	5.00	2.41	1.00	3.67	5.00	4.56	1.00	4.11	9.00	4.70		
S82	1.00	4.11	9.00	4.70	1.00	4.11	9.00	4.70	1.00	3.67	9.00	4.56	1.00	1.67	5.00	2.56	1.00	1.22	5.00	2.41	1.00	1.22	5.00	2.41		
S83	1.00	5.22	9.00	5.07	1.00	3.22	9.00	4.41	1.00	5.89	9.00	5.30	1.00	1.22	5.00	2.41	1.00	3.67	5.00	4.56	1.00	4.11	9.00	4.70		

Source: Authors.

Annex III: Selected Smart Tourism Destination Platform Indicators

Accommodation			
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight
S1	Smart Information System	S11 Tourist attraction home page	7.59
		S12 Mobile application	5.30
		S14 Online information access	6.04
		S17 Blogs of tourist attractions	7.37
S2	Smart Sightseeing	S21 Intelligent-guide system	5.30
		S22 Personal-itinerary design	5.30
		S23 E-tourism-recommendation system	5.07
		S24 E-tour map	5.30
S3	Intelligence Tourism	S36 E-complaint handling	5.30
S4	E-commerce System	S41 Mobile payment	5.30
		S43 Online booking	7.59
S5	Smart forecast	S52 Tourist-flow forecast	5.07
S7	Smart safety	S72 Traffic-safety protection	5.30
		S74 Smart environment	5.30
S8	Virtual Tourism Attraction	S81 Virtual tourism experience	6.04
		S83 Augmented reality	5.07

Transportation			
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight
S1	Smart Information System	S11 Tourist attraction home page	5.67
		S12 Mobile application	6.04
		S14 Online information access	6.04
		S17 Blogs of tourist attractions	5.59
S2	Smart Sightseeing	S21 Intelligent-guide system	6.04
		S22 Personal-itinerary design	6.04
		S24 E-tour map	6.04
S3	Intelligence Tourism	S36 E-complaint handling	6.04
		S37 Electronic-ticketing system	6.04
S4	E-commerce System	S41 Mobile payment	6.04
		S42 Online coupons	5.07
S6	Smart Traffic	S43 Online booking	5.67
		S61 Electronic toll collection	5.07
S6	Smart Traffic	S62 Smart vehicle scheduling	5.52
		S63 Real-time traffic broadcast	5.07
S7	Smart safety	S72 Traffic-safety protection	6.04
		S74 Smart environment	6.04

Attraction			
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight
S1	Smart Information System	S11 Tourist attraction home page	5.74
		S12 Mobile application	5.07
		S17 Blogs of tourist attractions	5.74
S2	Smart Sightseeing	S21 Intelligent-guide system	6.04
		S31 Smart card (band)	4.78
S3	Intelligence Tourism Management	S32 Electronic-entrance guard system	4.78
		S33 Tourist-flow monitoring	4.78
		S34 Crowd handling	4.78
		S35 Smart education	4.70
S4	E-commerce System	S39 Call-service center	4.70
		S42 Online coupons	4.70
S4	E-commerce System	S43 Online booking	5.74
		S51 Festival-activity forecast	4.70
S5	Smart Forecast	S52 Tourist-flow forecast	4.70
		S53 Queuing-time forecast	4.70
		S61 Electronic toll collection	4.70
S6	Smart Traffic	S62 Smart vehicle scheduling	4.70
		S63 Real-time traffic broadcast	4.70
		S71 Intelligent-environment monitoring	4.70
S7	Smart Safety	S73 Smart emergency response system	5.30
		S81 Virtual tourism experience	5.30
S8	Virtual Tourism Attraction	S83 Augmented reality	5.30

Travel Information			
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight
S1	Smart Information System	S11 Tourist attraction home page	5.52
		S12 Mobile application	5.07
		S14 Online information access	5.07
		S17 Blogs of tourist attractions	6.33
S2	Smart Sightseeing	S21 Intelligent-guide system	5.07
		S22 Personal-itinerary design	5.07
		S24 E-tour map	5.07
S3	Intelligence Tourism	S36 E-complaint handling	5.07
		S37 Electronic-ticketing system	4.33
		S39 Call-service center	4.70
S4	E-commerce System	S41 Mobile payment	5.07
		S42 Online coupons	4.70
		S43 Online booking	5.52
S5	Smart Forecast	S51 Festival-activity forecast	4.70
		S52 Tourist-flow forecast	4.70
		S53 Queuing-time forecast	4.70
S6	Smart Traffic	S54 Weather forecast	5.07
		S62 Smart vehicle scheduling	4.70
		S63 Real-time traffic broadcast	4.70
S7	Smart Safety	S71 Intelligent-environment monitoring	4.70
		S72 Traffic-safety protection	5.07
		S73 Smart emergency response system	5.07
		S74 Smart environment	5.07
S8	Virtual Tourism Attraction	S81 Virtual tourism experience	4.70
		S83 Augmented reality	4.70

## An Integrated E-commerce Platform for the ASEAN Tourism Industry: A Smart Tourism Model Approach

Thing to do				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	5.52
		S12	Mobile application	5.07
		S14	Online information access	5.07
		S17	Blogs of tourist attractions	6.41
S2	Smart Sightseeing	S21	Intelligent-guide system	5.07
		S22	Personal-itinerary design	5.07
		S24	E-tour map	5.07
S3	Intelligence Tourism Management	S36	E-complaint handling	4.56
		S37	Electronic-ticketing system	4.56
S4	E-commerce System	S41	Mobile payment	4.56
		S43	Online booking	5.52
S5	Smart Forecast	S54	Weather forecast	5.07
S7	Smart Safety	S72	Traffic-safety protection	5.07
S8	Virtual Tourism Attraction	S81	Virtual tourism experience	4.56
		S83	Augmented reality	4.56

Food				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	4.93
		S12	Mobile application	4.48
		S14	Online information access	4.48
		S17	Blogs of tourist attractions	4.85
S2	Smart Sightseeing	S21	Intelligent-guide system	4.48
		S22	Personal-itinerary design	4.48
		S24	E-tour map	4.78
S3	Intelligence Tourism Management	S36	E-complaint handling	4.48
		S37	Electronic-ticketing system	4.48
S4	E-commerce System	S41	Mobile payment	4.48
		S43	Online booking	4.93
S5	Smart Forecast	S54	Weather forecast	4.56
S7	Smart Safety	S74	Smart environment	4.48

Touristic Consumer (TC)				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	7.52
		S12	Mobile application	5.30
		S14	Online information access	5.30
		S17	Blogs of tourist attractions	7.52
S2	Smart Sightseeing	S21	Intelligent-guide system	5.30
		S22	Personal-itinerary design	5.44
		S24	E-tour map	5.44
S3	Intelligence Tourism Management	S36	E-complaint handling	6.04
S4	E-commerce System	S41	Mobile payment	6.04
		S43	Online booking	7.52
S7	Smart Safety	S72	Traffic-safety protection	5.30
		S73	Smart emergency response system	5.30
S8	Virtual Tourism Attraction	S81	Virtual tourism experience	5.30

Resident Consumer (RC)				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	6.26
		S12	Mobile application	5.37
		S14	Online information access	5.37
		S17	Blogs of tourist attractions	6.26
S2	Smart Sightseeing	S21	Intelligent-guide system	5.37
		S22	Personal-itinerary design	5.37
		S24	E-tour map	5.37
S3	Intelligence Tourism Management	S36	E-complaint handling	5.37
S4	E-commerce System	S41	Mobile payment	5.37
		S43	Online booking	6.26
S6	Smart Traffic	S62	Smart vehicle scheduling	5.00
		S72	Traffic-safety protection	5.37
S7	Smart Safety	S73	Smart emergency response system	5.37
		S74	Smart environment	5.37
S8	Virtual Tourism Attraction	S83	Augmented reality	5.30

Touristic supplier (TS)				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	5.22
		S12	Mobile application	5.07
		S14	Online information access	5.07
		S17	Blogs of tourist attractions	5.15
S2	Smart Sightseeing	S21	Intelligent-guide system	5.07
		S22	Personal-itinerary design	5.07
		S24	E-tour map	5.07
S3	Intelligence Tourism Management	S36	E-complaint handling	5.07
		S37	Electronic-ticketing system	5.07
S4	E-commerce System	S41	Mobile payment	5.07
		S43	Online booking	5.22
S5	Smart Forecast	S54	Weather forecast	5.07
		S72	Traffic-safety protection	5.07
S7	Smart Safety	S73	Smart emergency response system	5.07
		S74	Smart environment	5.07
S8	Virtual Tourism Attraction	S81	Virtual tourism experience	5.07

Other Industry Supplier (OS)				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S12	Mobile application	4.48
		S14	Online information access	4.48
S2	Smart Sightseeing	S21	Intelligent-guide system	4.48
		S22	Personal-itinerary design	4.48
		S24	E-tour map	4.48
S3	Intelligence Tourism Management	S36	E-complaint handling	4.41
		S37	Electronic-ticketing system	4.41
S4	E-commerce system	S41	Mobile payment	4.41
S5	Smart Forecast	S54	Weather forecast	4.48
		S61	Electronic toll collection	5.07
S6	Smart Traffic	S62	Smart vehicle scheduling	4.93
		S63	Real-time traffic broadcast	4.70
		S72	Traffic-safety protection	4.41
S7	Smart Safety	S73	Smart emergency response system	4.41
		S74	Smart environment	4.41
S8	Virtual Tourism Attraction	S81	Virtual tourism experience	4.41
		S83	Augmented reality	4.41

## E-commerce Connectivity in ASEAN

Destination Management Organization (DMO)				Government					
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight		
S1	Smart Information System	S11	Tourist attraction home page	5.44	S1	Smart Information System	S11	Tourist attraction home page	3.59
		S12	Mobile application	4.93			S17	Blogs of tourist attractions	3.59
		S14	Online information access	4.93	S3	Intelligence Tourism Management	S35	Smart education	4.70
		S15	Quick response code	4.93			S36	E-complaint handling	5.00
		S17	Blogs of tourist attractions	5.44			S4	E-commerce system	S43
S2	Smart Sightseeing	S21	Intelligent-guide system	4.93	S61	Electronic toll collection			4.56
		S22	Personal-itinerary design	5.44	S6	Smart Traffic	S62	Smart vehicle scheduling	4.56
S24	E-tour map	5.44	S63	Real-time traffic broadcast			4.93		
S3	Intelligence Tourism Management	S31	Smart card (band)	4.78			S7	Smart Safety	S71
		S33	Tourist-flow monitoring	5.37	S72	Traffic-safety protection			4.70
		S34	Crowd handling	5.37	S73	Smart emergency response system			4.70
		S35	Smart education	4.78	S74	Smart environment			4.70
		S36	E-complaint handling	4.93					
		S37	Electronic-ticketing system	4.93					
		S39	Call-service center	4.78					
S4	E-commerce system	S41	Mobile payment	4.93					
		S42	Online coupons	4.78					
		S43	Online booking	5.44					
S5	Smart Forecast	S51	Festival-activity forecast	4.78					
		S52	Tourist-flow forecast	4.78					
		S53	Queuing-time forecast	4.78					
S6	Smart Traffic	S61	Electronic toll collection	4.78					
		S62	Smart vehicle scheduling	4.78					
		S63	Real-time traffic broadcast	4.78					
S7	Smart Safety	S71	intelligent-environment monitoring	4.78					
		S72	Traffic-safety protection	4.93					
		S73	Smart emergency response system	4.93					
		S74	Smart environment	4.93					
S8	Virtual Tourism Attraction	S81	Virtual tourism experience	4.93					
		S82	Virtual travel community	5.96					
		S83	Augmented reality	4.93					

Non-Government Organization (NGO)				
Smart Tourism Dimension	Smart Tourism Indicators		Fuzzy Weight	
S1	Smart Information System	S11	Tourist attraction home page	3.59
		S12	Mobile application	3.30
		S14	Online information access	3.30
		S17	Blogs of tourist attractions	3.59
S2	Smart Sightseeing	S21	Intelligent-guide system	3.30
		S22	Personal-itinerary design	3.30
		S24	E-tour map	3.30
S3	Intelligence Tourism Management	S35	Smart education	4.70
		S36	E-complaint handling	5.07
S5	Smart Forecast	S54	Weather forecast	3.30
S7	Smart Safety	S71	intelligent-environment monitoring	5.07
		S72	Traffic-safety protection	5.07
		S73	Smart emergency response system	4.48
		S74	Smart environment	5.07

# Connectivity and the Healthcare Market in Myanmar

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John Walsh

## 1. Introduction

After an extensive period of closure under an autocratic military regime, Myanmar has begun to open to the outside world at a rapid but uneven rate. This has brought about many contradictions that are not easily understood by outside observers. The same pattern is evident in the spread of mobile telephones and the Internet – information communication technology (ICT) – which has, in the course of 3 or 4 years, been transformed from the highly expensive preserve of a small urban elite to an almost ubiquitous reality. In every town and township, dozens of colourful Telenor and Ooredoo stores offer connectivity for a few kyats, whilst low-cost mobile telephones manufactured in China are easily available.<sup>1</sup> The penetration of ICT has changed from a few percent to more than 80% or 90% in just a few years (depending on the source) (Hynes, 2017). Yet access does not mean freedom. Strong laws promote censorship and journalists are jailed for seeking to do their jobs, and a culture of self-censorship inhibits most people from speaking out because they have such a high burden of evidence of what might well happen to them if they do bring themselves to the attention of the authorities.

The flows of information are, therefore, uneven and sometimes almost unidirectional. If people want to speak in favour of the national ideology (as framed by the lengthy rule of the previous military regime), they may do so freely and will receive enthusiastic support by like-minded individuals. However, anyone who would like to take an alternative approach faces not just the vile but tedious opprobrium of Internet trolls but also possible prosecution.

As a result, state ideology, nationalism, unity (i.e., obedience), uncritical support of the governing elite are mostly unchallenged in most popular media. In the past, popular media

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<sup>1</sup>As in Cambodia (Ampornstira, 2016), private sector organisations are leading the way in introducing new services and applications, with little support from the public sector. Ooredoo, for example, has been responsible for bringing mobile money services to Myanmar (Mizzima, 2017).

included television, radio, newspapers, and magazines. Today, increasingly, popular media means Facebook. For most subscribers of low-cost ICT access packages, Facebook is provided for free whilst any other Internet application requires an additional fee that few people appreciate what benefits it would provide. For millions of people, therefore, who have suddenly been provided with an apparent cornucopia of new information and the benefits of connectivity, what they in fact find is that they have become a part of the Facebook community. Facebook is an extraordinarily popular Internet application that provides each user with an individual webpage that can be tailored with details of their profile and self-reported activities and opinions, as well as the opportunity to provide this information to other users deemed as 'friends' and, automatically, to receive similar information from those friends. Facebook has benefited greatly from network externalities – that is, the more that one's friends and family members are members of the network, the more valuable network membership becomes to the individual. Under these circumstances, it is clear that Facebook has become a significantly important means of communication. Although most people use this part of the Internet as a way to keep in touch with family and friends, it only needs one member of that mini-network to be subscribed to a user with social or political opinions for those social and political opinions to all other connected members. Owing to the propensity of people to take advantage of confirmation bias, this has resulted in users becoming immersed to a greater or lesser extent in a network in which only similar opinions are to be found.

It is evident from previous research (e.g., Khaing and Walsh [2016]) that most Myanmar people mistrust what they read on the Internet. This is not surprising given the years of propaganda spread by the previous military regime and its allies, and the disjunctions that people experience daily when what they experience is so very different from what they are told is happening. It is worth noting that the Myanmar national language (which is used by most ethnic minority Myanmar people even when it is not their first language) does not use the Roman alphabet and is not widely taught outside the country. Myanmar is, after all, still a poor country and of low importance to Facebook's global business (although it is banned completely in China). When called upon to provide evidence on some of their more questionable business practices, Facebook executives were obliged to admit that the company did not have sufficient technical capacity in Myanmar language to monitor all user sites for hate speech.

Overall, therefore, information seeking by ICT in Myanmar is not a value-free or non-ideological field of inquiry. Seeking information on health issues is even more complicated because of the limited amount of information available in Burmese, because of the

compromised level of trust in any form of official or apparently official discourse and, because most health services providing information on the Internet are associated with the private sector and provide goods and services that are beyond the ability of most people to afford. This chapter reports on research conducted in northern Myanmar on the use of ICT to search for health-related information. It builds upon previous studies by the author, occasionally in collaboration, of ICT usage in Myanmar and of aspects of healthcare in that country. The purpose of the research is, on the one hand, to understand, with a view to improving, how people use ICT to search for health-related information and, on the other hand, to understand better how the specific circumstances at this time affected and are affected by the spread of globalisation (access to ICT) and capitalism (private sector healthcare provision).

The chapter analyses the health system and the spread and knowledge of ICT use. It then describes the research methods used to collect data, presents the findings, discusses the findings in the light of the circumstances portrayed in this section, and recommends actions for various practitioners.

## 2. Healthcare in Myanmar

The public sector health organisations are listed in Table 14.1. There are also 193 private hospitals, 201 private specialist clinics, 3,911 private general clinics, and 776 private dental clinics, in addition to various civil sector organisations (Figure 14.1) (Latt et al., 2016).

Doctors and healthcare providers have historically been held in high regard in Myanmar. This is as true of shamans in traditional villages as it is of surgeons in contemporary society, partly because Buddhist traditions conflate virtue and position, reinforced by the belief that doctors generate good karma continuously as part of their work. Of course, not all doctors are treated as being of equal status, since the nature of the work is hierarchical, as too is the configuration of gender and ethnicity. On some occasions, these historical hierarchies become confused by the nature of modernity and the changes it brings. For example, in medical universities it is common for the highest-ranking opportunities (e.g. surgery) to be reserved for male students, whilst female students are offered the less prestigious places (e.g., physical therapy). As a result, Mandalay has a phalanx of highly-trained and skilled female physical therapists looking for rewarding work (Walsh and Lovichakorntikul, 2015).<sup>2</sup>

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<sup>2</sup> It has been hoped that a recently invoked stage of the Association of Southeast Asian Nations (ASEAN) Economic Community, which enabled skilled workers to move to and work in any ASEAN country, would provide suitable opportunities for people in this situation. However, this appears not to have been the case.

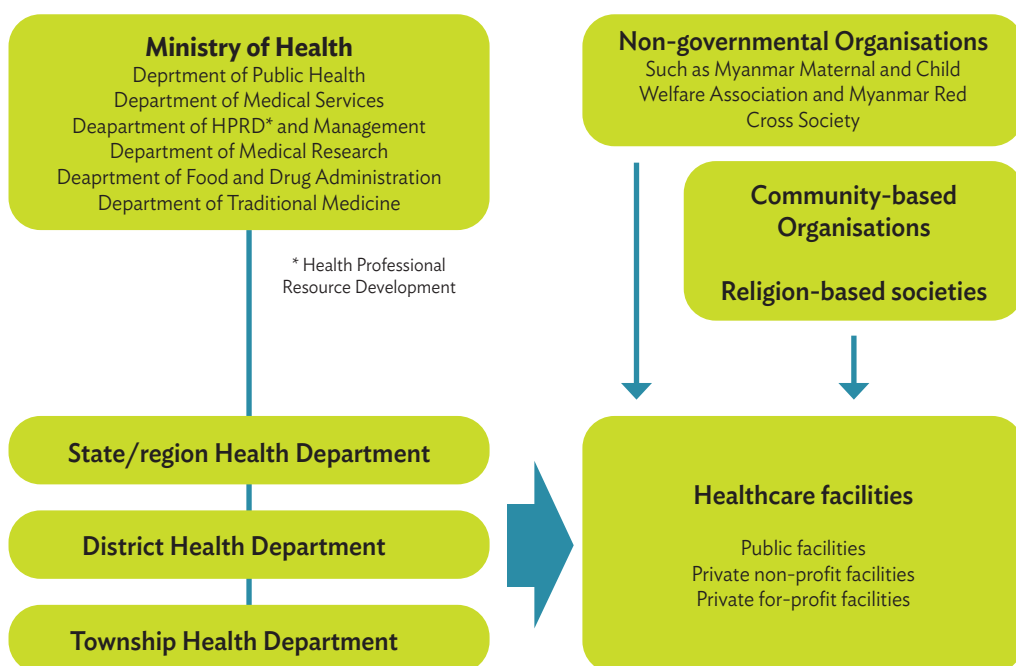


**Table 14.1: Public Health Facilities in Myanmar, 2014**

<b>Curative and rehabilitative services</b>	<b>1,056</b>
General hospitals (up to 2,000 beds)	4
Specialist/teaching hospitals (100–1,200 beds)	50
Regional/state/district hospitals (200–500 beds)	55
Township hospitals (25–100 beds)	330
Station hospitals (16–25 beds)	617
<b>Preventive and public health services</b>	<b>2,199</b>
Primary and secondary health centres	87
Maternal and child health centres	348
Rural health centres	1,684
School health teams	80
<b>Traditional medicine</b>	<b>259</b>
Traditional medicine hospitals	16
Traditional medicine clinics	243

Source: Health in Myanmar (2014) in Latt et al. (2016).

**Figure 14.1: Healthcare System in Myanmar**



Source: Latt et al. (2016).

Unfortunately for them, most people are not aware of the nature of physical therapy and so do not value it. Instead, they will at need resort to traditional massage, which is available from partly trained or untrained personnel at a fraction of the price. This is a manifestation of a broader principle, which is that there are two main social sectors with respect to healthcare. The first sector, which is much the bigger of the two, consists of rural and urban poor with little disposable income to be used for health purposes and whose life situation resembles, as James C. Scott famously put it, a person who is standing in water up to the chin and who knows that any misstep or disturbance in the water might lead to disaster. People in this sector have little choice but to resort to the cheapest possible options when it comes to healthcare, including abstinence, traditional homespun remedies, and generic drugs. In business terms, these people are of little value to the private sector or, at least, not yet since industrialisation has not yet reached a stage when most people are able to participate in market-based healthcare services. The second sector is growing, albeit from a low base: the emergent middle class, who are able to take advantage of the new managerial and clerical positions created in manufacturing industry investment or in retail and distribution centres of newly arriving imported goods, including vehicles, farming equipment and, indeed, ICT equipment.

These are people who may, in general, be categorised as the aspirational bourgeois or middle class, urban in location and willing and able to spend money to meet their own and their family members' healthcare needs. These people will likely form a new market for cosmetic and voluntary healthcare procedures such as dental braces and whitening, cosmetic surgery, and eye-defect corrections. One parallel to consider in this respect is in neighbouring Thailand, where these activities have become prominent. Private healthcare sector actors will target people in this category for their growing healthcare provision services.

There is, of course, a third category of people: the wealthy and very wealthy who prospered under previous regimes, whether or not they were associated with them. These people have been permitted to travel internationally and have become accustomed to take advantage, at need, of the excellent services provided at Bangkok's leading hospitals and clinics (Maung and Walsh, 2014). It is unlikely that Myanmar will be able to replicate these international-status facilities in the foreseeable future. Consequently, this category will not be the principal focus of new healthcare providers although they will not be ignored if they can in some cases provide an acceptable alternative option to international care.

Although it has been possible to produce personnel capable of meeting current healthcare provision needs, this is not true of medical equipment and pharmaceuticals, which must be sourced from overseas and then imported for retail or else licensed from international

manufacturers. There are different options, depending on the degree of expense and status which are to be provided. High-end equipment is imported from Japan or a European country such as Germany. Often, Singapore is used as the location from which potential respondents may be selected. Lower down the scale is equipment from China and generic pharmaceuticals from India. A healthcare provider can select an option for the service provision intended overall or else adopt a portfolio approach in which patients are sorted into categories dependent on ability to pay. There are well-known business strategies that can be used to describe this situation accurately.

### 3. Mobile Telephones in Myanmar

The recent introduction of mobile communication in Myanmar is a potentially life-changing prospect for the country, one of the poorest in Southeast Asia. A quarter of its population is estimated to live in poverty, whilst the country as a whole performs poorly on most socio-economic indicators. There is much potential for mobile phones to play a role in socio-economic development, be it through access to services such as mobile money, or simply the access to information a mobile phone provides. It is estimated that 90% of wards and villages in the country already have a mobile signal. The Ministry of Posts and Telecom (MPT) began offering mobile services in 2013. In January 2014, Ooredoo and Telenor were granted licenses to provide mobile services, with commitments to provide 85% voice coverage within 5 years. These networks are expected to first cover the densely populated urban centres and gradually move outwards to rural areas, which do not currently have coverage.

Myanmar's mobile phone penetration reached 10% of the population in 2012–2013 whilst 2013–2014 saw a penetration of 27%. Penetration reached 90% by the end of 2018 (World Bank, 2019). Using high speed packet access (HSPA)<sup>3</sup> and long term evolution (LTE)<sup>4</sup> technologies, companies will install mobile communication (GSM) network providers, which are operating on the 3G (900MHz spectrum) and 4G LTE (the most advanced universal mobile telecommunications system [UMTS]<sup>5</sup> 900 technology).

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<sup>3</sup> HSPA: a third-generation (3G) mobile communication technology offering faster data download speeds at the cost of upload speeds.

<sup>4</sup> LTE: a fourth-generation (4G) mobile communications standard offering data speeds up to 10 times faster than the current 3G network.

<sup>5</sup> UMTS: another third-generation (3G) technology commonly called W-CDMA (wideband CDMA). UMTS delivers faster data rates than EDGE due to how the data is coded and the spectral bandwidth used.

Myanmar's mobile subscription count grew 87% year on year, to 10.7 million at the end of September 2014, pushing mobile penetration to 19.9%, up from 12.5% at the end of 2013, according to global analyst firm Ovum in a press release on 12 March 2014. According to the compound annual growth rate of the latest forecast report, mobile subscriptions will grow at 21%, to reach 38.5 million by the end of 2019, up from 14.8 million at the end of 2014, as operators expand their networks to new cities and rural areas. Overall, Myanmar's mobile phone penetration rate is now about 60% of the population.

The provision of current and up-to-date information to the rural populace on current market prices of goods, market locations, simple food processing, weaving, dying, fashion and design, agricultural practices, amongst others, will increase productivity and income growth. Generally, information provision increases the resourcefulness of the local users as well as their standard of living. Health rural tele-density is low due to the scarcity of communication infrastructure in most parts of rural Myanmar – a scenario that has created the digital divide between urban and rural areas.

ICT infrastructure, especially mobile phones, must be extended to many rural areas to enhance their access to the benefits of telecommunication infrastructure.

### 3.1. About Mobile Telecom Operators in Myanmar

#### Myanmar Post and Telecommunication (MPT)

MPT, the largest 3G network in Myanmar, announced a nationwide 3G network expansion upgrade, increasing its 3G coverage to more than 90% of the country's population by early February 2016. According to their reports (Q1 2016), there are 18 million mobile subscriptions with licence in the 900MHz and 2.1GHz bands. MPT had a 46% market share, whilst number-two Telenor had a 37% market share, and third-place Ooredoo had a 16.5% market share.

#### Telenor Myanmar

Telenor Myanmar has the second-largest number of mobile subscriptions in Myanmar. On 30 January 2014, Telenor Group, ready to bring world-class telecom services to Myanmar, signed an agreement with Myanmar for a nationwide telecommunication licence. Their reports (Q2 2016) say there are 16.889 million mobile subscriptions with licence in the 900MHz and 2.1GHz bands, valid for 15 years. Telenor built a mobile network using HSPA and LTE-ready technologies and provided network coverage for 94% of the country's population by the end of April 2016. They launched in Myanmar by switching on the mobile network in Mandalay, the cultural city, on 27 September 2014, and the network is now

expanding into other cities and rural areas. Telenor 4G services have been available in Nay Pyi Taw since 7 July 2016 but are not available in Yangon, Mandalay, and the rest of Myanmar. Voice and data services over 2G and 3G commercially launched as an initial offering.

### Ooredoo Myanmar

Ooredoo Myanmar, the country's third-largest operator, launched a 4G service in parts of the three major cities — Yangon, Nay Pyi Taw, and Mandalay — making it the first to offer the high-speed service. In August 2014, Ooredoo signed an agreement with Myanmar for a nationwide telecommunication licence. Their reports (Q1 2016) say it has 6.9 million mobile subscriptions. Ooredoo's world-class network covered more than 85% of the Myanmar population by the end of April 2016, driven by the company's record investment in 3G and 4G technologies. By the end of 2018, the coverage of 3G and 4G network had reached 91% and 75% respectively (World Bank, 2019).

## 4. Research Methods

### 4.1. A Mixed Methods Approach

This project used a mixed methods approach to data collection for the purposes of triangulation and because there are two distinct groups of potential respondents. The first is the mass of the population who now are likely to have access to ICT and to have various needs with respect to healthcare but are unlikely to have expert knowledge of either area. In this case, a quantitative survey was deemed appropriate. In the second case, there is a relatively small number of individuals in northern Myanmar seeking to distribute information in healthcare through ICT for a variety of reasons. These individuals might be involved in marketing services to potential customers, but they might also be involved in a range of different activities such as seeking to use ICT to improve the dissemination of results from diagnostic laboratories to medical doctors, trying to provide alternatives to customers in the form of generic rather than branded medicines or various forms of traditional or Chinese medicine, or seeking to coordinate field clinics in a range of different rural and semi-rural locations for an itinerant specialist available in the region for a limited period of time. For these people, individual interviewing was deemed appropriate.

The quantitative survey built explicitly on the first phase of the research, which achieved a sample of 411 Myanmar respondents and 200 Vietnamese respondents; a smaller sample of 200 Myanmar respondents was taken, divided into two locations. An original questionnaire was devised by the researcher based on existing knowledge and the framework alluded to in

the first section. The questionnaire was tested by an experienced, bilingual field researcher who could use an English questionnaire, ask the questions in Burmese, and recode the results in English. Minor modifications were suggested by the pilot test and then incorporated into the questionnaire used in the main part of the research.<sup>6</sup>

Returned questionnaires were checked for completeness, then codified, and the results entered into the PSPP statistical software spreadsheet. PSPP is a free, open-source software programme capable of conducting statistical tests sufficient for the needs of this research study. Various statistical tests were employed, and the results incorporated into the findings section, which follows.

In terms of the qualitative research, various methods were, out of necessity, used to contact the relevant individuals. These included personal interviews, e-mail exchanges, and personal interviews by the field researchers. Efforts were made either to record the conversation or else to make extensive notes for subsequent transcription.

The language of transcription was English. A semi-structured question agenda was constructed to encourage each conversation to be related to the core issues of interest, but also to develop in other directions if the respondent possessed specialist or expert information about which it would not have been relevant to ask other respondents. A combination of purposive and snowball sampling techniques was used to identify and approach potential respondents. A problem with snowball sampling is that of excessive homogeneity of the sample and, for this reason, the purposive sampling approach was also used.

Data collected by both quantitative and qualitative means were entered into a conceptual database together with the secondary literature, which included the first phase of the current research project and other papers developed from it and from other related projects. The research database also incorporated notes from the field researchers' field notes diary. The researchers were encouraged to take notes and to make them available for the database. The diaries may be useful for recording details that might have affected the interviews. For example, some of the fieldwork took place when Facebook executives were being asked to provide evidence to government committees from the United Kingdom and the United States, and this was covered in the Myanmar media – something useful to know because respondents might have been more sensitive to the issues.

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<sup>6</sup>A convenience sampling technique was employed in each of the two research sites, supplemented by a measure of purposive sampling when there was a possibility of under-representation of people in some demographic categories. In particular, previous research had indicated that, especially in rural areas, there is a danger of under-representation of women when some potential respondents, perhaps embarrassed by their limited level of education, were unwilling to participate.

### 4.2. Limitations

All research projects, of course, are constrained by time, space, and budget, and the fieldwork in Myanmar had additional limitations.

The first is the lack of infrastructure in much of the country and, particularly, outside the urban areas. This is true of transportation infrastructure, and many stretches of the few roads that do exist are not effectively paved, which means they quickly become impassable during the monsoon season, with the effects persisting for much of the rest of the year. Then it is difficult, expensive, and time-consuming to conduct research, especially outside the urban areas, which could have an impact on the extent to which the sample accurately represents the population.

The urban areas and Mandalay in particular are witnessing an influx of workers from rural areas looking for manufacturing jobs, and many live in self-created housing of questionable legal status. Their presence likely means that population estimates for the city and its environs will be incorrect and, also, owing to their legal status, the workers are unlikely to be willing to participate in any form of research.

Generally, Myanmar society displays a greater systematic and structural gender bias than other Mekong countries. Boys tend to be better educated than girls and are also awarded more prestigious positions if they are accepted by universities. This situation occurs at all levels of society and the implication is that women are often under-represented in research. In this study, the possibility was countered by purposive sampling when it was thought that such bias might exist and, so, would be minimised.

Myanmar is ethnically diverse. Most members of an ethnic minority, apart from those who are few in number, tend to live in a state or region that has the same name. As a result of the impacts of colonisation, decolonisation, and subsequent political events, many ethnic minority groups have a desire for autonomy, sometimes expressed in conflict. Some parts of the country are therefore difficult or impossible to research, and so it cannot be claimed that any research project of this sort is generalisable to all regions of the country. In addition, most ethnic minority people speak as a first language a language that is neither Burmese, the language of the Burman majority or English, which are the languages of the research team. Not only is this a limitation to the research because it means some significant portions of the population could not be reached but it also changes the nature of the relationship between these individuals and ICT. Information available in the Burmese language is scant but is much more than that in Kachin, Karen, Mon, Chin, and other minority languages. This, not to

mention different cultural practices and modes of cultural production, will have a significant impact upon information-seeking processes.

Finally, across Myanmar society, many are cautious of talking to anyone who might be in a position of authority. The researcher, no matter how well trained and experienced, is asking questions of an individual who has some reason to be wary about such an interaction. In some cases, the potential respondent will avoid participation. In others, the respondent believes that giving the supposedly correct responses will be rewarded in some way whilst, conversely, giving supposedly incorrect answers will bring about some kind of sanction. It is not always possible for the researcher to be able to determine this, so it might represent some form of bias in the findings.

In each of these cases, the researchers sought to understand the phenomena involved and to take such steps as were possible to identify cases that might be problematic and remedy them, or else excuse the respondent from participation. The use of triangulation was also important through seeking to examine data from different perspectives to evaluate whether they were correctly identified and valid. The reader will form an opinion on the extent to which this has been achieved.

## 5. Findings

### 5.1. Introductory Findings

Based on the qualitative research, ICT is considered to be a technology suitable for younger people and, in a society where seniority depends to a considerable degree on age, that means more junior people. It has been argued that people who reach the level of seniority of a doctor or clinician will be less likely to use ICT. If they do so, it will be only to delegate basic administrative work to staff members. Of course, it would be wrong to characterise all senior people in the same way and there will be many exceptions.

One respondent observed of the overall picture:

Doctors are not expert in using computers. Doctors do not want to use ICT in healthcare because they are afraid someone will copy their treatment if they use ICT. They are not familiar with technology. Famous doctors just use handwriting to control loyal patients so they do not go to other doctors when they need treatment. As well as in this way, doctors are preventing their treatment. But this is a very wrong method and because of this old way many patients died. Some doctors do not remember their handwriting and gave the wrong treatment. Even though a private hospital asks doctors to put treatment data into



the hospital's main server, they do not follow it. They just want to be the main person and dominate in a hospital more than the hospital. So, power balance is high from the doctor's sides. The worst thing is that doctors do not let patients know what kind of medicine they are using.

There are several issues to unpack here, which were also reported by other respondents:

- Insufficient infrastructure. Myanmar's organisations lack the technology that is taken for granted in developed countries, including credible credit card transactions; hospitals and clinics must deal in cash, which represents a security threat. Patient records are not centralised; details are kept in handwritten folders, which hampers coordination when patients visit more than one clinic or when notes are damaged or lost (or can no longer be read). Doctors maintain control over medications as if they were their own intellectual property, not to be shared with anyone else. In some cases, these problems are eased incrementally as new technology is introduced in start-up ventures, but legacy issues will stretch some way into the future.
- Status quo. Inevitably, some people benefit from maintaining the status quo. Doctors protect their power and status by not sharing their knowledge with those who might use it to cure patients. Doctors see each other as competitors rather than colleagues.
- ICT use as reshaping power relations. Some see ICT as a threat, whilst others see it as an opportunity.

Facebook tends to funnel users towards a single set of sites relating to health issues. Reliance on overly homogeneous information will maintain power relations and block information flows and means of change. As one respondent observed: 'Doctors should not be the first priority in healthcare industry improvement. So more international private hospitals are needed where ICT are used. Doctors should not be the authority in hospitals and on patients because they are just employees'. There is a sense amongst respondents that, as in other parts of society, senior figures have been exploiting the current system for their own ends rather than upholding the Hippocratic oath. People tend to see the private sector as a possible means of dissolving existing bonds and enabling a reconfiguration of power relations and resources, which, because they will be organised by the market, will be more dynamic and efficient.

Most respondents had been using Internet applications for only a short time and tend to use them mainly for keeping in touch with friends and family members. The current use of ICT in the healthcare industry and in seeking information about it is limited and there are some important reasons why uptake of the tools will continue to be limited.

The role of non-governmental organisations and of faith-based cross-border networks is important in this context. They can be more technologically advanced than the stakeholders with which they interact, and they may play a role in mediating between stakeholders' inability to use the tools appropriately and more effective use inspired by example. In many parts of Myanmar, these organisations lead the way in driving societal change. There is a role for them in sourcing new information and means of action, which might then be implemented on the ground. For example, research into drug use and rehabilitation in Kachin State in northern Myanmar indicated that most forms of treatment were old-fashioned and unhelpful, and that new thinking is required. Since many people are religious (Baptists, primarily), there is a role for churches and their members to introduce more advanced methods from overseas.

## 5.2. Quantitative Findings

A total of 203 questionnaires were collected in and around Mandalay in north central Myanmar. Mandalay is the historical capital of northern Myanmar and was previously the royal seat. It has a population of approximately 1.2 million people, with many more moving in from the countryside in search of jobs arising from rapid industrialisation. Nevertheless, the area remains primarily agricultural with some prospects for exporting if transportation infrastructure and quality assurance problems can be overcome.

In terms of the location of respondents, the following results were obtained.

**Table 14.2: Location of Respondents**

	%
City	46.8
Sol	12.3
Shan	12.3
Gabo	9.9
Lon Taung, Industrial Zone, Amarapura, Pa Thein Gyi (each)	4.9
Total	100
<i>N</i>	203

*N* = number of sample.  
Source: Original research.

Approximately half of the sample (city + industrial zone = 51.7%) is urban, whilst the sample from the remaining villages (48.3%) was rural. Overall, 58.1% of the sample was male and 41.9% female, which confirms the difficulty in obtaining responses from women. In terms of age, 34.2% of respondents were 18–30, 40.6% were 31–50, and 25.2% were 51+. For household size, 11.0% had 3 or fewer members, 66.0% had 4–6 members, and 23.0% had 7

or more members. There were significantly more male respondents than women in the rural setting ( $p = 0.016^*$ )<sup>7</sup> and household sizes were significantly higher in rural areas ( $p = 0.041^*$ ).

Land was farmed by 35.0% of the total sample, all of whom were in a rural setting. The mean amount of land farmed was 5.2 acres (approximately 2.1 hectares) with a standard deviation of 3.7 acres, which further indicates the low level of land ownership and its impact on poverty eradication. Five respondents farmed land, with a mean of 4.3 acres, they did not own.

**Table 14.3: Occupations of Respondents**

%	Urban	Rural	Overall
Student	11.2	3.1	7.1
Government official	3.1	3.1	3.1
Business owner	18.4	1.0	9.7
Full-time worker	63.3	12.2	37.8
Retired	1.0	0	0.5
Housewife	3.1	1.0	2.0
Farmer	0	79.6	39.8
<i>N</i>	98	98	196
<i>P</i>	0.000**		

*N* = number of sample, *P* = level of significance.

\*\* = result significant at the 0.01 level.

Source: Original research.

The occupations of respondents showed a statistically significant distribution.

As would be expected, then, most of the people in rural settings were involved in agriculture, whilst most of those in the urban sector were in full-time non-farm employment or business owners.

Overall, 98.5% of the total sample, and 100% of those in urban settings, owned a mobile telephone, although this is not a statistically significant result. There was no statistically significant difference in mobile telephone ownership when it came to gender.

That people distinguish between Facebook and the Internet is demonstrated by the fact that 76.2% of the sample reported that they had access to the former and just 46.3% to the latter. Patterns of use and length of ownership were similar.

**Table 14.4: Frequency of Use of Facebook and the Internet and Length of Ownership of Access**

%					
	Facebook	Internet		Facebook	Internet
Several times a day	43.5	40.9	Less than 6 months	13.4	6.5
Once a day	37.7	34.4	6 months–1 year	27.4	18.3
Every few days	12.3	20.4	1–2 years	26.0	28.0
Less often than that	6.5	4.3	More than 2 years	32.2	47.3
N	154	92		146	93

N = number of sample.  
Source: Original research.

Most users access Facebook and the Internet at least once a day and more than half have had access for more than 1 year, meaning market penetration has been intensive in the last couple of years, leading to market saturation. Operators are expected to begin positioning themselves more competitively in providing features and services rather than just access.

Respondents were next asked a series of questions relating to their use of mobile telephones to search for different types of health information. The following results were obtained:

**Table 14.5: Searching for Health Information with Mobile Telephones**

% saying 'yes'	Overall	Male	Female	P	Urban	Rural	P	% <sup>a</sup>	% <sup>b</sup>
Search for general health information	23.5	18.1	31.0	0.079	35.6	10.4	0.000**	29.9	49.5
Search for health for a specific purpose	17.6	15.5	20.5	0.545	29.1	5.2	0.000**	22.9	38.0
Search for doctor or clinic	12.5	9.5	16.7	0.208	8.7	16.7	0.069	16.2	26.9
Make appointments with doctor or clinics	21.7	19.3	25.0	0.585	13.7	30.2	0.008**	26.3	42.9
Search for medicines or other health related products	15.5	12.1	20.2	0.289	21.2	9.4	0.066	20.1	33.3
Search for female health issues	13.5	5.2	25.0	0.000**	23.1	3.1	0.000**	17.5	29.0
Search for love and relationship information	18.5	19.0	17.9	0.932	15.4	21.9	0.084	23.4	38.7
Share opinions and ideas about health issues with other people	16.6	13.0	21.4	0.267	18.5	14.6	0.447	21.6	36.9

<sup>a</sup>= percentage of respondents who are not facebook users, <sup>b</sup>=percentage of respondents who are facebook users.

\* = result significant at the 0.05 level, \*\* = result significant at the 0.01 level.

Source: Original research.

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The first thing to note from these results is that few people use their mobile telephones for any of the health-related activities considered here. There is no activity or demographic group in which more than half the respondents answered positively.

The second thing to note is that women tend to look for health information more often than men do. This is not surprising as women are more likely to be responsible for the healthcare of children and other dependents. However, the gender differences led to a statistically significant result only on one occasion.

Third, several statistically significant results were obtained from examining setting. Urban respondents are significantly more likely to search for general or specific health information and for information on female health. On the other hand, rural respondents are significantly more likely to use their mobile telephones to make appointments with doctors or clinics than urban respondents. There is certainly an urban–rural divide, which was identified in the previous phase of research and has reappeared here.

Finally, it is clear in every case that Facebook users are more likely to participate in these health-related activities than non-users, and that Internet users are more likely again to be involved than Facebook users. It is evident that there is scope for every category of respondent to have more opportunities to obtain information and to interact with others with the goal of being better informed on health.

Respondents were next asked about other possible sources of health information, with the following results:

**Table 14.6: Analysis of Information Sources for Health Information**

% saying 'yes'	Overall	Male	Female	P	Urban	Rural	P	% <sup>a</sup>	% <sup>b</sup>
Family members	97.5	98.3	96.5	0.353	97.1	98.0	0.700	97.4	96.8
Friends and neighbours	76.2	79.5	71.8	0.203	65.4	87.8	0.000**	73.4	67.7
Work colleagues	46.5	47.0	45.9	0.874	36.5	57.1	0.003**	48.1	41.9
Doctor	85.2	86.3	83.5	0.581	91.4	78.6	0.011*	83.8	74.2
Pharmacist	38.6	43.6	31.8	0.088	38.5	38.8	0.963	35.1	31.2
Newspaper	7.4	6.0	9.4	0.359	9.6	5.1	0.221	9.1	14.0
Radio	5.9	3.4	9.4	0.075	6.7	5.1	0.625	5.2	7.5
Television	7.9	6.0	10.6	0.231	12.5	3.1	0.013*	8.4	9.7
Other	1.5	1.7	1.2	0.757	1.9	1.0	0.596	1.9	3.2

<sup>a</sup>= percentage of respondents who are not facebook users, <sup>b</sup>=percentage of respondents who are facebook users.

\* = result significant at the 0.05 level, \*\* = result significant at the 0.01 level.

Source: Original research.

These results indicate both similarities with and differences from the previous results. One type of difference is the much higher levels of consultation when it came to, in particular, family members, friends and neighbours, and doctors. Nearly everyone consults family members, for example. It is noteworthy that pharmacists are important sources of information and should not be ignored when it comes to planning healthcare campaigns. It is also noteworthy that, in the case of health information, Facebook and the Internet are now more important sources than newspapers, radio, and television.

Women were noticeably less likely to consult sources that might require them to leave the house (e.g., friends and neighbours, work colleagues, doctors, and pharmacists) and more likely to consult sources that can be accessed within the house (e.g., newspapers, radio, and television).

However, these are not statistically significant results.

The urban–rural divide is again prominent here. Rural respondents are significantly more likely to consult friends and neighbours and work colleagues than are urban residents, who in turn are significantly more likely to consult doctors and television, presumably for access-related issues.

Finally, it is evident that Facebook and, particularly, Internet users are less likely on average to consult people (family members, friends and neighbours, work colleagues, doctors, and pharmacists) but more likely to consult other sources (newspapers, radio, and television). It is not possible to determine whether there is a causal relationship affecting these results.

Respondents were next asked about their attitudes towards Chinese or traditional medicine and their preferences between generic and branded medicines. Overall, 75.3% of all respondents answered that they did use Chinese medicine, 18.9% preferred generic medicines, 8.0% preferred branded medicines, and 73.1% said that it depended on the situation. Further investigation revealed that both Facebook and Internet users were significantly less likely to take Chinese medicine than non-users ( $p = 0.001^{**}$  and  $0.000^{**}$ , respectively). Generic medicines were significantly preferred in rural settings ( $p = 0.006^{**}$ ) and branded medicines were significantly preferred by Facebook ( $p = 0.043^*$ ) and Internet ( $p = 0.013^*$ ) users.

The next part of the questionnaire related to satisfaction with various aspects of healthcare respondents received. The overall results were as follows:

**Table 14.7: Satisfaction with Health Services Received**

%	Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree
I am happy with the health services I receive	0.5	41.8	40.3	17.4	0
Healthcare services are expensive	6.5	0	21.9	67.2	4.5
Healthcare services are convenient to access	0.5	46.2	32.7	20.1	0.5
I can find the medicines I need	1.5	17.5	34.5	45.5	1.0
I can find the doctor or clinic I need	1.5	26.2	32.7	39.1	0.5
I can find information about health issues	0	33.3	30.9	35.8	0
I can find information about healthy eating	0	29.9	39.3	30.9	0

Source: Original research.

These results indicate that large proportions of people are dissatisfied with the healthcare services they receive: 42.3% are not happy, 71.7% think healthcare is expensive, and 33.3% cannot find information about health issues.

In the following analysis, these results are recalculated into mean scores, with a low of 1 (strongly disagree) to a high of 5 (strongly agree):

**Table 14.8: Analysis of Satisfaction with Health Services Received**

Mean score	Overall	Male	Female	P	Urban	Rural	P	%	%
I am happy with the health services I receive	2.75	2.68	2.85	0.324	3.04	2.60	0.000**	2.89	3.02
Healthcare services are expensive	3.70	3.68	3.73	0.854	3.65	3.74	0.049*	3.63	3.63
Healthcare services are convenient to access	2.74	2.76	2.71	0.610	2.85	2.62	0.155	2.82	2.93
I can find the medicines I need	3.26	3.30	3.23	0.568	3.25	3.29	0.236	3.37	3.62
I can find the doctor or clinic I need	3.11	3.10	3.12	0.221	3.10	3.12	0.403	3.22	3.49
I can find information about health issues	3.02	3.00	3.06	0.593	3.16	2.95	0.010*	3.12	3.32
I can find information about healthy eating	3.01	2.95	3.10	0.405	3.17	2.84	0.000**	3.05	3.27

<sup>a</sup>= percentage of respondents who are not facebook users, <sup>b</sup>=percentage of respondents who are facebook users.

\* = result significant at the 0.05 level, \*\* = result significant at the 0.01 level.

Source: Original research.

It is notable that women tend to respond more positively to each of these questions than the men do, but not to the extent that the results are statistically significant. It is also noticeable that respondents with access to Facebook and the Internet have generally higher-than-average levels of satisfaction, particularly with respect to information gathering.

The urban–rural divide is again influential here, with rural respondents being significantly more likely to disagree that they are satisfied with their health services and to think such services are expensive. They are also significantly less likely to think they are able to access information about health or about healthy eating.

Respondents were next asked whether they thought there was anything that could be done to improve the health services where they live.

This is clearly a subject of importance to respondents, since as many as 34.0% responded, which is higher than is usually the case in surveys such as this. The complete list of responses is as follows:

**Table 14.9: Comments about Improving Healthcare Services**

Infrastructure should be better
Public medical check-up programme
General healthcare talk and books should be provided
Emergency healthcare services should be provided for remote areas and villages
Government should provide a doctor at every village
More updated machines and medicine should be provided in rural areas
Remote hospitals and less knowledgeable nurses should upgrade their skills
Specialist doctors are required
Health information should be easy to access in rural areas and health talks should be provided in all villages
Affordable and good quality services are important
Doctors should upgrade their skills
Doctors should visit and provide health information about cancer and how to prevent it
Public hospitals should provide more care and services for rural people. Government assistance programmes are crucial for us
Private healthcare centres should have affordable prices
Healthcare information should be available in every corner of villages
There should be more doctors and nurses in remote areas
My daughter passed away because of a hospital. Districts and villages should have clinics
Rural people have less knowledge about health
Every village should have a doctor
Government healthcare services are very weak
Healthcare service providers do not want to come to rural areas. As a result, people in rural areas have less knowledge about health problems and diseases



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Rural health development programmes should be established

Convenient and affordable services should be provided in rural areas. We have to go to the city if something happens

Healthcare services are very expensive compared to our income

Women's healthcare and awareness campaigns should be established in villages

There should be a mindset change first

Motivation is important for healthcare providers. Training and support materials should be sufficient to provide good service to the public.

Recruit more doctors and nurses

Full support to healthcare staff is important

Mutual understanding should develop between service providers and service receivers

Less expensive labs are necessary

Less expensive health screening packages should be available for people with normal income

Patient and professional nurses and doctors are important everywhere

Healthcare support services should be provided by the government to the public for free

Health awareness campaigns should be set up

Faster and cheaper healthcare services should be provided by the government to every corner of the country

Medical education should be changed and updated

It is important to upgrade to special care for elderly people

Professional healthcare providers are important in every place

Background of healthcare education should change

More up to date help from healthcare services is necessary in every part of the country

Faster service should be provided in public hospitals and public hospitals should provide affordably priced services for normal income families

Talented doctors are required

Government should provide up to date machines and overseas training for healthcare providers

More public healthcare staff should be appointed in hospitals and clinics

Public health service should be improved

Government hospitals should be improved for the public

Updated websites are required

More up to date machines and training are required

24 hour public healthcare services should be available in every township

Health services should be strongly reliable

Warm and enthusiastic service from mostly nurses, who give a hand rather than wait for money

Clinic opening times are fixed

Whenever I want to see the doctor, there is no one available. So health service needs to become available 24 hours

More public health services

Time can be saved with stand-by doctors

24 hour hotline service should be set up by Healthcare Service companies (we can't always trust Internet!) that provide human engagement

Faster response hotlines are required
Patient nurses, skilful doctors and better information departments are required
I think it can be done to improve the health service but it needs to be perfect for all kinds of people
Healthcare awareness programmes should be established
Sex education should be provided for the prevention of unwanted pregnancies
There should be more private healthcare centres and poly clinics
Overseas training is important
Well trained and motivated staff should be constantly available to provide care
Pregnant women should be taken care of at any time
Need more practical training in healthcare field
Not enough medicine in government hospital
Services of staff from Hospitals must improve
Should use Burmese language in hospital (or) clinic
We need mobile clinic in our village

Source: Original research.

It is evident from this list that the following factors are considered particularly important:

- Healthcare services of good quality should be available in all parts of the country.
- Various aspects of existing healthcare should be improved.
- Government services, in particular, should be improved. There were few comments about the private sector.

Respondents were also given the opportunity to add any other comments and six did so. However, the comments mostly echoed those made with respect to the previous question.

## 6. Discussion

Mobile telephones have flooded into Myanmar over the last few years and are now ubiquitous. Access to the Internet has been made available at a low price and, to some extent, the government trusts the people. Inevitably, there have been negative aspects, as some people have abused the privilege through hate speech and spreading false news and bigoted content. Nevertheless, access to information and a more mature attitude towards it has been spreading. The research reported on here supports the literature that argues for the benefits of spreading information. As Crome and Williams (2006: 270) wrote:

The new technologies .. in as much as they furnish cultural models which are not initially rooted in the local content but are immediately formed in view of

the broadest diffusion across the surface of the globe, provide a remarkable means of overcoming the obstacle traditional culture opposes to the recording, transfer and communication of information.

Introducing new technologies has led to social revolution that has helped sweep away social relations irrelevant in the 21st century. For example, knowledge and wisdom can no longer be claimed to be the preserve of the elderly and the wealthy. Just about anyone can obtain access to information databases, interact with them, and even contribute to them. This remains innovative and important in Myanmar.

Information access is empowering as the results here demonstrate. People who have access to Facebook and the Internet are able to make more informed decisions about their healthcare. Empowerment should contribute to democratising society, although that will take time and false steps will be made along the way. People with raised expectations may be disappointed but they can help create the conditions under which better healthcare services can be provided.

Although there are some methodological problems associated with conducting research of this sort, the consistency of the results and the credible patterns of responses together suggest that the approach can work well. It would be helpful if the research team included members who can speak ethnic-minority languages.

Since mobile telecommunications have only recently become predominant in Myanmar, research into their use is also new and this research contributes to knowledge on the topic.

## 7. Conclusion

This chapter describes research on the use of mobile telecommunications and the Internet in Myanmar with respect to healthcare services. Both quantitative and qualitative methods were used to obtain data. A consistent and coherent pattern of results was obtained despite the methodological problems of gaining access to all members of the population and the limitations of time and space.

Mobile telephones have become ubiquitous in Myanmar and market penetration has risen from a few percent to nearly 100% within a few years. Along with telephones, online applications have also become widely available. In part because of the way services have been marketed, most people seem to see Facebook as either not being part of the Internet or as the whole of the Internet. This poses problems and places additional responsibility on Facebook management when it comes to contentious issues and problems associated with division and hate speech.

The use of mobile telecommunications to search for healthcare information and services is still at its formative stage. There is scope for stakeholders to help mould people's use of these tools and to promote healthcare information to the public.

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# E-commerce Connectivity in ASEAN

The next Asian miracle of growth could be born with the region's digital transformation. Digital connectivity is the cornerstone that will make the changes feasible and smoothen the transformation. It consists of not only physical connectivity that facilitates the movement of raw materials, intermediate goods, and goods, but also cyber connectivity to support free flows of data, information, and services.

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ISBN 978-602-5460-24-1

