

Chapter 2

Emerging Asia in the era of cross-border e-commerce

E-commerce is becoming increasingly important around the world and Emerging Asia, and China in particular, is already playing a major role in this form of economic activity. While the e-commerce market remains smaller than traditional markets, further growth in e-commerce is expected in the future in the region and globally. The scale of e-commerce in the region and the potential for its further development are the result of multiple factors, including levels of ICT use, the development of ICT infrastructure, transportation infrastructure and logistics capabilities, the use of e-commerce payment systems, and the legal and regulatory environment. Among the most important policy areas to be addressed in fostering its continued development are improvements in connectivity, the development of digital skills and the provision of digital security.

Introduction

The rapid expansion of electronic commerce (e-commerce) is radically altering our society. More and more economic activities use the Internet and new information and communication technology (ICT) tools to do business or to purchase goods and services on line. These interactions and transactions can take place between governments, businesses and consumers (Table 2.1). Of particular interest are the cross-border business-to-business (B2B) and business-to-consumer (B2C) transactions that look set to drastically reshape trade and business in Emerging Asia (Emerging Asia is comprised of the ten members of the Association of Southeast Asian Nations – Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam – plus China and India).

Table 2.1. Forms of e-commerce and other Internet applications

	Government	Business	Consumer
Government	G2G (e.g. co-ordination)	G2B (e.g. information)	G2C (e.g. information)
Business	B2G (e.g. procurement)	B2B (e.g. e-commerce)	B2C (e.g. e-commerce)
Consumer	C2G (e.g. tax compliance)	C2B (e.g. price comparison)	C2C (e.g. auction markets)

Source: OECD (2000), *OECD Economic Outlook* No. 67.

Global cross-border e-commerce is increasingly important in the international economy. It has introduced new dynamics to international trade. Cross-border business-to-business (B2B) e-commerce, for example, typically involves fewer intermediate links between sellers and buyers, but it places higher demands on services, especially information, payment and logistics.

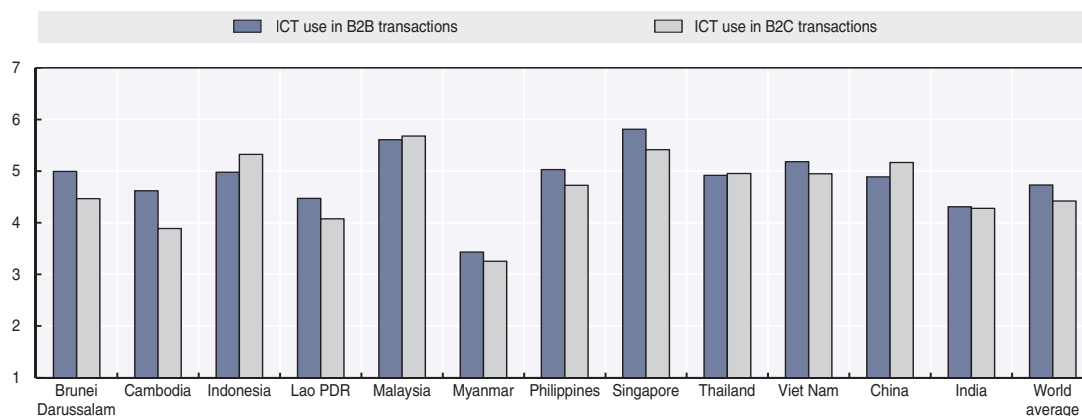
E-commerce growth in Emerging Asia has been rapid, particularly in China. China is the world's largest B2C e-commerce market and among the frontrunners of cross-border e-commerce. Furthermore, relatively new business models – such as an online market combined with a brick-and-mortar store – are emerging, and sellers and buyers are increasingly adopting them. As a result, e-commerce continues to evolve and open up more opportunities. The following sections explore the e-commerce trends and market outlook for Emerging Asia, the factors that are affecting its growth – including the use of ICT, the level of development of ICT infrastructure, the quality of transportation infrastructure and logistics services, the availability of e-payment systems, and legal and regulatory environments, and followed by policy options for supporting the development of e-commerce in the region. Governments in the region have important roles to play in facilitating the growth of e-commerce through addressing some important policy areas including improvements in connectivity, development of digital skills and provision of digital security.

Cross-border e-commerce trends and outlook

Cross-border B2B e-commerce has been growing steadily since the 1990s. Growth accelerated in the 21st century with the expansion and deepening of global value chains (GVCs). While B2B still dominates cross-border e-commerce, international B2C e-commerce has been growing quickly. The business sector in Emerging Asia has been adapting quickly to this new environment. In most countries in the region, ICT use in business transactions was above the world average in 2014-16 (Figure 2.1). Only Cambodia, Lao PDR and Myanmar lag behind. India's score is also below the world average.

Figure 2.1. ICT use in B2B and B2C transactions, 2014-16

Index, scale 1-7 from lowest to highest level of ICT use



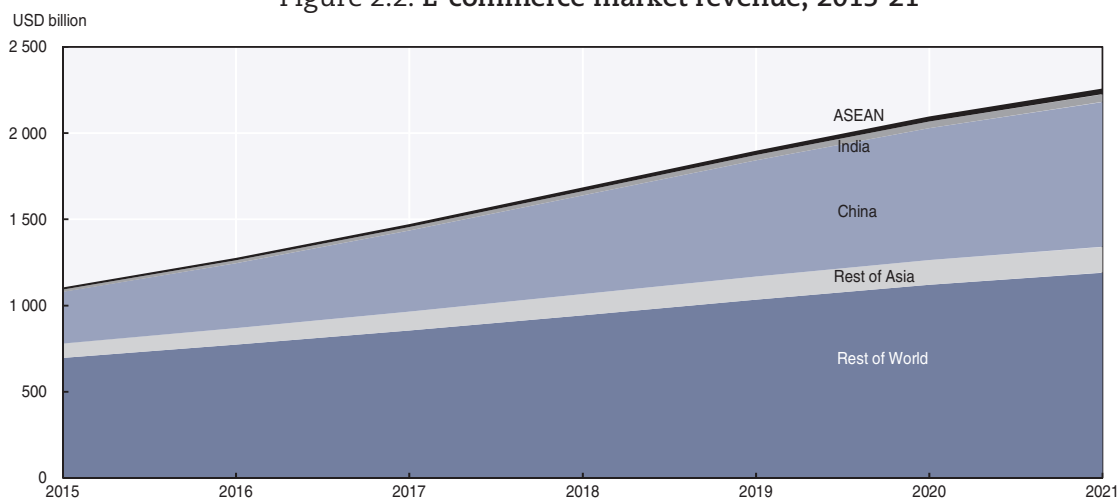
Note: The score is based on the view of firm executives interviewed in the WEF (2017) Executive Opinion Survey.

Source: WEF (2017), Executive Opinion Survey.

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Further growth is expected in the future. From 2015 to 2021, the region's total B2C e-commerce market revenue is expected to increase from about USD 320 billion (US dollars) to more than USD 900 billion. China's market will contribute more than 90% of the growth; the country's share in the global e-commerce market will increase from about 30% in 2015 to nearly 40% in 2021. India and ASEAN will increase their combined weight in the global market from 2.5% to 4% (Figure 2.2).

Figure 2.2. E-commerce market revenue, 2015-21



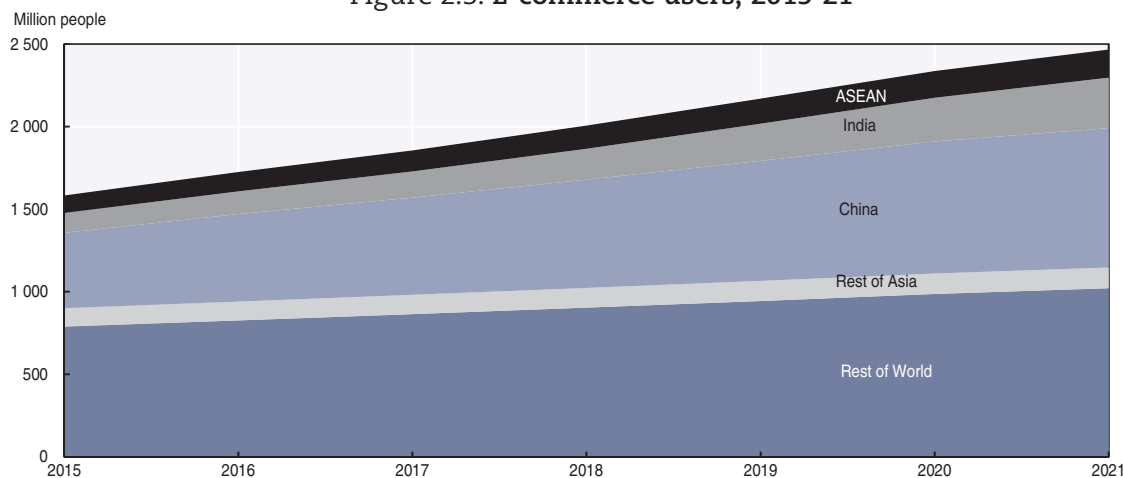
Source: Statista.

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Emerging Asia also accounts for a disproportionate share of Internet and e-commerce users. The region accounted for 50% of the world's Internet population in 2015, which was greater than its share of the world's total population. In 2015, ASEAN, China and India had 681.2 million e-commerce users; the number is projected to nearly double by 2021 (Figure 2.3). Emerging Asia will host about 60% of global Internet users by the end of 2021; a large population with Internet access allows Asian markets to play a significant role in global e-commerce activities. The number of Internet users in India is expected to increase from nearly 400 million in 2015 to more than 600 million in 2021, accounting for almost one-quarter of the region's total Internet population. ASEAN's average Internet

penetration rate will surpass 60%, spurred by the boom of Internet users in Indonesia and the Philippines. During this period, China's Internet users will grow by about 6% per year, although its average annual population growth rate is less than 0.4%.

Figure 2.3. E-commerce users, 2015-21



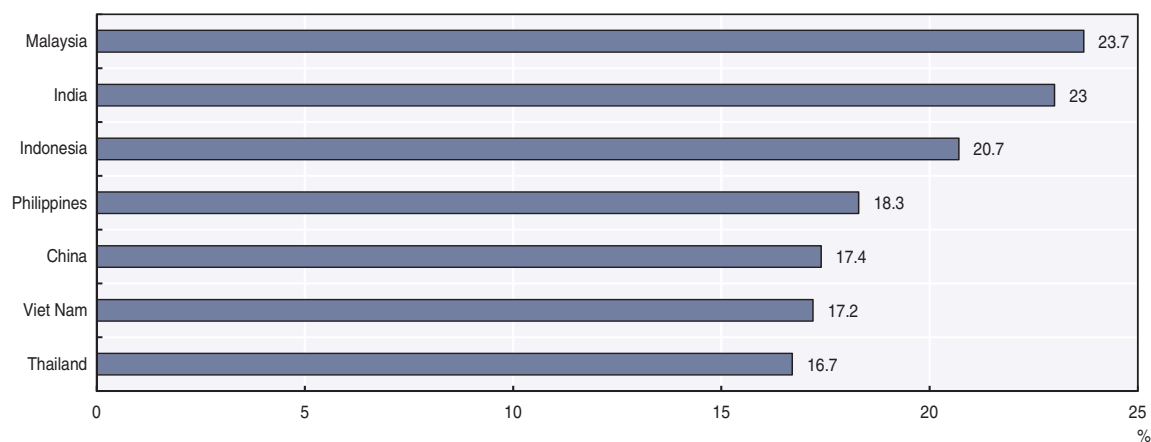
Source: Statista.

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The global e-commerce market remains smaller than traditional markets, but is growing quickly. In the next five years, global e-commerce is projected to account for about two-fifths of the increase in private consumption (BCG, 2014). B2C e-commerce sales are expected to grow by 20% or more on average every year, much higher than the 4% annual growth rate for traditional retail sales, though traditional transactions will still make up a much larger share of the total retail market. The share of online sales in total revenue has continued to increase in recent years.

B2C e-commerce in most Emerging Asian markets is expected to record double-digit growth in the next five to ten years. From 2016 to 2021, the world's three fastest-growing markets for retail e-commerce will be Malaysia, India and Indonesia; all three are expected to grow by more than 20% annually (Statista, 2016). By 2021, the size of India's e-commerce market will be larger than that of ASEAN. Retail e-commerce in China will continue growing rapidly, as well, with an annual growth rate of about 17% (Figure 2.4).

Figure 2.4. Compound annual growth rate of B2C e-commerce sales, 2016-21



Source: Statista.

StatLink <https://doi.org/10.1787/888933800271>

Factors affecting the growth of cross-border e-commerce

These trends are the result of multiple factors. Improvements to ICT technologies that increase their usefulness and lower costs have been a major driver of global e-commerce growth. Economies of scale and positive externalities from network effects are also lowering the costs of e-commerce and making its platforms more attractive as they grow. At the same time, the strength of B2C e-commerce in Emerging Asia is connected to a general increase in consumption in much of the region as a result of longer-term structural factors such as rising incomes and expanding middle classes.

Of greater interest to policy makers in the region are the more proximate and malleable factors that have been and will continue to drive e-commerce in Emerging Asia. These factors include the use of new technologies, the level of development of ICT infrastructure, the quality of transportation infrastructure and logistics services, the availability and reliability of e-payment systems, and legal and regulatory environments. These drivers have gone through rapid change in recent years and are significantly different across the region.

ICT use

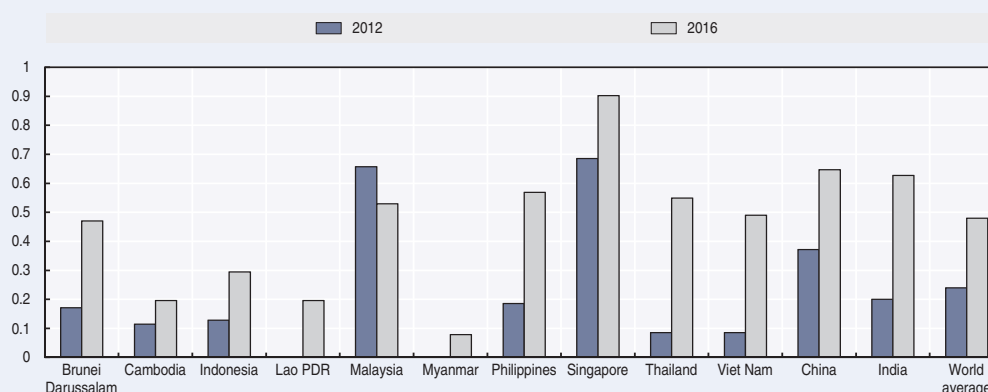
In the long run, economic digitalisation tends to improve Asian countries' adaptability to the world economy and facilitates their integration into GVCs. The use of digital technologies increases efficiency. For instance, it helps producers and service providers create and enlarge markets, lower operating costs, facilitate transactions and improve competitiveness. Digital technologies offer consumers more information and choice, easier ways to purchase and a higher quality of services. Alongside the development of e-commerce systems, ICT is also being used in the region in providing e-government tools to improve governance generally (Box 2.1).

Box 2.1. E-government in Emerging Asia

To assess the quality and usefulness of information and services that a country provides to society using ICT tools, the United Nations developed the E-Participation Index (Figure 2.5). This measures the quality, relevance and usefulness of governmental efforts (including websites and online databases) to provide online information and participatory tools and services. The value of the index ranges from zero to one. A higher score means a higher quality of e-government services.

Figure 2.5. E-Participation Index, 2012 and 2016

Index, scale 0-1 from lowest to highest level of participation



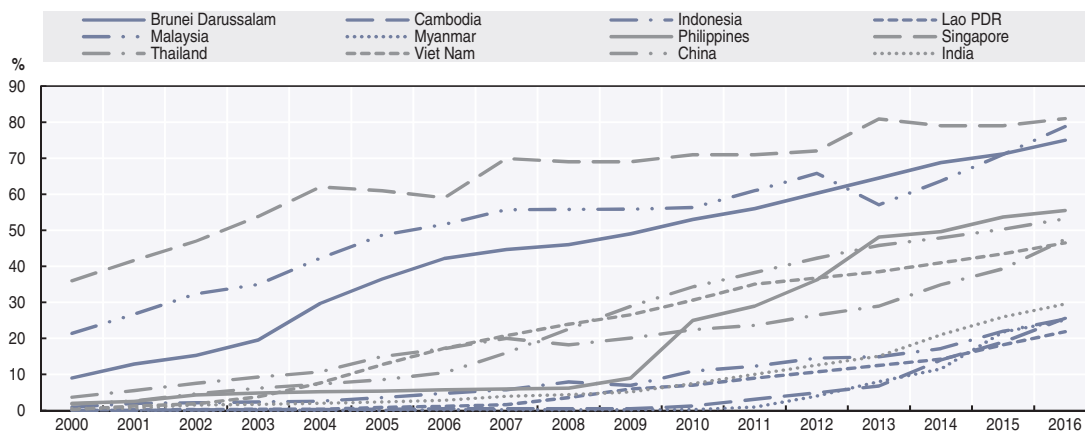
Source: UNDESA (2018), UN E-Government Development Database, <http://unpan3.un.org/egovkb>.
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Box 2.1. E-government in Emerging Asia (cont.)

The world's average level of e-participation increased from 0.24 in 2012 to 0.48 in 2016. The evolution of Emerging Asian countries' scores from 2012 to 2016 shows the region's efforts to improve public services using digital technologies. In 2012, only China, Malaysia and Singapore had scores higher than the world average; in 2016, most countries' scores surpassed the world average. Cambodia, Lao PDR and Myanmar's scores were still relatively low, though they have progressed significantly. This is due mainly to capacity rather than willingness. The 2000 e-ASEAN Framework Agreement recommends enabling "Member States who are ready to accelerate the implementation of this Agreement to assist other Member States to undertake capacity building" (ASEAN, 2000).

The percentage of the population using the Internet has risen steadily across the region in recent years, although there are still significant differences between countries. In high-income countries like Singapore and Brunei Darussalam, as well as middle-income Malaysia the figure is higher than in other countries in the region (Figure 2.6). Despite its vibrant services sector in IT, India has a low rate of Internet use, with little more than a quarter of the population going on line. This reflects difficulties in bringing infrastructure and services to populations outside the main centres, and in doing so at a cost that poor consumers find reasonable (OECD, 2018).

Figure 2.6. Internet users as a percentage of population, 2000-16



Source: World Bank (2017), World Development Indicators.

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Firms in Emerging Asia have been relatively quick adopters of the new technologies needed to participate in cross-border e-commerce. To some extent, the region's adaptability to global economic digitalisation comes from its capacity in technology adoption and incremental innovation. First, deep involvement in GVCs allows Emerging Asia to access the latest technologies and facilitates its learning. Second, countries' capacity in incremental innovation allows them to benefit from second-mover advantages to grow faster and even jump the market frontier; examples are e-payment's popularity in China and the Alibaba Group's success.

New technologies have been adopted by and incorporated into the operations of many Emerging Asian firms, and have already had significant consequences on business activity, trade and productivity in the region (OECD, 2018). According to the Executive

Opinion Survey conducted by the World Economic Forum (WEF), businesses in Emerging Asia – particularly those in China, Indonesia, Malaysia and Thailand – have managed to adopt the latest ICTs to link with the global market (Table 2.2). Many business leaders believe that digitalisation will introduce new business and organisational models to the region (WEF, 2017). It allows, for instance, more integrated and interactively-connected production and distribution processes through digital networks (OECD, 2018).

Table 2.2. Firm-level technology adoption in ASEAN, China and India, 2007-17
Index, scale 1-7 from lowest to highest level of technology use

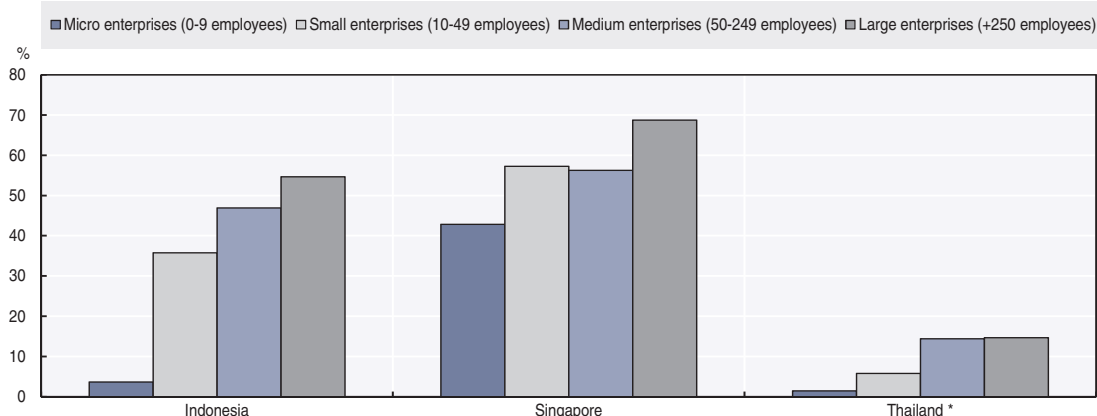
Country	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Brunei Darussalam	n.a.	5.07	4.96	4.82	4.86	4.85	4.78	n.a.	n.a.	4.37
Cambodia	4.15	4.13	4.42	4.43	4.70	4.86	4.59	4.27	4.27	4.20
Indonesia	4.70	4.79	4.81	4.88	4.98	4.95	5.08	5.06	5.06	5.00
Lao PDR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4.47	4.30	4.30	4.11
Malaysia	5.78	5.61	5.39	5.49	5.59	5.56	5.46	5.58	5.58	5.46
Myanmar	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2.73	2.94	2.94	n.a.
Philippines	4.94	5.11	5.06	4.98	5.06	5.17	5.22	5.07	5.07	4.70
Singapore	6.05	5.99	6.03	5.96	5.97	6.02	5.83	5.71	5.71	5.67
Thailand	5.16	4.88	4.91	4.88	4.73	4.98	5.02	4.86	4.86	4.92
Viet Nam	5.08	5.07	5.08	4.96	4.56	3.98	3.76	3.89	3.89	4.38
ASEAN average	5.12	5.08	5.08	5.05	5.06	5.05	4.69	4.63	4.63	4.76
China	5.00	5.15	5.14	4.95	4.91	4.75	4.69	4.66	4.66	4.60
India	5.58	5.52	5.47	5.32	5.28	5.24	5.05	4.19	4.19	4.36
Emerging Asia average	5.16	5.13	5.13	5.07	5.06	5.04	4.72	4.59	4.59	4.71

Notes: n.a. = not available.

Source: WEF (2017), Executive Opinion Survey.

Engagement in e-commerce varies both within and across countries in the region, with smaller firms less likely to take part in e-commerce, for example. In Singapore, 47.6% of firms reported receiving orders over the Internet in 2014, with 42.9% of micro enterprises (zero to nine employees) and 54.6% of large enterprises (250 or more employees) using the Internet in this way (Figure 2.7). In Indonesia, where 24.6% of firms received orders over the Internet, differences by firm size were even greater, with 3.7% of micro enterprises reporting Internet orders, compared with 54.6% of large enterprises. In Thailand in 2013, 1.7% of businesses received Internet orders, ranging from 1.4% among micro enterprises to 14.7% among large enterprises.

Figure 2.7. Proportion of businesses receiving orders over the Internet by size, 2014



Note: (*) Thailand data is from 2013, the most recent year available.

Source: UNCTAD (2017), UNCTADSTAT (database), <http://unctadstat.unctad.org>.

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ICT infrastructure

E-commerce growth demands more stable, fast and affordable Internet connections. Increased Internet penetration and ICT improvements in the speed and capacity of online communications have spurred e-commerce growth. In general, Emerging Asian countries face challenges from development gaps across the region, especially between urban and rural areas. Wide development gaps persist despite Emerging Asian countries' efforts to expand ICT infrastructure. Poor broadband Internet connectivity in many Emerging Asian countries is due mainly to limited network coverage, slow Internet speeds, the high cost of connection and limited awareness (A.T. Kearney, 2015).

High-speed broadband Internet connections are critical in facilitating e-commerce. Factors like the use of broadband infrastructure and Internet technologies are also likely to enhance national aggregate outputs (Ng, Lye and Lim, 2013). However, Internet speeds are below the world average in many Emerging Asian countries (Table 2.3). Only Singapore and Thailand have higher shares of unique Internet Protocol version 4 (IPv4) addresses connecting at above 15 Mbps, while the rest of the region performs below the world average in all three speed categories, except for Viet Nam's connections that are above 4 Mbps. The gaps between the region and the world average seemed to widen at higher broadband speeds; this shows that Emerging Asia is still catching up in terms of ICT infrastructure.

Table 2.3. IPv4 addresses by broadband connection speed in Emerging Asia, Q1 2017

Country	% Above 4 Mbps	% Above 10 Mbps	% Above 15 Mbps
Indonesia	76 (71)	18 (68)	5 (69)
Malaysia	72 (80)	32 (52)	14 (52)
Philippines	39 (107)	11 (78)	6.2 (63)
Singapore	94 (17)	72 (4)	51 (6)
Thailand	97 (4)	72 (5)	43 (13)
Viet Nam	86 (49)	37 (48)	11 (57)
China	81 (59)	20 (62)	5 (70)
India	42 (104)	19 (64)	10 (58)
World average	82	45	28

Note: The number in the bracket indicates the country's global ranking.
Source: Akamai (2017), *State of the Internet Connectivity Report*.

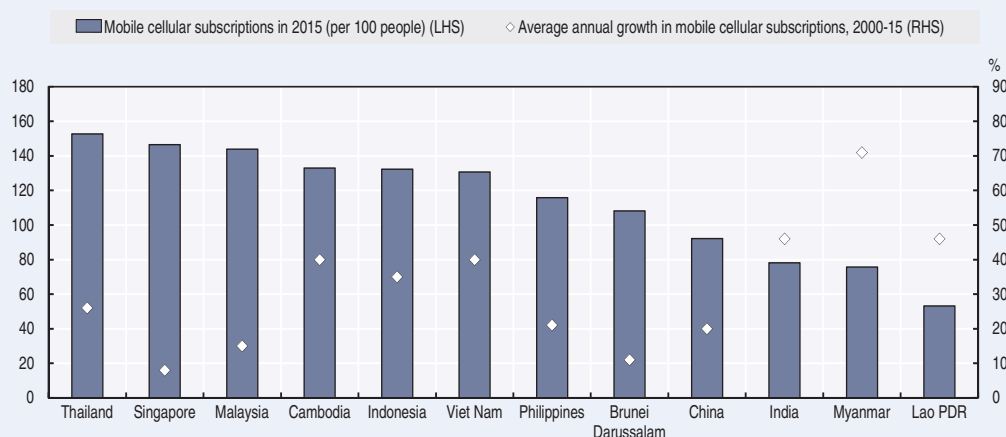
In terms of technology, currently fibre-optic cables are the most efficient means to transmit data, despite the increased use of satellites. Even for mobile phones, the connection is wireless only between the device and the nearest mobile phone towers. Data is carried over terrestrial and subsea fibre-optic cables. Fibre networks are a crucial infrastructure for the digital economy. Building, maintaining and upgrading fibre networks require sustained inputs of capital, technology and managerial efforts. While these requirements pose common challenges to all countries worldwide, Emerging Asian countries face extra difficulties because of their highly dispersed geography and large populations. Financing challenges will need to be resolved, especially in capital-scarce countries. The lack of funding can contribute to the problem of urban-rural gaps in access.


Residents of Emerging Asian countries widely use mobile phones, and mobile network development has progressed significantly in the past decade. This enhances connectivity because more people are now able to access the Internet using smartphones. ASEAN has hundreds of millions of Internet users, and the majority of them are mobile-first Internet users, or people who access the web primarily through their mobile phones (eMarketer, 2016). Mobile technologies are becoming important components of global e-commerce (Box 2.2).

Box 2.2. Mobile Internet and e-commerce

E-commerce's new wave of growth is linked to the expansion of mobile broadband, the popularisation of smartphones, reduced costs for data usage, and rich online shopping and payment tools on portable devices and platforms. Almost 80% of Internet users in China and two-thirds of those in ASEAN use smartphones to access the Internet. The use of mobile phones is very widespread in Emerging Asia (Figure 2.8), with Thailand, Malaysia, Indonesia and Cambodia all enjoying similar levels of mobile phone usage as in high-income Singapore. Only Lao PDR stands out as having a much lower rate, at just over 50 subscriptions per 100 people. There is considerable evidence of catch-up growth within the region in the use of mobile phones. Singapore has been experiencing the slowest rate of growth while at the other end of the scale, some lower-income countries have seen explosive growth in the uptake of mobile phones since 2000, albeit from a relatively low base.

Figure 2.8. Number and growth of mobile telephone subscriptions, 2000-15

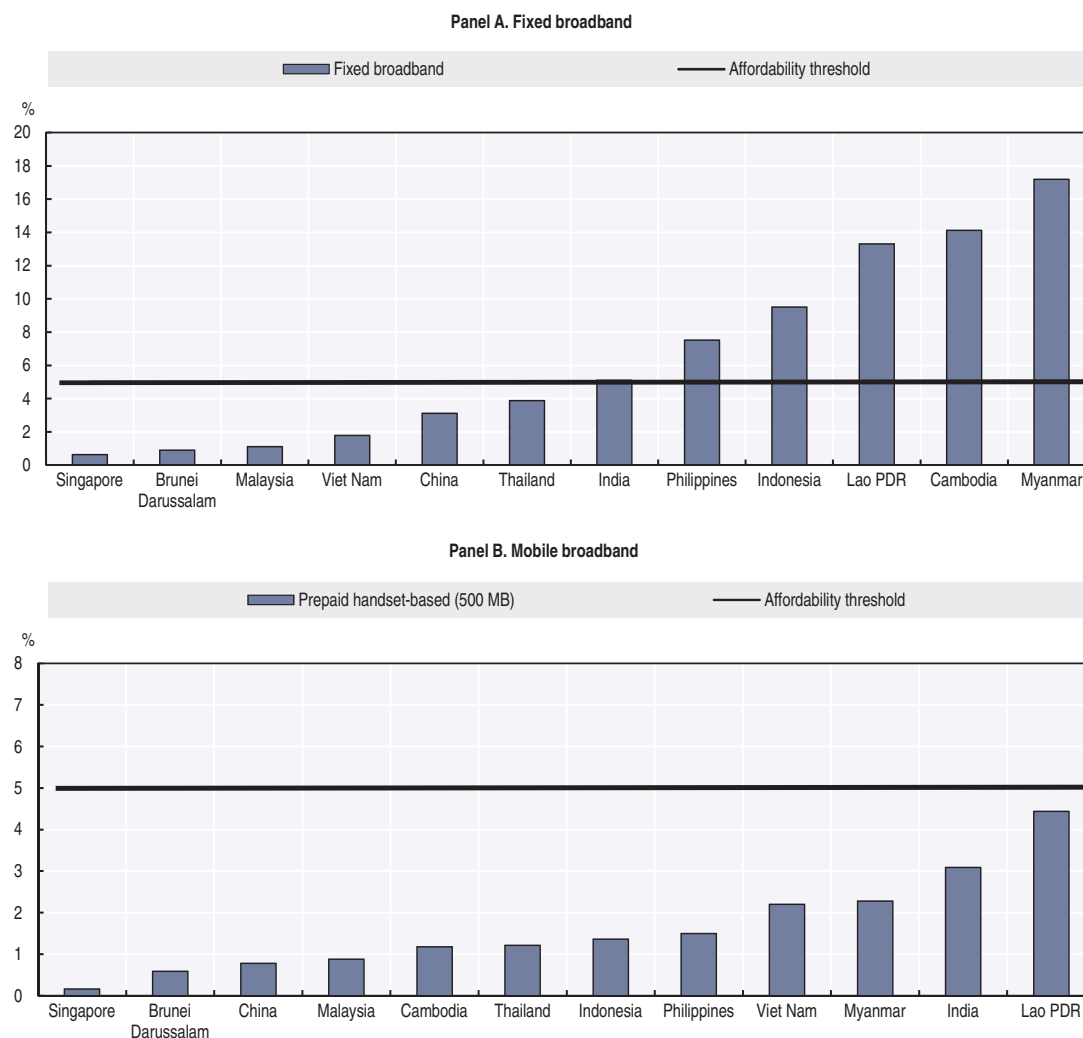


Source: World Bank (2017), *World Development Indicators*.
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This widespread use of smartphones can be one of the driving forces for e-commerce growth in Asia. A survey (Statista, 2016) of 30 000 owners of mobile connected devices across the world shows that 46% of respondents in Asia-Pacific use their mobile devices, mainly with mobile apps, to purchase products and services on line. This share is higher than that of Europe (32%) and North America (28%). The total revenue of the global mobile payment market in 2015 was estimated at USD 450 billion. The market is projected to expand by USD 150-170 billion per year, and to exceed USD 1 trillion by 2019. Smartphone access has accounted for more than half of visits to retail websites worldwide and about one-third of B2C revenues.

Accessible Internet means having both the physical infrastructure and an affordable price. The cost of broadband Internet remains relatively high across Emerging Asia, despite recent increases in Internet penetration (Figure 2.9). Fixed broadband prices exceed the affordability threshold of 5% of GNI in India, the Philippines, Indonesia, Lao PDR, Cambodia and Myanmar. In comparison, mobile broadband prices are below the affordability threshold in all countries in the region.

Figure 2.9. Internet prices in Emerging Asia, 2015
Percentage of gross national income per capita



Note: The affordability threshold of 5% of GNI is determined by the Broadband Commission for Digital Development, jointly set up by the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Fixed-broadband prices refer to the prices of a monthly subscription to an entry-level fixed-broadband plan. Mobile-broadband prices refer to the prices of prepaid handset-based mobile-broadband plans with a data allowance of 500 MB per month.

Source: ITU (2016), *Measuring the Information Society Report 2016*.

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Transport infrastructure and logistics capabilities

Cross-border e-commerce allows people to do business on line, but it needs logistics to deliver traded physical goods. As a result, the growth of e-commerce is affected by not only trade costs, but also safety, security, reliability, transparency, flexibility and efficiency. E-commerce poses new challenges to storage, parcel delivery and express postal services. The development of e-commerce will require additional efforts in terms of both physical connectivity and trade-supporting services. Emerging Asia faces infrastructure obstacles such as the poor quality of roads, incomplete road and railway networks (Table 2.4).

Table 2.4. Infrastructure quality in Emerging Asia
Index, scale 1-7 from lowest to highest quality of infrastructure

Country	Quality of roads	Quality of railroad infrastructure	Quality of air transport infrastructure	Quality of port infrastructure	Quality of overall infrastructure
Brunei Darussalam	4.70	2.07	4.08	3.67	4.14
Cambodia	3.38	1.62	3.85	3.85	3.43
Indonesia	3.86	3.82	4.52	3.91	3.79
Lao PDR	3.42	n.a.	3.77	2.01	3.74
Malaysia	5.46	5.06	5.70	5.44	5.48
Myanmar	2.33	1.79	2.62	2.62	2.42
Philippines	3.07	1.97	3.25	2.92	3.04
Singapore	6.28	5.74	6.85	6.66	6.39
Thailand	4.21	2.52	4.95	4.18	4.03
Viet Nam	3.47	3.15	4.06	3.84	3.63
China	4.77	5.07	4.81	4.59	4.55
India	4.43	4.48	4.49	4.53	4.45
World	4.05	3.38	4.41	4.04	4.06

Notes: The score is based on the view of firm executives interviewed in the WEF (2017) *Executive Opinion Survey*. In landlocked countries, port infrastructure refers to access to seaports. Data for Myanmar are from 2015-16. Data for quality of railroad infrastructure in Brunei Darussalam are from 2012-13. n.a.= not available.

Source: WEF (2017), *Executive Opinion Survey*.

In terms of logistics, service is a key to the efficiency of distribution networks. The nature of e-commerce and demands of online consumers may motivate supply-chain operations to focus increasingly on near-sourcing, omni-channel and faster transport solutions (Inbound Logistics, 2014). A logistics network will be optimised only when it contains high-standard services, especially in some critical facilities in supply chains, 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.

E-commerce payment systems

Payment systems – either online or offline – are vital components of e-commerce. Various solutions are available, including cash on delivery (CoD), prepaid, credit cards, debit cards, e-banking, mobile payment, smartcard and e-wallets, among others. Where available, a variety of options promotes e-commerce growth because it allows consumers to choose their preferred ways to pay for online business.

CoD remains the preferred payment method in many Emerging Asian countries, especially those in Southeast Asia. CoD is the predominant payment method for retail goods in India, Indonesia, the Philippines and Viet Nam for instance (Adyen, 2015; IFC, 2014). A firm survey found that in Viet Nam CoD accounts for more than 70% of payments to the surveyed companies (IFC, 2014). While CoD has its advantages in e-commerce trade such as payment security, it may be a less viable option for transactions across borders. To develop cross-border e-commerce, governments should encourage electronic payment (e-payment) which processes money transfer on line, enhance their e-payment system to alleviate security concerns of consumers and sellers, and establish proper regulations for the use of various online payment methods. Once regulations are created, they should be harmonised regionally.

Online e-commerce platforms can collect and integrate information from various sources and provide service packages to users. Reliable transaction credit systems help to strengthen trust given by participants and would create better business opportunities. With the growth of e-payment, many financial institutions have found it profitable to provide fiduciary loans using Internet finance. E-commerce platforms like eBay have started to launch cross-border insurance products to facilitate transactions.

Ideally, e-commerce development would be fostered by the building of a payment system that can accommodate existing market solutions and remain open to new approaches in the future. Rather than simply a payment network, the e-commerce payment system should also be part of a service platform that can ensure transaction security, trace credit records and offer consumer protection. Security, privacy, creditability, reliability and efficiency are among the main factors to be considered. Building and maintaining the e-commerce payment system requires resources in terms of capital, technology and people. This will be a big challenge for those Emerging Asian countries whose domestic banking and financial systems are still at an early stage of development. At the same time, digital technologies and innovations in finance also offer opportunities for improving financial access (Box 2.3).

Box 2.3. Innovation for financial inclusion

Relatively speaking, Asian countries' development in the banking and finance sector lags behind their achievements in other aspects of economic growth. Problems in this sector – such as the low coverage of the banking network, a pre-mature personal/household credit system and the lack of an efficient capital market – may hold back a country's economic development. The traditional approach to establishing a modern banking system (like the ones that developed countries have today) would take a long time.

The digital economy offers opportunities to accelerate financial inclusion in developing countries with new technologies that are transforming the financial services landscape. Some of the notable examples include alternative platforms, such as mobile phones and digital platforms, to enable last-mile access; alternative digital information, such as biometrics data, to verify customer identity for account opening and payment authorisation; big data, such as transactional and digital footprint data, to improve customer targeting and credit risk assessment; and electronic money (e-money) to improve customer experience in savings and payments. These solutions can either complement the traditional banking and financial architecture, or be used independently. These new models are so efficient that even traditional financial service providers have become eager to adopt them.

In China, the digital economy has become an important contributor to a more inclusive financial system. Supported by rapid economic growth, online shopping and mobile payment are increasingly popular. As a result, digital finance is growing and supplementing the traditional financial system. For example, hundreds of millions of people are using third party online payment platforms such as AliPay and TenPay for daily transactions and their ease of usage helps bring basic financial services to small towns and villages. Small businesses have benefited from this trend as well, through peer-to-peer (P2P) lending by Fintech companies such as Ant Financial. Unlike traditional commercial banks, these digital finance companies use sophisticated models with Big Data to assess the risks of small borrowers and are able to provide funds to MSMEs that are usually left out of the traditional financial system.

Box 2.3. Innovation for financial inclusion (cont.)

New technologies can help to expand access to financial services in lower-income countries in the region as well. While about 80% of Cambodia's population live in rural areas and money transfer between rural and urban population is very common, fewer than 20% of Cambodian adults have access to financial services (Duflos, 2014). This forces many to resort to informal transfers which can be slow and risky. Digital finance helps address this challenge. Launched in 2009, Wing Limited Specialised Bank is the market leader for mobile banking services with one million users and provides an easy way for Cambodians, including the unbanked and under-banked, to make domestic money transfers, phone top-ups and bill payments. Many traditional micro-finance institutions have also followed the digital trend. For example, ACLEDA Bank and AMK Microfinance Institution, two largest of their kind in Cambodia, have launched mobile banking products in 2013 and early 2012 respectively.

Viet Nam is another country in Southeast Asia with good potential for utilising digital technology to achieve financial inclusion, thanks to its increasingly robust ICT infrastructure and Internet penetration. Some companies have recognised and started to take advantage of this in recent years. For example, MoMo, a Fintech start-up launched in 2014, has amassed 2.5 million customers with its mobile wallet, e-payment and online banking services, becoming a market leader.

These new opportunities in financial innovation also pose new challenges for regulators, however. The central bank of Indonesia introduced e-money regulations in 2009 and launched a follow-up Digital Financial Services pilot project four years later. In March 2015, the Financial Services Authority (OJK) introduced a nation-wide initiative called Laku Pandai to promote branchless banking and increase financial service penetration in remote regions. Significant progress has been made through these initiatives to target financially excluded, especially those in rural areas (ADB, 2017).

Legal and regulatory environment

The development of e-commerce requires new rules and regulations to improve trust, security and facility in the online marketplace. Without the necessary regulations, online commerce risks creating “grey” zones of international trade associated with problems such as tax evasion, fake products and violations of IPRs. When it comes to having the necessary regulatory infrastructure to support the digital economy, much of Emerging Asia generally performs well (Table 2.5). With the exception of Cambodia, all of the countries had an electronic transactions law by 2013, and Cambodia has prepared draft legislation in this regard. When it comes to the realm of privacy and data protection, however, performance varies more widely across the countries in Emerging Asia. Seven of the twelve countries already had a law covering these domains, and one further country was at the draft stage of legislation. Cambodia and Lao PDR had both prepared draft laws covering consumer protection. Cambodia and Lao PDR also lack laws on cybercrime, and content regulation laws were enacted in all countries in the region but Cambodia and the Philippines.

Table 2.5. E-commerce laws in ASEAN Member States, 2013

Country	Electronic transactions	Privacy	Cybercrime	Consumer protection	Content regulation	Domain names
Brunei Darussalam	Enacted	n.a.	Enacted	Partial	Enacted	Enacted
Cambodia	Draft	n.a.	Draft	n.a.	Draft	Enacted
Indonesia	Enacted	Partial	Enacted	Partial	Enacted	Enacted
Lao PDR	Enacted	n.a.	n.a.	Draft	Enacted	Partial
Malaysia	Enacted	Enacted	Enacted	Enacted	Enacted	Enacted
Myanmar	Enacted	n.a.	Enacted	Enacted	Enacted	Enacted
Philippines	Enacted	Enacted	Enacted	Enacted	n.a.	Enacted
Singapore	Enacted	Enacted	Enacted	Enacted	Enacted	Enacted
Thailand	Enacted	Partial	Enacted	Enacted	Partial	Partial
Viet Nam	Enacted	Partial	Enacted	Enacted	Enacted	Enacted

Source: UNCTAD (2013), *Review of E-commerce Legislation Harmonization in the Association of Southeast Asian Nations*.

A fair and competitive regulatory environment is needed to foster e-commerce activities. Regulation of e-commerce in particular and other relevant policy areas can both be important. Intellectual property rights, for example, can be particularly important in e-commerce, in a number of ways. Digital transactions often involve the buying and selling of products and services based on intellectual property – software, networks and other systems that underpin e-commerce are forms of intellectual property – and businesses involved in e-commerce often hold much of their value in intellectual property.

Taxation is another important issue, which can be complicated by cross-border e-commerce. The OECD has worked on taxation and e-commerce since the 1998 Ottawa Conference on Electronic Commerce and the Ottawa Taxation Framework Conditions. These principles included a call for neutrality, stating that tax systems should seek to be neutral between forms of e-commerce and between conventional transactions and e-commerce (OECD, 2015a).

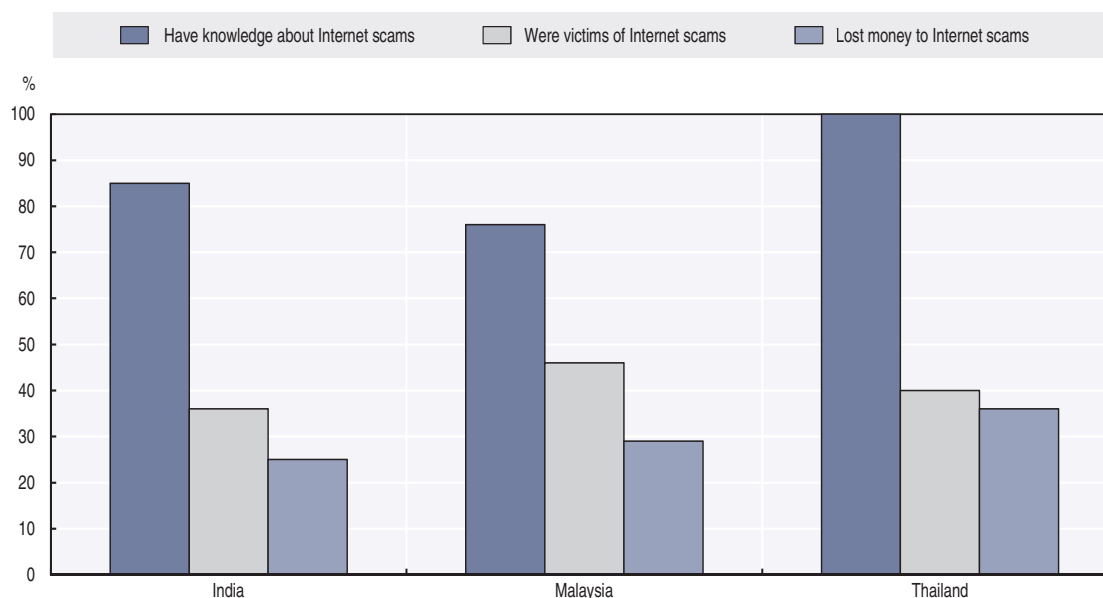
Some countries in the region are implementing or considering new rules for taxing e-commerce. In Thailand, for example, the Revenue Department is developing draft transfer pricing legislation to improve revenue collection from firms engaged in e-commerce. Foreign operators with a presence in the country would be liable for Thai taxes. In 2016, China introduced tax reforms that changed the tax treatment of goods bought on line from overseas sellers, from that of personal postal articles to imported goods subject to additional taxes.


Data protection, privacy and security against computer crime are critical issues for ensuring the protection of consumer interests and for maintaining the integrity of e-commerce systems. Businesses should take responsibility for ensuring that their practices are “lawful, transparent and fair, enable consumer participation and choice, and provide reasonable security safeguards” (OECD, 2016).

Effective consumer protection is instrumental in creating an efficient and competitive marketplace that can offer accurate information about products and prices, ensure the interests and welfare of consumers, and contribute to Emerging Asia’s economic development. This is especially true for e-commerce, where buyers and sellers of products or services do not deal with each other in person and must rely more on trust between both parties. The rapid development of e-commerce in the region in recent years has led to the rise of many Internet-related problems, such as cyber-crime. According to a multi-

market survey for assessing the impact of Internet scams in several Emerging Asian countries, 90% of surveyed Internet users are aware of the existence of Internet scams, while 40% have been victims (Figure 2.10).

Figure 2.10. Internet scams in selected Emerging Asian countries, 2016
Percentage of surveyed population



Source: Telenor Group (2016), "Asia's Top Internet Scams and How to Stay Safe", www.telenor.com/asia-top-internet-scams-and-how-to-stay-safe.
StatLink  <https://doi.org/10.1787/888933800366>

The prevalence of cyber-crime and the lack of protection against it have become major barriers to the full release of Emerging Asia's e-commerce potential. Studies show that 58% of Southeast Asians are worried about sharing financial information on the Internet, especially those living in Indonesia, the Philippines and Malaysia, where high levels of fraud and cyber attacks exist (Google and Temasek, 2016). Low levels of trust in online transactions contribute to the preference for CoD payment in Southeast Asian countries, though offline payment methods like CoD increase risk and cost for merchants and hamper the growth of e-commerce (Nguyen, 2017). Electronic authentication systems are a useful tool for building confidence in e-commerce (Box 2.4).

Box 2.4. Electronic authentication

Electronic authentication is critical in verifying the identities of participants in digital transactions, which is needed to reduce uncertainty and build trust. The Ottawa Declaration on Authentication for Electronic Commerce adopted by OECD ministers at the October 1998 ministerial conference outlined plans for promoting the development and use of electronic authentication tools (OECD, 1998). In the time since, the OECD has carried out a number of initiatives to support the implementation of the Declaration, including developing the OECD Recommendation on Electronic Authentication and OECD Guidance for Electronic Authentication aims to support the improvement of electronic authentication systems, with a view to facilitating international co-operation on the issue. It recommends the establishment of technology-neutral approaches for domestic

Box 2.4. Electronic authentication (cont.)

and cross-border electronic authentication of persons and entities, fostering the development on new authentication products and services, encouraging cross-sectoral and cross-jurisdictional compatibility of authentication schemes, and increase awareness of the benefits of using authentication.

As of 2012, there was some recognition of electronic signatures in all ASEAN member countries, according to a stocktaking exercise by UNCTAD. In Myanmar and Thailand, all legal signatures were recognised. In Brunei Darussalam, Indonesia, Lao PDR and Singapore, a two-tier approach was used where only advanced or qualified signatures were associated with legal presumptions. In the Philippines, Malaysia and Viet Nam, only signatures associated with a specific technology were recognised. None of the ten countries recognised only advanced or qualified signatures (UNCTAD, 2013).

In Southeast Asia, the ASEAN Strategic Action Plan for Consumer Protection (ASAPCP) 2016-25 sets out ASEAN's strategy for consumer policy over a ten-year period. The ASAPCP aims to establish a common ASEAN Consumer Protection Framework, ensure a high common level of consumer empowerment and protection, institute high consumer confidence in the ASEAN Economic Community (AEC) and cross-border commercial transactions, and integrate consumer concerns in all ASEAN policies. ASAPCP 2016-25 proposes that an ASEAN Regional Online Dispute Resolution (ODR) Network be established for cross-border complaints and investigations.

Policy challenges and conclusion

The potential of e-commerce has long been recognised, as has the need for the creation of a supportive policy environment for its growth. When OECD ministers concluded in 1998 that e-commerce would be the key engine for economic growth, e-commerce faced constraints in the areas of technology availability, consumer behaviours, and trade and services liberalisation. Two decades later, the market has matured to accommodate e-commerce growth, and progress in globalisation, trade liberalisation and regional integration has opened borders in global e-commerce. Most countries are including e-commerce and digital economy development in their national strategies and action plans (Box 2.5).

Box 2.5. E-commerce in national development plans

Expanding e-commerce for its own sake and to support policy goals is a priority in the medium-term national development plans of several Emerging Asian countries. The plans of countries such as Brunei Darussalam, Lao PDR and Thailand do not directly refer to e-commerce, but include targets for expanding Internet access and use by individuals and businesses. The Eleventh Malaysia Plan (2016-20) mentions e-commerce in several chapters: the e-payment platform for micro enterprises will be expanded, technology deployment in the logistics chain aims to support e-commerce activities, and e-commerce is one element of the development strategy outlined for small and medium-sized enterprises in Sabah and Sarawak. The Philippines Development Plan 2017-22 calls for developing potential in digital trade and e-commerce to boost services exports in particular, and targets the creation of services-related statistics to improve

Box 2.5. E-commerce in national development plans (cont.)

implementation and monitoring. The legislative priorities outlined in Cambodia's National Strategic Development Plan 2014-18 include promoting the adoption of the Law on Telecommunication and related laws for the sector, including e-commerce. The plan also calls for improved service and reduced fees by the Ministry of Post and Telecommunications through reforms that include the study of postal service and e-commerce.

China's 13th Five-Year Plan incorporates e-commerce development in targets for several sectors. E-commerce is noted as a tool in promoting an "intelligent" agricultural sector, in facilitating new forms of trade for a "robust business environment" and in helping to develop "cross-Strait economic integration". Under the topic of strengthening information security, the plan targets e-commerce development in China by building relevant infrastructure, promoting innovation and adoption of these tools and practices, and establishing "international e-commerce thoroughfares" in experimental zones in Hangzhou and other areas. E-commerce is not discussed as prominently in India's Twelfth Five-Year Plan (2012-17), in which the issue is mentioned directly only in the context of reforms planned for India Post. The plan does, however, also refer to the need to adapt to digitalisation and to adopt ICT tools in economic activities more generally.

Governments have important roles to play in facilitating the growth of an e-commerce sector that benefits growth and development. Among the most important policy areas to be addressed are improvements in connectivity, development of digital skills and provision of digital security. To be effective, regional co-operation is needed across a number of policy areas.

Connectivity

To improve connectivity in terms of reach and quality, governments should strive for a multi-stakeholder approach to infrastructure development, broader regional co-operation and more vibrant market competition. The public sector should take the lead in infrastructure building, but it will need the private sector's involvement to make the development sustainable. Public-private partnerships, inter-governmental co-operation and foreign investment should be encouraged.

In addition to investing in physical infrastructure, improving the quality of related services directly affects the quality of connectivity. This is important particularly in cross-border e-commerce. Typically, logistics integrators play a crucial role in the distribution network of cross-border e-commerce, as they bring together online and offline supply chains of different countries. Even with well-constructed infrastructure, connectivity cannot function well without quality services. Governments should strengthen market competition to help improve the quality of services and reduce the cost of Internet connection. One reason for high-price, low-quality Internet connections in some Emerging Asian countries is the monopolistic power of a few telecommunication giants.

The emergence of new service intermediaries can lead to structural changes in commerce. E-commerce development generates more business opportunities for companies in areas such as material suppliers, market investigation, software development, shipment and delivery, agency operation, and the search for keywords and optimisation. As production networks clustering around core e-commerce companies start to deepen and spread out, this leads to a finer division of labour and therefore to

higher specialisation. With market segmentation, demand is more precisely identified, and therefore service activities can expand. In this way, the growth of services can be market-driven.

It is worth noting that Emerging Asian economies are facing challenges from development gaps existing both within countries, especially between metropolitan and remote rural areas, and between countries. Enhancing regional co-operation can help in providing solutions to these challenges. This is in particular helpful for those countries that are facing big obstacles from capacity and resource limits and capital or technology. Some recent developments include China's Belt and Road initiative, Japan's USD 110 billion proposal on infrastructure in ASEAN, and the establishment of the Asian Infrastructure Investment Bank (AIIB).

Skills and human capital development

Emerging Asia has considerable human resource potential. The total population of ASEAN, China and India reached 3.3 billion by the end of 2015, with 70% of the population aged between 15 and 64; this represents a huge consumer market and labour force. The number of people with Internet access increased from less than 60 million in 2001 to more than 1.2 billion in 2015. Speakers of regional languages – particularly Chinese, Indonesians and Malaysians – are among the most numerous Internet users in the world. Developing this potential is increasingly important: the International Labour Organization (ILO) concludes that by the end of 2012, knowledge-based jobs absorbed more than 7% of China's workforce. In ASEAN, knowledge-intensive activities created an estimated 42 million jobs in 2012; in 2016, more than 51 million employees were taking knowledge-intensive jobs, representing more than 13% of the region's total workforce (ILO, 2016).

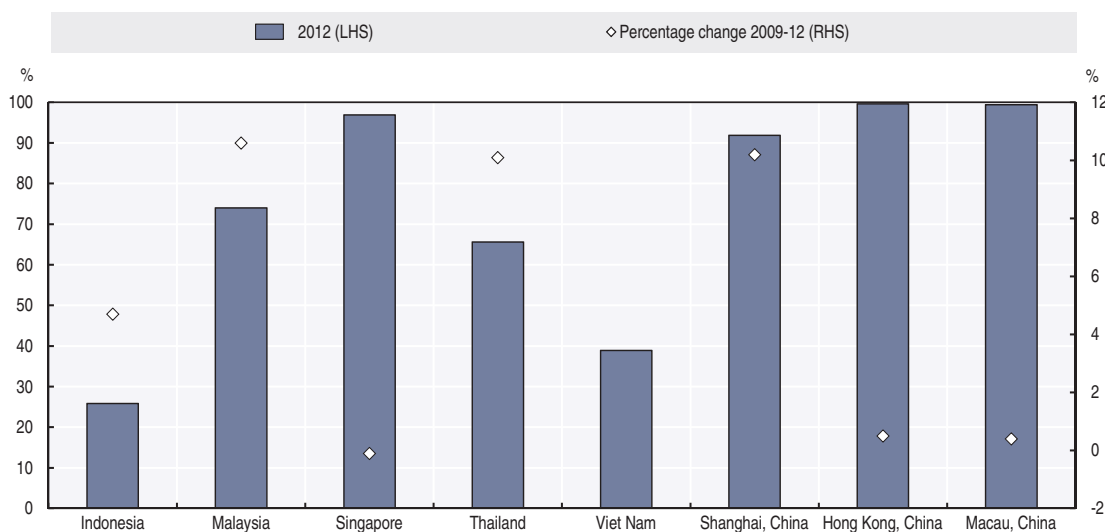
Digital skills have played a critical role in driving the adoption of new technologies and the skills challenge has serious implications for e-commerce development in Emerging Asia. First, e-commerce is knowledge-intensive. High-tech devices, software and applications are widely used in production and business. Qualified labour must have sufficient technical skills to handle these tools proficiently, especially for problem-solving. Second, with ICT and service-sector development, the global value chains behind e-commerce are much more sophisticated than ever before. High managerial skills are needed to operate the network and monitor its functioning. Third, with the rapid growth of B2C and C2C e-commerce, users now have skills that once belonged only to experts; these include knowing about home and overseas markets, understanding different consumer habits and learning trading rules. Fourth, participants in e-commerce must be able to learn quickly about new technologies and business models that continuously emerge in the market. Fifth, innovation is a key to competitiveness. Reliance on homogenous products or services cannot lead to long-term success in e-commerce. The most innovative elements or stages usually create the most added value from GVCs.

Governments will need to give priority to improving digital literacy. Many Emerging Asian countries lack digital literacy, and this negatively affects Internet penetration. Digital literacy is defined as the set of competencies required for full participation in a knowledge society; these include skills for effective use of digital devices such as smartphones, tablets, laptops and desktop PCs. Improving digital literacy could help boost digital awareness and prepare the population for engaging in e-commerce. Improved worker and management skills could help smaller firms to increase their participation in cross-border e-commerce and to join global value chains. In Asia, SMEs account for more than 95% of all enterprises and employ more than 80% of the workforce. E-commerce development and the expansion of GVCs and related services help SMEs get involved in GVCs and better benefit from globalisation. This helps SMEs access information, explore new markets and obtain financing, and enhances the links among suppliers, producers and consumers

Improvements can be made by including digital literacy courses in educational curricula, providing sufficient equipment such as computers to schools to implement these courses, and offering training to adults. The region's education lags behind that of developed countries. While the problem of education is not specific to e-commerce, rapid e-commerce growth and the desire to grasp development opportunities associated with economic digitalisation have spurred developing countries to accelerate improvements in education, which is supposed to be a long-term project. Reforms may be needed that target access to and quality of education.

Increasing students' access to computers will help develop needed skills. Of the eight jurisdictions in Emerging Asia included in the OECD's 2012 Programme for International Student Assessment (PISA) survey (OECD, 2015b), a majority of students had access to at least one home computer in all jurisdictions except Indonesia and Viet Nam; only 25.8% of students in Indonesia and 38.9% in Viet Nam had access to a home computer (Figure 2.11). All or nearly all students had access to a home computer in Hong Kong, China (100%); Macau, China (99.4%); Singapore (96.9%); and Shanghai, China (91.9%). The increase in home computer access from 2009 to 2012 was greatest in Malaysia (10.6%); Shanghai, China (10.2%); and Thailand (10.1%). Computers were relatively more available in schools in the three Chinese jurisdictions, Singapore and Thailand, all of which had 3.1 or fewer students sharing each computer; these numbers are below the OECD average of 4.7. In Viet Nam, there were 8.6 students per computer, while Indonesia had 16.4 and Malaysia 16.7. To be effective learning tools in the classroom and at home, computers need to be connected to the Internet and used in a way that complements and does not distract from learning.

Figure 2.11. Students with at least one computer at home, 2009-12



Note: Percentage change in 2009-12 is not available for Viet Nam.

Source: OECD (2015b), PISA 2012 Database, www.oecd.org/pisa/pisaproducts/pisa2012database-downloadabledata.htm.
StatLink  <https://doi.org/10.1787/888933799644>

Another aspect of the skills challenge concerns the free movement of skilled labour, which helps to diffuse knowledge. Labour mobility across countries in Emerging Asia faces barriers: the non-recognition of academic diplomas and professional certificates, the lack of information about labour market opportunities and domestic restrictions on work permission for foreigners.

Digital security and consumer protection

Governments will need to support e-commerce development by providing a more secure cyberspace. Cross-border e-commerce often involves buyers and sellers located in different countries, governed by different laws and regulations, and using different currencies and possibly different languages. Given the added complexity, it becomes more difficult to protect consumers' rights in cross-border e-commerce, compared with domestic e-commerce.

Countries will need to provide their consumer protection enforcement agencies with the authority to investigate, pursue, obtain and, where appropriate, share relevant information and evidence, particularly on matters relating to cross-border fraudulent and deceptive commercial practices. That authority should extend to co-operation with foreign consumer-protection enforcement agencies and other appropriate foreign counterparts (OECD, 2016).

In addition to regional co-operation, domestic legal support is also important. Many countries in Emerging Asia still have no national legislation to support cross-border e-commerce (ADBI, 2016); when disputes occur, the legal system has to rely on the existing law which may not be the most suitable. For example, in 2015 a consumer in China filed a lawsuit against a cross-border e-commerce company for not properly labelling the foreign product it was selling. The lawsuit was rejected because the court considered the relationship between the consumer and the e-commerce company as between client and proxy agent, instead of between buyer and seller. Under the current legal system in China, cross-border e-commerce companies do not bear any legal responsibility as sellers (SDAIC, 2017). If not addressed, the lack of legal protection will likely discourage consumers from making cross-border transactions and weaken their trust in cross-border e-commerce.

Last but not least, governments should increase information sharing about the risks associated with cross-border e-commerce by creating dedicated websites and establishing comprehensive databases so that both consumers and businesses can be informed about the challenges they face and prepare for them accordingly.

Regional and international co-operation

International co-operation is important across multiple policy areas related to e-commerce. Governments should harmonise regulatory frameworks to facilitate the development of cross-border e-commerce, as cross-border e-commerce development promotes the formation of global governance on digital trade. Rule setting in international information flow is one example. Information is the lifeblood of e-commerce, extensively affecting the economy, society and even national security. It may be challenging, however, to keep a balance between the free movement of information and data/privacy protection. While insufficient regulations will not be able to ensure market fairness and competition, excessive restriction – particularly when implemented for protectionist reasons – may negatively affect the free movement and accuracy of data. Effective solutions will help strengthen security and IPR protection, as well as contribute to trust and legislation, therefore promoting e-commerce in the long run.

Moreover, when e-commerce involves buyers and sellers in different countries, transactions are subjected to almost all issues that apply to other forms of trade. Accordingly, countries interested in promoting cross-border e-commerce should adopt policies in favour of globalisation and trade facilitation by removing tariff or non-tariff barriers and simplifying customs, inspection and taxation procedures, etc. Cross-border e-commerce often finds difficulties in customs clearance, exchange settlement and tax reimbursement, especially for small-volume trade flows. The World Economic Forum

estimates that lowering the supply-chain barriers, such as customs formalities, between countries would increase cross-border e-commerce by 60% to 80% (WEF, 2013).

Regulations on e-commerce will cover traditional trade issues (including tariffs and non-tariff measures, trade facilitation, and protection of IPRs) as well as new issues (including cross-border information flows, privacy protection, data localisation and source codes disclosure). Although many countries have agreed on trade facilitation issues, such as the acceptance of electronic authentication in commercial transactions and the use of customised electronic formats in paperless trade, it is not easy to reach an agreement on some other core issues about e-commerce. In principle, Emerging Asian countries will benefit from collaboration in the region-wide e-commerce enabling environment, such as the 2000 e-ASEAN Framework Agreement which outlined regional plans to develop the ICT sector, reduce the digital divide within and among member states, promote co-operation between the public and private sectors, and promote liberalisation of trade in relevant goods and services as well as investment. Thanks to the progress of regional integration, leaders can now discuss these issues at the ASEAN Economic Ministers' meetings, East Asian Summit, and ASEAN Plus One dialogues/meetings.

A range of policy areas related to e-commerce have been addressed at the regional level. For instance, an ASEAN Agreement on E-commerce is currently being discussed by ASEAN Member States and it is set to be finalised by the end of 2018. The Agreement aims to streamline regional trade rules governing e-commerce to promote greater digital connectivity and lower operating barriers to entry for businesses (MTI, 2018). The establishment of ASEAN Agreement on E-commerce is a key element of ASEAN Work Programme on Electronic Commerce (AWPEC) 2017-2025 based on AEC Blueprint 2025. Within the next decade, the AWPEC will facilitate cross-border e-commerce in ASEAN by raising multi-sectoral initiatives in the areas of infrastructure, education and technology competency, consumer protection, modernisation of the legal framework, security of electronic transactions, payment systems, trade facilitation, competition, and logistics (ASEAN, 2017).

Multilateral trade negotiation seems to provide an ideal platform for developing countries to participate in global rule-settings on e-commerce. However, partially because of the WTO stalemate, in reality most issues about e-commerce are addressed mainly in bilateral free-trade agreements and regional initiatives. For instance, the ASEAN-Australia Digital Trade Standards Initiative aims at developing and using international standards that will remove barriers and promote digital trade. In addition, progress in multilateral trade negotiations can hardly catch up with the rapid growth of e-commerce. The so-called 21st century free-trade agreements (FTAs containing WTO-plus and WTO-extra provisions) tend to be pilots in new rule-making. Emerging Asian countries are among the world's most populous and fastest-growing market for e-commerce, and they should remain active in the new rule-making. Moreover, by first harmonising the region's e-commerce-related regulations, countries in the region can act as a group to ensure its voice on global rule settings on e-commerce governance is heard.

Cross-border e-commerce is one of the major development trends of international trade and globalisation. The development of e-commerce provides new opportunities to help Emerging Asian countries reduce poverty, narrow inequality and avoid the middle-income trap. Emerging Asian countries have advantages from their capacities in technology adoption and incremental innovation. However, to better grasp the opportunities for growth, they need to make progress in connectivity, skills development, rules and regulations and other areas.

Notes

1. By definition, knowledge-intensive jobs include the following ISCO-08 categories: 1) managers; 2) professionals; and 3) technicians and associate professionals.
2. Here the aggregate data of ASEAN does not include Lao PDR and Myanmar because of the lack of data for these two countries.
3. In 1998, the WTO Ministerial Conference adopted the Declaration on Global Electronic Commerce aiming to establish a comprehensive work programme to examine all trade-related issues concerning global electronic commerce, but there was no substantive progress afterward.

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