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Singapore | 21 April 2021

Assessing Digital Economy Policies in Six Southeast Asian Countries

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Digital adoption has been accelerated because of the COVID-19 pandemic; in 2020, 40 million people in the six largest ASEAN digital economies went online for the first time, pushing the online population of the region up to 70%. In this picture, a Grab food delivery bicycle parked along the pavement at Raffles Place in Singapore on September 15, 2020, delivering food that was ordered through its e-commerce app.

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EXECUTIVE SUMMARY

- The various digital economy policies across Southeast Asian countries can be evaluated and benchmarked on six main components – connectivity, digital literacy and skills, privacy and cybersecurity regulations, transformation, creation and regional collaboration.
- The six countries analysed each have policies covering these components but they vary in policy focus. More developed digital economies such as Malaysia and Singapore focus on the retraining, reskilling and provision of relevant equipment. Less developed digital economies like Indonesia and the Philippines primarily focus on infrastructure development.
- Each has enacted some form of Personal Data Protection Act (PDPA) and cybersecurity law. However, Vietnam and Indonesia do not have dedicated PDPAs while Indonesia and Malaysia do not have dedicated cybersecurity laws. Enacting such laws will help to close potential loopholes.
- Policies to help industries transform digitally are present in all countries with a strong focus on e-commerce adoption. All have overarching plans, five of which include digitalisation strategies for key industries.
- Efforts to encourage entrepreneurship as a career have had little impact on society's acceptance of entrepreneurs and entrepreneurship. Malaysia achieved the highest score of 41.5 (34th) in Southeast Asia in the Global Entrepreneurship sub-index for attitudes.
- International digital economy collaboration also appears to be lacking with most countries having ASEAN agreements as their only form of collaboration.

INTRODUCTION

The prevalence of the Internet and of high-speed computing capabilities has resulted in a new form of economy: the digital economy.¹ The digital economy revolution in ASEAN has been marked by impressive growth rates. Google estimated that the value of the Southeast Asian (SEA) internet economy grew by a whopping 40% from 2018 to 2019, recording an average of 33% compound average growth rate (CAGR) (Google et al., 2019a). Southeast Asians are also among the most active mobile internet users in the world (Google et al., 2019a).

Digital adoption has been accelerated because of the COVID-19 pandemic; in 2020, 40 million people in the six largest ASEAN digital economies went online for the first time, pushing the online population of the region up to 70% (Google et al., 2020). Currently, the internet economy stands strong at USD \$100 billion gross merchandise value, and is projected to hit over \$300 billion by 2025 (Google et al., 2020).

The future prospect of the digital economy in this region is highly dependent on the policies enacted by the government, and there is fear that poor planning and weak implementation of policies will impede its development. In this article six selected ASEAN countries, namely Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam,² are benchmarked against certain critical aspects in digital economy policymaking.³

FRAMEWORK FOR ASSESSMENT

Given the myriad of policies implemented to develop the digital economy, a common framework is essential to ease comparison between countries. Several frameworks such as the framework by Digital Economy for Africa Initiative (D4EA) (World Bank, 2020a) and the Connect, Harness, Innovate and Protect (CHIP) framework (World Bank, 2020b) have been introduced by the World Bank. Reviewing these frameworks and studying policies implemented by countries reveal a few common elements. These are summarised in Table 1.

Policies implemented should cover six vital components, but depending on their stage of development, countries may differ in their priority areas. The first three (connectivity; digital skills and literacy; and privacy and cybersecurity regulations) are highly related to the digitalisation penetration rate and should be prioritised by countries just beginning to enter the digital economy. The following three (transformation; creation; and regional collaboration) are important for countries that have achieved some success in the first three components.

Table 1: Digital Economy Framework

Component		Sub-components
1	Connectivity	Broadband Infrastructure Internet Device ownership Broadband affordability
2	Digital Literacy and Skills	Digital Literacy Digital Skills
3	Privacy and Cybersecurity Regulations	Personal Data Protection Act (PDPA) Cybersecurity Laws
4	Transformation	Digital transformation of businesses E-government
5	Creation	Ease of doing business Innovation Local Entrepreneurship and Innovative culture
6	Collaboration	Bilateral Agreements Trade Agreements Regional partnerships

Source: Author's collation from D4EA, CHIP and review of implemented policies

Connectivity

To access the digital economy, one needs an internet-enabled device and broadband connectivity. Smartphones are by far the cheapest and most readily available internet access point for many. However, smartphone ownership is highly correlated to income (ITU, 2019); developed nations have higher smartphone penetration rates (Deloitte, 2017). While fixed broadband and mobile broadband appear to have identical functions of enabling internet connectivity, the former carries much more traffic and offers higher speed and reliability than the latter (OECD, 2015), making it indispensable for the adoption of digital solutions and for transformations to smart cities⁴.

Digital Literacy and Skills

Many incorrectly assume that the tech-savvy younger population are digitally literate. However, digital literacy includes not only the ability to gather and create, but to *evaluate* content on digital platforms. Thus, a more nuanced assessment of digital literacy needs to be considered. As digital technology improves and the adoption rate increases, the redundancy rate of unskilled workers rises as the demand for skilled workers increases. Other than encouraging continuous reskilling and training within the workforce, relevant preparations are also required for the next generation to meet the future needs of the economy.

Privacy and Cybersecurity Regulations

As with physical and financial assets, the key asset of the digital economy, namely data, needs to be regulated to avoid misuse. Other than implementing legal regulations, active enforcement and surveillance by government personnel are also required to ensure adherence and deterrence.

Transformation

Digital transformation of organisations aims to optimise operations through increasing convenience, efficiency and productivity of processes through the use of digital technology. The two main groups that require transformation are businesses and government agencies. For businesses, the digitalisation journey can be categorised into three stages: basic, intermediate, and advanced (See Table 2 for details).⁵

Companies in the basic stage have adopted the use of computers for basic functions, and most of their sales are conducted offline. As they progress through the stages, companies use computers and the internet for more advanced functions and most of their sales go online. A major hindrance to digitalisation adoption is the high outlay needed to acquire the relevant infrastructure as well as the retraining of staff and hiring of skilled workers. This step can often be crippling for micro, small and medium sized firms (MSMEs).

Table 2: Digitalisation Journey Stages and Characteristics

Stage	Characteristics
Basic	Internet usage Computer usage Web presence Almost all sales done offline
Intermediate	Use of E-payments E-commerce participation Some level of data analytics used Offline sales still take up the majority
Advanced	Use of Internet of Things (IoT) Use of Artificial Intelligence (AI) Use of software as a service (SaaS)/cloud-based services High usage of data analytics Majority of sales conducted online

Source: Author’s collation from (Tan & Ng, 2019) and (Deloitte, 2019)

The digitalisation of government, also known as e-government, has been traditionally defined as ‘the use of ICTs to improve the efficiency of government agencies and providing government services online’.⁶ It embodies the idea of creating a “one-stop shop” (UN, 2018) and increases the convenience for users. Over the years, the definition has expanded to include citizen (G2C), business (G2B) and inter-agency (G2G) interactions, open government data and using ICT to enable innovation.⁷ Some examples of the various government-to-entity interactions are summarised in Table 3.

Table 3: Examples of Government to Entity Interactions

Interaction	Examples
Government to Consumer (G2C)	National Digital Identity eTax filing Online voting Digital health records
Government to Business (G2B)	Government contracting eTax filing Business registration
Government to government (G2G)	Intranet sites Cross-agency interactions

Source: Author

Creation

Firms have created a plethora of novel goods and services with the advent of the internet, ranging from sharing platforms to online content. These not only benefit consumers by providing a greater spectrum of goods and services but have also expanded the digital economy and created high value-added jobs. To foster the creation of such tech start-ups, the business environment of the country needs to be conducive for start-ups. Such policies would also attract foreign start-ups and firms, talents and investors which would create even more jobs and also transfer valuable skillsets to locals. In order to have a steady pipeline of local entrepreneurs in the country, an innovation and entrepreneurship culture should be promoted, especially among students. E-commerce⁸ platforms and digital financial services are two prominent sectors amongst the nascent businesses. With the growth trajectory of these two sectors expected to be nothing short of exponential⁹, they are a stronghold in the digital economy. To fully reap the benefits, governments need specific policies to develop these sectors.

Bilateral and Regional Collaboration

Collaboration across countries in the region should be encouraged to maximise opportunities and economies of scale. This may take the form of interoperability of finance and payment platforms, collaboration of companies in the digital economy, the sharing of digital economy governance frameworks, or be in the form of digital economy partnership agreements such as the Singapore-Chile Digital Economy Partnership Agreement (DEPA) between and the New Zealand-Singapore-Australia Digital Economy Agreement (SADEA).

DIGITAL ECONOMY POLICIES IN ASEAN COUNTRIES

ASEAN countries have been implementing various policies in the hope of fully maximising benefits from the digital economy. Appendix Table 1 provides a summary and a non-exhaustive list of policies that have been adopted.

ASEAN – Different Stages of Development

Generally, digital economy policies in the six ASEAN economies cover all areas of the digital economy framework (Table 1). Given that these countries are at different stages of digital economy development, they vary in the extent of their policy coverage, intensity and

implementation. More developed digital economies such as Malaysia and Singapore appear to focus more on the provision of relevant tools and skills for firms, while countries such as Indonesia and the Philippines are more focused on the provision of infrastructure for connectivity.

Internet Device Ownership

Smartphone prices have been steadily dropping but upfront costs remain a major barrier to smartphone ownership (GSMA & Dalberg, 2017). Thus, the Singaporean, Malaysian and Vietnamese governments have implemented smartphone subsidies for low-income or senior citizens to increase smartphone adoption rates¹⁰. Indonesia and the Philippines seem to be lacking in such government-led initiatives.

Broadband Connectivity

Mobile broadband subscription rates are high in these six countries, but most have low fixed-broadband subscription rates¹¹. Potential factors affecting fixed-broadband subscription rates include digital infrastructure, which affects internet speeds and geographical coverage, and affordability of the service. Vietnam, Thailand, The Philippines and Indonesia's governments have been investing significantly in developing their digital infrastructure to support greater connectivity with projects such as the Net Pracharat Project (Thailand), National Broadband Plan (Philippines) and Palapa Ring (Indonesia). Other than the provision of free Wi-Fi in public spaces, Vietnam, Indonesia and The Philippines do not have any government-led initiatives to improve the affordability of broadband subscriptions. On the other hand, countries like Singapore, and Thailand have implemented broadband subscription subsidies for the low-income or elderly population. Malaysia does not lack investment in infrastructure. However, market structure-related issues in its fixed broadband market have adversely impacted not only the price of the service, but fixed broadband deployment, internet speed and quality. Although the Malaysian government has already introduced Mandatory Standard on Access Pricing (MSAP) to address the affordability issue, greater reforms to encourage competition need to be adopted in this sector to rectify other issues faced by Malaysians.

Digital Literacy and Skills

For almost all the countries, there are government policies and programmes in place to foster digital literacy amongst the young and working population such as incorporating it into education curriculums, providing additional training for workers or public education for the general population. However, apart from Singapore and Thailand¹², the elderly population appears to be neglected in this regard. On the other hand, all the governments are working towards retraining the current workforce and building human capital relevant to the future demands of the workforce by introducing or subsidising digital skills training, providing free online courses, and encouraging higher education in related subjects.

Personal Data Protection and Cybersecurity Acts

While all the countries have some form of personal data protection regulation, unlike the other countries that have introduced dedicated Personal Data Protection Acts (PDPA), Vietnam and Indonesia have no single privacy law but still recognises the right to personal privacy through other regulations. The same situation applies to Indonesia's and Malaysia's cybersecurity laws; there is no dedicated law passed. Although existing laws may help protect citizens against cyber

risks and personal data transgressions, the introduction of an “umbrella law” will help to close potential loopholes and ensure relevance in this fast-paced world.

National Digitalisation Strategies

Governments in these countries have been actively encouraging digital transformation in the workplace through digitalisation strategies, subsidies for digital skills training and the purchase of relevant infrastructure. In particular, there seems to be significant emphasis on encouraging companies to adopt e-commerce¹³. Thailand, Vietnam, Indonesia, Malaysia and Singapore have an overarching model with some digitalisation strategies for key industries¹⁴ which is unlike the case for The Philippines¹⁵ which seems to have an overarching policy, but no industry-specific strategy. There is no right way to administer policy as each country has its own characteristics and capacities, but governments should decide on the method that enables them to reap the greatest benefits given their existing resources. At the same time, all the countries have adopted policies that digitalise governments and promote e-government initiatives. Of the six, Singapore emerges with the highest Digital Adoption Index for government (World Bank, 2016a).¹⁶

Creation and Entrepreneurship

To promote local tech start-ups and to attract foreign tech start-ups to setup base in their countries, all countries appear to have adopted a comprehensive range of policies that include tax incentives, grants and subsidies, incubation programmes and relevant skill training. However, what differentiates them are other characteristics that are not directly addressed by start-up related policies. For example, Vietnam’s high corruption rate is seen as the most impactful obstacle for business operations and has a significant negative relationship to business environment satisfaction.(Maruichi & Abe, 2019).

Initiatives and policies that foster entrepreneurship culture have been implemented in all the countries to encourage local start-ups. However, the effectiveness of these activities appears to be quite limited. According to the Global Entrepreneurship sub-index for attitudes¹⁷, Malaysia scored the highest amongst the six with a score of 41.5, the 34th position globally. This is however a far cry from Hong Kong that scored 68.4 at the 10th position. Given that acceptance of entrepreneurship as a career path requires a significant paradigm shift, it is entirely possible that these policies simply require more time for their impact to be actualised.

Regional Collaboration

Except for Singapore, regional collaboration with regards to the digital economy appears to be lacking. Singapore has digital economy partnership agreements such as the Singapore-Chile-New Zealand and Singapore-Australia agreements while the other countries appear to only collaborate within the region through ASEAN agreements. Examples include the ASEAN ICT Masterplan 2020, ASEAN framework on PDPA and ASEAN agreement on Electronic Commerce. Although there are many ASEAN agreements, most of them are non-legally binding. A possible move forward is for ASEAN to put greater emphasis on the implementation of future digital economy related agreements to foster stronger collaborative ties.

Another important area of collaboration is the cross-border transfer of data within the region. However, countries have been imposing ‘data localisation rules’ and citing reasons such as international variations in PDPA stringency and quality of infrastructure as justifications for

imposing ‘data localisation rules’. Such requirements have been shown to have significant negative economic impact (Bauer et al., 2014). To circumvent this, countries may recognise APEC’s Cross-Border Privacy Rule (CBPR) certification as a legitimate transfer mechanism in their constitution or in trade agreements. Of the six countries, only the Philippines and Singapore are CBPR participants. Alternatively, trade agreements may explicitly allow cross-border data flow amongst members. An example is the recent Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) which has a clause specifying this.

CONCLUSION

The rapid growth in the digital economy has helped countries grow their economy and improved public welfare. It is crucial that countries adopt comprehensive and relevant policies to ride the digitalisation wave. The proposed policy framework guides and highlights areas in the digital economy which policymakers should pay attention to.

The six main digital economies of ASEAN generally have policies covering the aspects of the framework proposed. However, there appears to be a lack of regional collaboration efforts across the countries. To rectify this, ASEAN could lead by setting up agreements with specific countries for collaboration. In addition, the degree of coverage and specificity of their plans and strategies vary across the countries, which would affect the development rates of their digital economies. All in all, countries should look closely at their current state-of-play and their available resources and implement relevant policies for their digital economy to take off.

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Appendix Table 1: Examples of Digital Economy Policies in the Six Economies

	Indonesia	Malaysia	Philippines
Connectivity	Broadband Infrastructure: <ul style="list-style-type: none"> - Palapa Ring project - Making Indonesia 4.0 - E-commerce roadmap Internet Device ownership: <ul style="list-style-type: none"> - Non-government agency intervention e.g. Mozilla Foundation, Ruma Broadband Affordability: <ul style="list-style-type: none"> - No initiatives found¹⁸ 	Broadband Infrastructure: <ul style="list-style-type: none"> - Jalanan Digital Negara Internet Device ownership: <ul style="list-style-type: none"> - 1 Million Netbook Initiative to distribute notebooks to poor students nationwide - Income-based smartphone subsidies Broadband affordability: <ul style="list-style-type: none"> - Mandatory Standard on Access Pricing (MSAP) which regulates the prices 	Broadband Infrastructure: <ul style="list-style-type: none"> - National Broadband Roadmap Internet Device ownership: <ul style="list-style-type: none"> - No initiatives found Broadband Affordability: <ul style="list-style-type: none"> - No initiatives found
	Singapore	Thailand	Vietnam
	Broadband Infrastructure: <ul style="list-style-type: none"> - Plans to have 5G capabilities by 2025 - Investment into infrastructure through Digital Economy Framework for Action Internet Device ownership: <ul style="list-style-type: none"> - Mobile access for seniors - NEU PC Plus for low-income households Broadband Affordability: <ul style="list-style-type: none"> - Home Access Programme - Mobile access for seniors 	Broadband Infrastructure: <ul style="list-style-type: none"> - Pracharat net project - Digital Thailand Infrastructure Fund Internet Device ownership: <ul style="list-style-type: none"> - No initiatives found Broadband Affordability: <ul style="list-style-type: none"> - National Broadcasting and Telecommunication Commission (NBTC) subsidises broadband for border villages 	Broadband Infrastructure: <ul style="list-style-type: none"> - Piloting and investing heavily in 5G mobile network Internet Device ownership: <ul style="list-style-type: none"> - Vietnam to universalise cheap smartphones Broadband Affordability: <ul style="list-style-type: none"> - No initiatives found

	Indonesia	Malaysia	Philippines
Transformation	Digital Transformation of Businesses: <ul style="list-style-type: none"> - Making Indonesia 4.0 - Go Digital Vision 2020 - IKM E-smart program E-government: <ul style="list-style-type: none"> - Pemerintahan Digital Melayani (Digitised Service Government) 	Digital Transformation of Businesses: <ul style="list-style-type: none"> - SMART automation grant - SME business digitalisation grant - MDEC 100 go digital - Go-ecommerce E-government: <ul style="list-style-type: none"> e-Government National Strategy 	Digital Transformation of Businesses: <ul style="list-style-type: none"> - MSME assistance through SETUP - Philippine e-commerce roadmap 2016-2020 E-government: <ul style="list-style-type: none"> - The Philippine Digital Strategy - Philippine eGovernment Interoperability Framework (PeGIF)
	Singapore	Thailand	Vietnam
	Digital Transformation of Businesses: <ul style="list-style-type: none"> - Industry Digital Plans - SME Go digital - SME digital tech hub - Shared e-commerce platform E-government: <ul style="list-style-type: none"> eGov Masterplan 	Digital Transformation of Businesses: <ul style="list-style-type: none"> - Digital Government Development Plan Strategy 2: Enhancing the Capacity of the Business Sector's Competitiveness - Thailand 4.0 Model - E-commerce Development Plan E-government: <ul style="list-style-type: none"> - Digital Government Plan 2017 – 2021 Strategy 4: Improving Government Efficiency Digital Economy and Society Development Plan: E-government 	Digital Transformation of Businesses: <ul style="list-style-type: none"> - National digital transformation programme - National e-commerce development E-government: <ul style="list-style-type: none"> - Key tasks, solutions to e-Government development (Resolution No.17/NQ-CP) - National programme on IT application in the operations of state agencies during 2016 – 2020 (Resolution No. 26 / NQ-CP dated 15/04/2015 of the government) E-Cabinet system

	Indonesia	Malaysia	Philippines
Creation	<p>Ease of Doing Business:</p> <ul style="list-style-type: none"> - Tax incentives for start-ups - Badan Koordinasi Penanaman Modal (BKPM) - Start-up Incubator Programme <p>Innovation:</p> <ul style="list-style-type: none"> - Bank of Indonesia's Regulatory Sandbox - Research and Innovation in Science and Technology Project (Riset Pro) - Setting up Science and Techno Parks (STPs) - Indonesia Innovation Start-up <p>Local entrepreneurship promotion:</p> <ul style="list-style-type: none"> - Community Entrepreneurship Program (PKM) - Entrepreneurship Movement (GKN) (Non-government led) 	<p>Ease of Doing Business:</p> <ul style="list-style-type: none"> - Digital Hub Malaysia Initiatives - Malaysia Tech Entrepreneur Program (MTEP) - Global Acceleration and Innovation Network (GAIN) Program <p>Innovation:</p> <ul style="list-style-type: none"> - Malaysian Global Innovation and Creativity Centre (MaGIC) - R&D subsidies by Ministry of Science, Technology and Innovation (MOSTI) - R&D investment incentives by Malaysian Investment Development Authority <p>Local entrepreneurship promotion:</p> <p>National Entrepreneurship Policy 2030 Strategic Thrust Fostering entrepreneurship culture across all segments Malaysian society - support by two strategies and initiatives</p>	<p>Ease of Doing business:</p> <ul style="list-style-type: none"> - Philippines Business Act: Tax incentive under Start-up Business act - Innovative Start-up Act <p>Innovation</p> <ul style="list-style-type: none"> - Philippine Innovation Act <p>Local entrepreneurship promotion</p> <ul style="list-style-type: none"> - Entrepreneurship programme introduced into school curriculum

	Singapore	Thailand	Vietnam
Creation	<p>Ease of Doing Business:</p> <ul style="list-style-type: none"> - StartupSG suite of support and policies - LaunchPad <p>Innovation:</p> <ul style="list-style-type: none"> - Global Innovation Alliance (GIA) - Centres of Innovation (COI) - Action Community for Entrepreneurship (ACE) <p>Local entrepreneurship promotion:</p> <ul style="list-style-type: none"> - SG Youth Action Plan - Action Community for Entrepreneurship (ACE) collaboration with Institutes of Higher Learning (IHLs) - 	<p>Ease of Doing Business:</p> <ul style="list-style-type: none"> - Tax incentives for software development and digital services companies - True digital Park Thailand cyberport - DEPA digital start-up fund - Startup Act <p>Innovation:</p> <ul style="list-style-type: none"> - Open innovation funding mechanism - MINDCREDIT <p>Local entrepreneurship promotion:</p> <ul style="list-style-type: none"> - Youth start-up fund - GEN Thailand (non-government initiative) 	<p>Ease of Doing Business:</p> <ul style="list-style-type: none"> - Tax incentives for start-ups - SpeedUP <p>Innovation:</p> <ul style="list-style-type: none"> - National Technology Innovation Fund - National Innovation Centre <p>Local entrepreneurship promotion:</p> <ul style="list-style-type: none"> - Program 1665 on supporting students' start-ups (2017 – 2025) - Program 939 on supporting womens' start-ups - Vietnam Online start-up Forum

	Indonesia	Malaysia	Philippines
Digital Literacy and Skills	Digital Literacy: <ul style="list-style-type: none"> - Community-run programmes - Creative Cyber Movement (SiberKreasi) - Digital Skills: <ul style="list-style-type: none"> - Provision of vocational training¹⁹ - Encouraging local universities to establish a Digital Economy Study Program²⁰ 	Digital Literacy: <ul style="list-style-type: none"> - MDEC My Digital Maker Digital Skills: <ul style="list-style-type: none"> - Industry Skills Framework for Digital Technology - Digital Skills Training Directo 	Digital Literacy <ul style="list-style-type: none"> - Incorporated into education curriculum - Tech4Ed - DigiBayanihan (Community-led) Digital Skills: <ul style="list-style-type: none"> - Tech4ED
	Singapore	Thailand	Vietnam
	Digital Literacy: <ul style="list-style-type: none"> - National Digital Literacy Programme for students - Basic Digital skills course - Virtual Digital Clinics - Tech Connect - Silver Infocomm Junctions - Code @ SG Digital skills: <ul style="list-style-type: none"> - SkillsFuture - National Digital Literacy Programme for students - Code @ SG 	Digital literacy: <ul style="list-style-type: none"> - Net Pracharat course - Sustainable Thainess - Digital Economy and Society Plan emphasises the need to enhance digital literacy of elderly population Digital skills: <ul style="list-style-type: none"> - Provision of online vocational training 	Digital Literacy: <ul style="list-style-type: none"> - IT is incorporated into the education curriculum from primary up to high school Digital Skills: <ul style="list-style-type: none"> - Human resource development as part of Resolution 52

	Indonesia	Malaysia	Philippines
Privacy and Cybersecurity Regulations	<p>PDPA:</p> <ul style="list-style-type: none"> - Electronic Information and Transaction Law in effect from 2008 <p>Cybersecurity:</p> <ul style="list-style-type: none"> - Law has been proposed but not enacted yet - Establishment of Indonesia’s State Cyber and Crypto Agency (BSSN) 	<p>PDPA:</p> <ul style="list-style-type: none"> - Establishment of Personal Data Protection Department - Bill passed for PDPA 2010 <p>Cybersecurity:</p> <ul style="list-style-type: none"> - No single piece of legislation. Regulation is currently scattered across various laws - Establishment of National Cyber Security Agency (NACSA) - National Cybersecurity Policy 	<p>PDPA:</p> <ul style="list-style-type: none"> - PDPA law passed in 2012 <p>Cybersecurity:</p> <ul style="list-style-type: none"> - Cybercrime Prevention Act approved in 2012 - National Cybersecurity Plan 2022
	Singapore	Thailand	Vietnam
	<p>PDPA:</p> <ul style="list-style-type: none"> - Law enacted since 2012 <p>Cybersecurity:</p> <ul style="list-style-type: none"> - Cybersecurity act passed in 2018 - Establishment of Cybersecurity Singapore Agency - PDPA enacted from 2012 - 	<p>PDPA:</p> <ul style="list-style-type: none"> - PDPA laws in force in 2019 - Establishment of the Personal Data Protection Committee <p>Cybersecurity:</p> <ul style="list-style-type: none"> - Cybersecurity act enacted in 2019 	<p>PDPA:</p> <ul style="list-style-type: none"> - No single piece of legislation. Constitution recognises the right to personal privacy - Draft decree on personal data protection act in 2020 <p>Cybersecurity:</p> <ul style="list-style-type: none"> - Cybersecurity law in effect since 2019

Source: Author’s summary of various initiatives

¹ There is no consistent definition of the digital economy across international organisations and countries, due to its dynamic and novel nature (UNCTAD, 2019). However, all existing definitions recognise that the digital economy involves the production of goods and services with digital technologies, such as digital products or activities as factors of production or output. The definition of the digital economy used here involves the production of goods and services with digital technologies.

² The six countries are selected based on their high growth rates of e-commerce. Indonesia and Vietnam are leading the rest with growth rates of more than 40% annually, while Malaysia, Thailand Singapore and Philippines are steadily growing at 20 to 30% (Google et al., 2019a).

³ For more on the digitalisation movement in ASEAN, ASEAN Focus recently published an issue focusing on Digitalisation in ASEAN. See <https://www.iseas.edu.sg/wp-content/uploads/2020/12/ASEANFocus-December-2020.pdf>

⁴ “Fixed Broadband Industry Report 2020 – Fixed Broadband Development Becomes Important for 5G” from <https://www.globenewswire.com/news-release/2020/02/06/1980852/0/en/Fixed-Broadband-Industry-Report-2020-Fixed-Broadband-Development-Becomes-Important-for-5G.html#:~:text=It%20is%20well%20recognized%20that,the%20backbone%20for%205G%20infrastructure>. Assessed on 20 January 2021

⁵ Adopted from (Tan & Ng, 2019) and (Deloitte, 2019)

⁶ “E-government” from <https://publicadministration.un.org/egovkb/en-us/about/unegovdd-framework>. Assessed on 20 January 2021

⁷ “E-government” from <https://publicadministration.un.org/egovkb/en-us/about/unegovdd-framework>. Assessed on 20 January 2021

⁸ Lurong Chen and Lydia Ruddy at ERIA have proposed a policy framework for digital connectivity to support the development of e-commerce in ASEAN. The article can be accessed from: <https://www.eria.org/uploads/media/policy-brief/Improving-Digital-Connectivity-Policy-Priority-for-ASEAN-Digital.pdf>

⁹ E-commerce has had a 62% compound annual growth rate (CAGR) from 2015 to 2018 (Google et al., 2019a) while digital finance is expected to grow by more than 20% annually through 2025 (Google et al., 2019b)

¹⁰ Singapore has the programmes ‘Mobile Access for Seniors’ and ‘NEU PC Plus’. Malaysia had the ‘Youth Communication Package’ in 2013 and an income-based smartphone subsidy. Vietnam intends to have a universal smartphone programme to increase smartphone adoption rates. See “Vietnam to Universalise Cheap Smartphones to Boost e-Government” from <http://hanoitimes.vn/vietnam-to-universalize-cheap-smartphones-to-entire-population-311236.html#:~:text=Vietnam%20will%20have%20a%20universal,achieving%20smartphone%20penetration%20of%20100%25.&text=Smartphones%20will%20be%20made%20affordable,will%20have%2010%20basic%20apps>. Assessed 28 January 2021.

¹¹ Singapore is the only country out of the six which has high fixed-broadband connectivity.

¹² Singapore’s ‘Seniors Go Digital’ and Thailand’s digital skills training as part of the Thailand Digital Economy and Society Development Plan.

¹³ Malaysia’s Go-e-commerce, Indonesia’s IKM e-smart program, Vietnam’s national e-commerce development, Philippine’s e-commerce roadmap.

¹⁴ Thailand: Thailand Digital Government Development Plan (2017-2021) that covers several broad industries. Vietnam: National Digital Transformation Roadmap 2025 (Decision 749/QD-TTg 2020). Singapore: Industry Digital plans. Indonesia: Making Indonesia 4.0 focus sector aspirations. Malaysia: The Malaysia Digital Economy Blueprint 2021

¹⁵ Philippines: MSME support through SETUP

¹⁶ The Digital Adoption Index (DAI) for government is the average of three other sub-indices which measures core administrative systems, online public services and digital identification (World Bank, 2016b)

¹⁷ The entrepreneurial attitude sub-index measures the “general attitude of a country’s population towards recognising opportunities, knowing entrepreneurs personally, attaching high status to entrepreneurs, accepting the risks associated with a business start-up, and having the skills to successfully launch businesses”. (Szerb et al., 2020)

¹⁸ Recently the Indonesian government began providing internet subsidies to students and teachers for online classes because of the impact of the COVID-19 pandemic. Prior to the pandemic, no government initiatives were found to promote broadband affordability. See ‘Ministry provides Rp7.2 trillion in phone credit, data packages to support distance learning’ from <https://www.thejakartapost.com/news/2020/08/27/ministry-provides-rp-7-2-trillion-in-phone-credit-data-packages-to-support-distance-learning.html>. Accessed 4 February 2021.

¹⁹ See “Kembangkan Ekosistem Digital untuk Mitigasi Risiko Disrupsi” from <https://www.kominfo.go.id/content/detail/20944/kembangkan-ekosistem-digital-untuk-mitigasi-risiko-disrupsi/0/berita>. Accessed on 4 February 2021.

²⁰ See “Indonesia’s Initiatives to Meet Human Resources Requirements” from <https://opengovasia.com/indonesias-initiatives-to-meet-human-resources-requirement/>. Accessed on 4 February 2021.

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