



Introduction

Digital Government in ASEAN Digital Transformation

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1. Background

The use of digital technologies and digital-enabled solutions in socio-economic activities is driving the world to be better connected than ever before, especially when data are penetrating all aspects of people's lives. As digital tools and new services have emerged in an endless stream – leading to profound changes in the way we work, live, and experience leisure and entertainment – digital government is beginning to increase the efficiency of online public services and administration. More importantly, it is accelerating the adoption of information and communication technologies (ICTs) in providing public services to its citizens and businesses and thus facilitating their interaction with stakeholders and involvement in decision-making. Digital government should be seen as not only a compulsory component of digital transformation, but also one of the factors that can determine its direction and the pace of progress. It consists of multilayer interactions and transactions, including government-to-people (G2P), government-to-business (G2B), and government-to-government (G2G) initiatives.

Digitalisation in the domain of the public sector tends to transform citizens' conceptions of civil and political interactions with their governments. Providing effective access to large collections of public information for citizens and officials, and making them usable by a large community of users, can generate significant economic and social benefits despite the associated technical and regulatory challenges. As Singapore's Digital Government Blueprint states 'A Digital Government will be able to build stakeholder-centric services that cater to citizens' and businesses' needs' (Government Technology Agency, n.d.-a). It will upskill government workers and improve the efficiency of their work by accelerating digital adoption in public services.

The coronavirus disease (COVID-19) pandemic has accelerated the digitisation of government services and brought digital inclusion to the fore as digital services become increasingly important for full engagement with society (ASEAN, 2021b). During the COVID-19 pandemic, COVID-19 mobile apps permitted people to continue their activities outside the home by allowing the government to perform digital contact tracing. Amidst government restrictions on social distancing, e-commerce, e-payment, e-learning, and teleconferences provided alternatives to direct face-to-face contact and empowered people to maintain economic and social operations. The success story of such apps in bringing COVID-19 under control shows how digital adoption in public administration can formalise the state–citizen partnership and facilitate people's participation in social and economic activities in the digital age.

In the strict sense, the concept of digital government has wider connotations and higher requirements on data, from both the public and private sides, than e-government's focus on increasing transparency and establishing ICT-enabled procedures in public services.¹ Digital government emphasises open and user-driven approaches and operational transformation, which extends beyond e-government's efforts at increasing transparency and establishing ICT-enabled procedures in public services. The advancement of digital government and that of a digital economy can mutually enhance each other.

¹ e-Government refers to access to large collections of public information for individuals, firms, and government officials; and making them usable by a large community of users.

While the former can drive enablers to shape a digital society, the latter can build industry capability and generate new market drivers to support the digitalisation of government service delivery (Smart Nation and Digital Government Office, 2018: 10).

In the context of this book, the two concepts are used interchangeably. Both refer to digitalisation that aims to optimise public services according to socio-economic needs by enabling/facilitating access to large amounts of well-managed data.

2. ASEAN's Progress in Developing Digital Government

In the Association of Southeast Asian Nations (ASEAN), digital government has been a new frontier for regional cooperation. On the one hand, e-participation helps increase awareness of policies and regulations and facilitate their implementation and enforcement. On the other hand, prompt feedback from the wider public helps policymakers take decisions and action more quickly in response to public needs. The consequent improvement in public services could increase the efficiency of regional supply chains and make the region more competitive in the global market.

ASEAN Member States (AMS) have included digital government in their national digitalisation strategies, motivated by policy imperative to accelerate digital adoption in the public sector as well as strategic ambitions to create digital-enabled, user-driven public online services for supporting the digital economy. The ASEAN Digital Masterplan 2025 points out that 'Digitalisation can significantly improve government services and make government departments more productive. ASEAN should therefore create best practice guidance on the digital transformation of internal government functions and data handling...' (ASEAN, 2021b: 86).

Actions have been taken on digital transformation at both the national and regional levels. The regional policy response can be traced back to 2000 when ASEAN leaders initiated the e-ASEAN project and signed the e-ASEAN Framework Agreement, aiming to promote a productive ASEAN 'e-space' by (i) enhancing the ICT sector's competitiveness, (ii) reducing the digital divide within and amongst AMS, (iii) promoting partnership between the public and private sectors, and (iv) undertaking trade and investment liberalisation in ICT goods and services (ASEAN, 2000: 3). e-Government and e-society are amongst the six main areas² covered by the agreement. The importance of the E-ASEAN Framework Agreement was underscored by ASEAN Telecommunications Ministers during the First ASEAN Telecommunications and IT Ministers Meeting (TELMIN) held in 2001.³

² The framework covers (i) ASEAN information infrastructure, (ii) e-commerce, (iii) trade and investment liberalisation in ICT goods and services, (iv) trade facilitation in ICT products, (v) e-society, and (vi) e-government.

³ The Ministers acknowledged that e-ASEAN can effectively promote economic growth, social development, and better governance; enhance access to information and news; enlarge employment opportunities; increase economic output; provide more efficient access to a range of governmental services; make distance education and training more effective; and improve the delivery of health services, including the application of telemedicine, amongst others (ASEAN, 2021c).

TELMIN was established as the main body for advancing ASEAN cooperation in the telecommunications and IT sectors in the region. Since 2001, ASEAN Ministers have held annual meetings to discuss the ICT development strategy in the region. In 2011, the 10th TELMIN adopted The ASEAN ICT Masterplan 2015 (AIM2015) to chart the development of ICT in the region. Under AIM2015, an ASEAN e-government strategic action plan was developed in 2011. The content on digital government was included in the strategic thrust of people engagement and empowerment, in which e-government, e-education, and e-health were identified as the key e-services for development.

The follow-up to AIM2015, the ASEAN ICT Masterplan 2020 (AIM2020), highlighted ASEAN's desire to apply new technologies to enhance the quality of life of its citizens. It re-emphasised the importance of e-services that will (i) make the internal operations of government departments more efficient, (ii) facilitate use by consumers and businesses, and (iii) increase services interoperability to support regional economic and social cohesion. Accordingly, AIM2020 launched a project to develop 'a framework of expected minimum levels of e-services delivery...including best practices and recommendations guidelines for (a) Improvement of quality of service for common e-government applications, and (b) Cross-leveraging existing successes within AMS...' (ASEAN, 2015: 25).

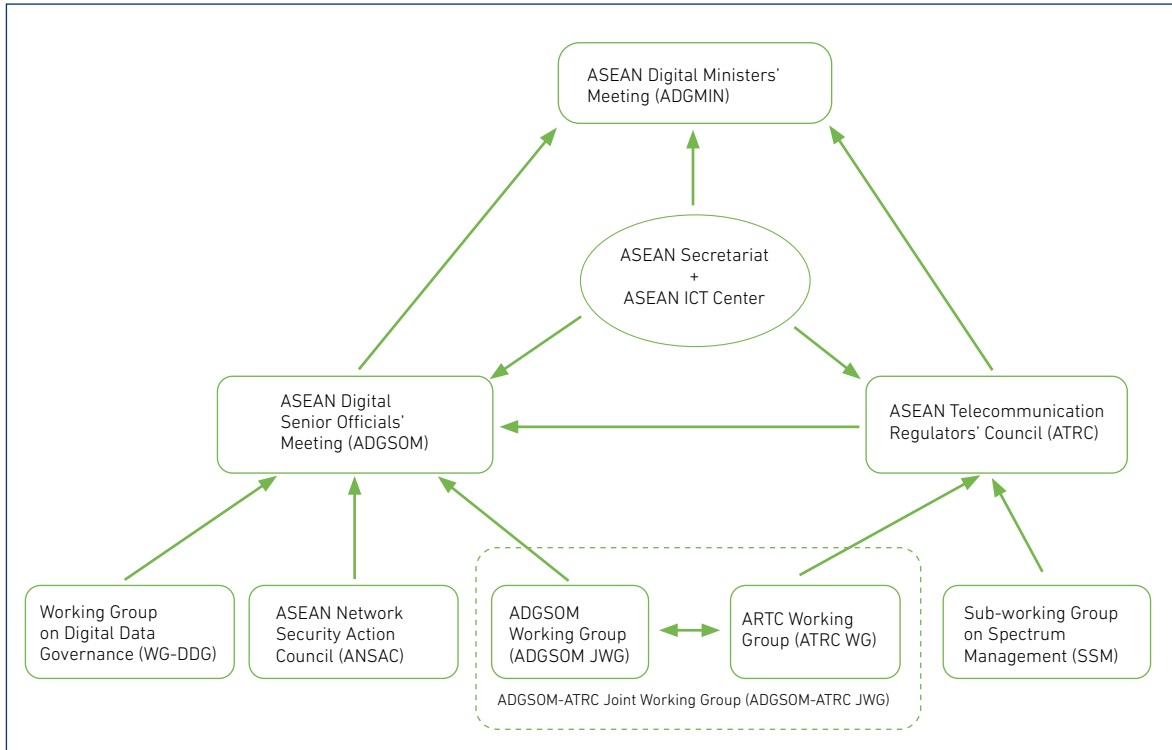
The Master Plan on ASEAN Connectivity 2025, which was concluded in 2016 at the 28th ASEAN Summit, also highlighted the significance of government-level open data in the region and urged ASEAN leaders to make government and private sector data public, for 'its potential to empower peoples, change how government works, and improve the delivery of public services' (ASEAN, 2016: 50). During the 19th TELMIN in 2019, ASEAN Ministers agreed to consider the development of sustainable e-service delivery platforms and e-government applications as the means to support the building of smart connectivity for ASEAN digital transformation.

TELMIN was subsequently renamed the ASEAN Digital Ministers' Meeting, and the ASEAN Digital Masterplan 2025 was adopted at its first meeting in 2021. The master plan set out the vision of ASEAN as 'a leading digital community and economic bloc, powered by secure and transformative digital services, technologies and ecosystem' (ASEAN, 2021b), which required the improvement of e-government services. It also aimed to increase the quality and use of online public services through better e-government services and open data for end users.

In general, promoting digital government and online public services is becoming an integral part of ASEAN's development strategy. Related issues have been covered in a wide variety of regional initiatives or strategic plans, such as the ASEAN Declaration on Industrial Transformation to Industry 4.0, the ASEAN Framework for Next Generation Universal Service Obligation, and the ASEAN Comprehensive Recovery Framework and Its Implementation Plan.⁴

By 2021, ASEAN had established well-structured Digital Sectoral Meetings as a functional institution to facilitate collaboration amongst AMS and support the regional development of digital government (Figure 1).

⁴ For instance, the ASEAN Declaration on Industrial Transformation to Industry 4.0 set out e-government; start-ups; micro, small, and medium-sized enterprises (MSMEs); smart cities; and vocational education, as the five policy focuses for exploring the possibility of establishing new mechanisms and open platforms to support regional transformation to Industry 4.0. Aiming to boost ICT development, the ASEAN Framework for Next Generation Universal Service Obligation called for regional collaboration to introduce e-government services. Promoting e-government and e-services is also one of the key priorities of the ASEAN Comprehensive Recovery Framework.

Figure 1. ASEAN Digital Sectoral Meetings Structure

ASEAN = Association of Southeast Asian Nations, ICT = information and communication technology.

Source: Authors. Based on information retrieved from <https://asean.org/our-communities/economic-community/asean-digital-sector/major-sectoral-bodies-committees/>

Individual AMS have also made substantial efforts towards promoting digital government in the past 3 decades. Table 1 summarises some ASEAN national ICT strategies that cover the promotion of digital government.

Table 1. National ICT Institution

Country	Ministry/Regulatory authority	Key plan/regulations
Brunei	<ul style="list-style-type: none"> Ministry of Communications Authority for Info-communications Technology Industry Brunei Darussalam National IT Council 	<ul style="list-style-type: none"> National Broadband Blueprint (2014) National ICT Manpower Masterplan (2016) Digital Economy Masterplan 2025 (2019) Wawasan Brunei 2035 (2023)

Country	Ministry/Regulatory authority	Key plan/regulations
Cambodia	<ul style="list-style-type: none"> Ministry of Posts and Telecommunications Telecommunication Regulator of Cambodia 	<ul style="list-style-type: none"> Law on Telecommunications (2015) E-commerce Law and Consumer Protection Law (2019) ICT Development Policy (2020)
Indonesia	<ul style="list-style-type: none"> Ministry of Communication and Information Technology Indonesian Telecommunication Regulatory Authority 	<ul style="list-style-type: none"> Indonesia Broadband Plan (2014) Long-Term National Development Plan, 2005–2025 (2015) Presidential Regulation No. 95/2018 on SPBE (PR95/2018)
Lao PDR	<ul style="list-style-type: none"> Ministry of Posts and Telecommunications Lao Telecommunication Regulatory Authority 	<ul style="list-style-type: none"> Telecommunication Law (2011) E-Transaction Law (2012) e-Government Development Plan 2013-2020 (2013) Decree on Online Information Management (2014) Second 5-Year Development Plan of Posts and Telecommunications Sector, 2016–2020 (2016) National ICT Policy 2015-2025 (2016) National Broadband Plan 2021-2025 (2021) ICT Vision 2030 (2022)
Malaysia	<ul style="list-style-type: none"> Ministry of Communications and Multimedia Malaysia Digital Economy Corporation 	<ul style="list-style-type: none"> National Broadband Implementation Strategy (National Broadband Initiative) (2010) Malaysian Public Sector ICT Strategic Plan, 2016–2020 (2016) National Fiberisation and Connectivity Plan, 2019–2023 (2019) Malaysia Digital Economy Blueprint (2021) Public Sector Digitalization Strategic Plan 2021-2025 (2021)
Myanmar	<ul style="list-style-type: none"> Ministry of Transport and Communications Myanmar Communications Regulatory Commission 	<ul style="list-style-type: none"> Telecommunications Law (2013) Telecommunications Master Plan (2015) Universal Service Strategy for Myanmar, 2018–2022 (2018) Myanmar e-Governance Master Plan, 2021–2025 (2021) Myanmar Economic Resilience and Reform Plan (2020)
Philippines	<ul style="list-style-type: none"> Department of Information and Communications Technology National Telecommunications Commission 	<ul style="list-style-type: none"> RA 10894: Department of Information and Communications Technology Act of 2015 RA 10929: Free Internet Access in Public Places Act The Philippine Digital Strategy – Transformation 2.0 (2011–2016) National Broadband Plan (2017) E-Government Masterplan 2.0 (2022)

Country	Ministry/Regulatory authority	Key plan/regulations
Singapore	<ul style="list-style-type: none"> • Infocomm Media Development Authority • Smart Nation and Digital Government Office • Government Technology Agency (GovTech) 	<ul style="list-style-type: none"> • Telecommunications Act, 2000 • Smart Nation (2014) • Infocomm Media 2025 (2015) • Digital Government Blueprint (2018, 2020)
Thailand	<ul style="list-style-type: none"> • Ministry of Digital Economy and Society • National Broadcasting and Telecommunications Commission 	<ul style="list-style-type: none"> • National Broadband Policy (2010) • National Digital Economy Policy and Plan, 2016–2020 (2016) • Thailand Digital Government Development Plan 2017–2021 (2017) • Digital Government Development Plan, 2020–2022 (2020) • Thailand Digital Economy and Society Development Plan (2016) • The Digital Master Plan 2022-2027 (2022)
Viet Nam	<ul style="list-style-type: none"> • Ministry of Information and Communication • Authority of Telecommunications 	<ul style="list-style-type: none"> • National Telecommunications Development Plan (2009) • Master Plan of Broadband Infrastructure Development to 2020 (2017) • <i>Vietnam's digital infrastructure plan for 2021-2030 (2024)</i>

ICT = information and communication technology, IT = information technology, SPBE = The Design of Indonesia e-Government.
Source: Authors.

In many Asian countries, the ICT development plan is under the responsibility of the ministry in charge of telecommunications development.⁵ The issues covered, and the details under discussion, vary depending on the country's circumstances and priorities. But in general, they all highlight the importance of digital infrastructure building and regulatory reform, and the related contents are compulsory parts of the nation's long-term development strategy. Accordingly, the special authorisation unit in charge of regulating ICT development is normally established under the ministry to facilitate direct partnerships amongst countries and increase the efficiency of cooperation in various areas related to the improvement of cross-border digital connectivity, from physical and institutional connection to people-to-people connections.

⁵ Normally, it is titled "the Ministry of Post and Communication". But the names of the ministries vary across countries.

Using the United Nations E-Government Development Index (EGDI), Table 2 presents a comparative view of AMS' progress in using digital tools to improve online public services. Horizontally, wide gaps persist across AMS. The 10 AMS can be categorised into three groups – Group 1 has only one country, Singapore, which is in the world's top 10 in terms of e-government development; Group 2 consists of Brunei, Malaysia, the Philippines, Thailand, and Viet Nam, countries with global rankings between 11 and 100; and Group 3 is composed of the remaining four, whose rankings are below 100.

Table 2. ASEAN E-Government Index

Country	2010	2014	2018	2020	2022
Brunei Darussalam	0.48 (68)	0.5 (86)	0.69 (59)	0.74 (60)	0.73 (68)
Cambodia	0.29 (140)	0.3 (139)	0.38 (145)	0.51 (124)	0.51 (127)
Indonesia	0.4 (109)	0.45 (106)	0.53 (107)	0.66 (88)	0.72 (77)
Lao PDR	0.26 (151)	0.27 (152)	0.31 (162)	0.33 (167)	0.38 (159)
Malaysia	0.61 (32)	0.61 (52)	0.72 (48)	0.79 (47)	0.77 (53)
Myanmar	0.28 (141)	0.19 (175)	0.33 (157)	0.43 (146)	0.50 (134)
Philippines	0.46 (78)	0.48 (95)	0.65 (75)	0.69 (77)	0.65 (89)
Singapore	0.75 (11)	0.91 (3)	0.88 (7)	0.92 (11)	0.91 (12)
Thailand	0.47 (76)	0.46 (102)	0.65 (73)	0.76 (57)	0.77 (55)
Viet Nam	0.45 (90)	0.47 (99)	0.59 (88)	0.67 (86)	0.68 (86)
Republic of Korea	0.88 (1)	0.95 (1)			
Denmark			0.92 (1)	0.98 (1)	0.97 (1)

ASEAN = Association of Southeast Asian Nations, EGDI = E-Government Development Index.

Notes:

1. The value of the EGDI score is the simple average of three component indices: (i) Online Service Index, (ii) Human Capital Index, and (iii) Telecommunication Infrastructure Index. The value of each component index ranges between 0 and 1. The country with the best performance will get the highest normalised value of the index '1', and the scores of the other countries will be relative to this benchmark value.
2. The figure in the cell represents the country's EGDI score for the year.
3. The figure in parentheses represents the country's global ranking for the year.

Source: Author. Raw data retrieved from United Nations (n.d.), UN E-Government Knowledgebase. Country Data. <https://publicadministration.un.org/egovkb/en-us/Data> (accessed 15 December 2023).

Over time, AMS have made substantial progress in embracing digital solutions for government services. During 2010–2022, the EGDI scores of all AMS increased. In most cases, especially Indonesia and Thailand, their global ranking also shifted up significantly, indicating their progress in promoting digital government in general as well as narrowing the relative gaps between ASEAN and the rest of the world.

In some cases, such as the Philippines and Malaysia, the EGDI scores increased but global rankings dropped. This could be a warning sign for the region to accelerate digital transformation in government, as countries in other regions are progressing at a faster pace in the 'race'. This should particularly urge Cambodia, the Lao People's Democratic Republic (Lao PDR), and Myanmar (the CLM countries), which are lagging in promoting online public services and citizen engagement, to speed up the catch-up process and to dedicated more efforts towards providing information to their citizens, interacting with stakeholders, and engaging in decision-making processes (United Nations, 2020).⁶ For them, changing the mindsets of both the government and the public will be the first step (Chen and Ruddy, 2020). In this regard, it is worth noting the approach and achievements of Singapore, which ranked 12th in the world and first in the region in advancing e-government development. The ASEAN Digital Integration Index Report 2021 concluded that '[t]he efforts made by the Singapore government are evident through Singapore's digital government process', and the mindset shift towards updating its procurement process to enable and encourage the use of government cloud services 'has been adopted by a number of agencies to date' (ASEAN, 2021a: 58).

Indeed, Singapore was one of the first countries to engage in digital transformation. Singapore was one of the first countries to engage in digital transformation. In the Digital Government Blueprint, the Singaporean government stated its 'ambition to better leverage data and harness new technologies, and to drive broader efforts to build a digital economy and digital society, in support of Smart Nation' (Government of Singapore, 2020: 2). Singapore's IT2000 Master Plan (Singaporean National Computer Board, 1992), can be seen as the country's first attempt to include the promotion of e-government in its national development plan. In 2014, Singapore launched Smart Nation as a national strategic plan, of which digital government, the digital economy, and a digital society are the three pillars. Accordingly, the Government Technology Agency (GovTech) was established 'to develop and deliver innovative citizen-centric products and services across the whole-of-government' (GovTech, n.d.).

The Key Performance Indicators (KPI) review of the implementation of the Digital Government Blueprint showed that by the end of 2021, 20,000 government workers had been trained in data analytics and data science. All 20 government ministries had submitted plans to use artificial intelligence. (GovTech 2020) Nearly all government services can be conducted digitally end to end, and most of them provide e-payment options. Satisfaction with digital government services increased significantly from 2018 to 2022 – from 78% to 84% for citizens and from 69% to 79% for businesses (Table 3).

⁶ According to United Nations (2020), e-participation consists of enabling participation by providing citizens with public information and access to information without or upon demand (e-information), engaging citizens in contributions to and deliberation on public policies and services (e-consultation), and empowering citizens through co-design of policy options and coproduction of service components and delivery modalities (e-decision-making).

Table 3. Singapore's Improvement in Digital Government Services, 2018 vs. 2022

Item	2018	2022
Citizen satisfaction with government digital services	78%	84%
Business satisfaction with government digital services	69%	79%
Government services that are completed digitally from end to end	87%	99%*
Services that provide e-payment options	81%	98%*

* As of 2021.

Source: Smart Nation Singapore (n.d.), Digital Government. <https://www.smartnation.gov.sg/about-smart-nation/digital-government/>

According to the first report of the ASEAN Digital Integration Index, AMS have been 'making good progress in deploying e-government services' (ASEAN, 2021a: 11). In general, ASEAN's scores in Pillar 6 (Institutional & Infrastructural Readiness)⁷ are competitive with the other benchmark countries (ASEAN, 2021a). The Singaporean experience is representative of the region's advance in developing digital government. It can serve as a good example for other AMS to demonstrate the importance of digital transformation and digital integration. Looking forward, in addition to continued efforts on improving national institutional and infrastructure, it is vital to accelerate the pace of technology adoption and promote digital innovation in the public sector. From the regional perspective, enhancing collaboration amongst AMS in digital government is a crucial part of ASEAN's progress towards regional digital integration.

3. Chapter Synopsis

Including the development of digital government in the national and regional strategies of digitalisation is not only about digital adoption in the public sector, but also about creating digital-enabled, user-driven public online services to support the development of the digital economy in the long run. This is quite a challenge for all countries, as the digital revolution is new to everyone, and there is no ready-to-use model to follow. The best method is for countries to learn from each other and share good practices and experience. The rest of the book is organised into two parts. The first part (Chapters 2–8) consists of six country case studies (New Zealand, Japan, the Republic of Korea, Singapore, India, and Viet Nam) and a general comparative study on the effectiveness of online public services in ASEAN. The second part (Chapters 9–13) provides insights on the implications of digital government for economic development, based on economic analysis from the aspect of firms' performance, exports, global value chains (GVCs), and economic resilience, respectively. It also contains a study on the economic implications of data sharing, using the healthcare sector as an example.

⁷ Pillar 6 assesses the availability of digital infrastructure and the adoption of technology across public sector institutions to drive and coordinate digital integration in ASEAN.

Derek Gill's chapter, 'Government as a Standard Bearer and Digital Platform Provider: The Case of New Zealand', explores the role of the New Zealand Government in promoting the digital economy through the uptake of digital platforms and standards. It uses three short case studies of digital services provided by the New Zealand government – the New Zealand Business Number (NZBN), Business Connect, and Beneficial Ownership – to highlight the important role of bottom-up emergent developments and digital initiatives, and the limited role of top-down digital strategies. While the government's role is constrained, the state has a crucial supporting role if the potential of the digital economy is to be realised.

The analysis of the impact of GS1 global data standards shows that the socio-economic significance of the standardisation of global data could be equivalent to, if not more than, that of standardised barcodes and container sizes. It is therefore critical for the government to adopt and promote the use of global data standards proactively in completing a regulatory framework to support the growth of the digital economy.

While much has been achieved from applying digital technologies to government services in New Zealand, these improvements have been patchy and often incremental rather than transformative. For the government, a challenge is to find the 'Goldilocks zone' – a balanced approach that neither leads nor lags but keeps its main roles in creating the legal framework. This means actively tracking and building on the lead that others have taken rather than acting alone or proactively picking winners. An active supportive role will be critical in achieving network effects and accelerating important initiatives such as paperless cross-border trade.

In the next chapter, 'Digital-Empowered Online Public Services: Japan's Experience During the COVID-19 Pandemic', **Hiroki Yoshida** states that the lack of policy priority and insufficient resource allocation could hinder the process of digitalising public services. He uses Japan's policy reactions in bringing public services online during the COVID-19 pandemic as a real-world example showing the importance of (i) open application programming interface (API) and open-source software (OSS) in facilitating collaboration amongst stakeholders to enable public digital services, (ii) data standardisation and database integration in increasing the efficiency of government operations, and (iii) the adoption of digital IDs in service distribution to citizens and businesses.

Above all, integrated digital infrastructure and standardised data can increase the efficiency of operations for government services. In the case of Japan, the most recent institutional effort on promoting digital government is the establishment of Digital Agency, which aims to make the administrative services provided by the central and local governments uniform; and to support private sector involvement in the digitalisation of public services by creating digital infrastructure for government services, bridging multiple stakeholders for better service delivery, and nurturing information technology capabilities to create a GovTech ecosystem in the government.

The chapter prepared by **Inkyo Cheong** and **Jungran Cho**, 'Digital Government in the Republic of Korea: Evaluation and Challenges', shares insights into Korea, a country that is well regarded internationally in the field of digital government, thanks to its fast adoption of automation, ICT, and the associated legal guidelines on public administration. According to the Digital Government Index 2019 results

of the Organisation for Economic Co-operation and Development (OECD, 2020), Korea received the highest score of 0.742 on a scale of 1, ranked first amongst the 33 countries under study. In the 2020 E-Government Service Usage Survey, over 98% of people expressed their satisfaction on digital public services. (United Nations 2020)

Relatively speaking, the digitalisation of enterprises, especially small and medium-sized enterprises (SMEs), seems to be on the slow side. Korean SMEs are generally less knowledge intensive. There is a wide gap between large enterprises and SMEs in the adoption of sophisticated digital technologies. Similarly, SMEs in the service sector seem less prone to innovation than those in manufacturing. On the government side, a next step is to improve information-sharing via further cooperation with users (residents, visitors, and businesses) and suppliers (ICT companies) and coordination amongst various data generation and management organisations.

Jessica Wa'u and **Rohini Nambiar** introduce some of Singapore's successful experiences in digital transformation in their chapter on 'Digital Government to Counter the Effects of COVID-19: The Case of Singapore'. They state that under the government's leadership, the country managed to ride the wave of Industry 4.0 with emphasis on new product development, infrastructure upgrades, and aligning with technological advancements. These policy efforts helped turn the country's small size into first-mover advantages in digital transformation. Factors that have contributed to Singapore's digital transformation include (i) the whole-of-government approach with enhanced inter-agency coordination, (ii) the periodic upskilling of public service, (iii) balancing regulatory restrictions and the flexibility of innovation, and (iv) the government's partnership and consultation with the private sector.

The Government of Singapore identified e-government and e-society development as the core themes⁸ of national digital policies at an early stage, and consistently updates the relevant policies and regulations. Such institutional readiness allowed the Singaporean government to undertake policy interventions with digital initiatives to handle the socio-economic instability caused by the COVID-19 pandemic. When facing challenges from IT labour shortages and SME inclusion in digitalisation, there is a shifting focus from the government-led approach to one motivated by private sector digitalisation and skills development.

In his chapter titled 'Digital Government as a Business Enabler: An Analysis of Business Processes in India', **Sanjay Kumar Mangla** interprets India's digital story as a successful one that is led by ICT development. In India, the digitalisation of government services has revolutionised interactions and brought significant changes to the way it engages with the public (G2P), businesses (G2B), other governments (G2G), and foreign entities.

It is evident that with the G2B initiatives to make government services available online – including SPICe+, MCA21, eBiz, India's G2B portal, Udyog Aadhaar, PSB Loans in 59 Minutes, Parivesh, Shram Suvidha, GST, and e-Trade – a business-friendly digital ecosystem is forming. Despite this substantial progress, India still seems to lag developed countries in providing digital government services to businesses, especially when considering the inclusivity of digital services for SMEs. A policy focus is to continually expand digital services across the country, with improvements to and monitoring of existing digital services. The government should also put more effort into developing and managing public data sources that businesses can use in generating value added.

⁸ The other identified themes include the ICT economy, labour development, and infrastructure building.

John Walsh states in his study on 'Digitalising Public Services in Supporting Economic Development: The Case of Viet Nam' that the plans and discourse surrounding the national digital strategy tend to be developed at a high level and imposed on lower levels of society, which can create contradictions between what is imagined in official documents and the lived experience of people. For instance, investments in databases and systems that align with ambitious policy goals may lead to some unintended consequences, such as restrictions on freedoms, limited personal mobility, and unequal distribution of opportunities.

In the case of Viet Nam, some existing gaps may exacerbate inequality in Vietnamese society, despite the government's ongoing pursuit of digital initiatives for economic growth. John's study shows that in the agriculture sector, digitalising public services tends to facilitate the integration of farmers and their organisations in GVCs and increase the efficiency and specialisation in Viet Nam's production. But the consequences in the informal sector seem to vary across different regions and industries despite the general heterogeneity. There is a need for skill-based digital education to extend services effectively. Digital government has also helped the Government of Viet Nam reduce poverty across the country, leveraging location-specific economic zones. Given that the implementation of smart city development in Viet Nam may cause increased inequality, the government should pursue broader societal impacts when devising an emergency response plan.

Saurabh Kumar's study on 'The Effectiveness of Online Public Services: A Comparison of ASEAN Member States and the Way Forward' provides some third-party observations on the key factors that influence the adoption, implementation, and success of e-government programmes in ASEAN. The results of a survey on the 10 AMS highlight the significance of standardisation and regulation of online public services in the ASEAN context. Almost 90% of respondents believe that the adoption of open standards in e-government can help improve the efficiency of public services by increasing interoperability amongst various government branches and agencies. Generally, AMS regulations on technology procurement for digital government are strict.

Region-wide, international standardisation and mutual recognition of regulations, such as the adoption of open-source solutions (OSS) and open standards, tend to enhance interconnectivity and interoperability between countries. Regional data-sharing agreements, with practicable terms of implementation, could play a significant role in facilitating intergovernmental coordination amongst AMS.

Duc Anh Dang in his chapter, 'Do Online Public Services Improve Firm Performance? Evidence from Viet Nam', shows evidence of the potential economic return on countries' investment in e-government development. Using provincial level data from the Vietnam Enterprise Survey and the Provincial Competitiveness Index, this empirical study tests a hypothesis on whether better online public services can increase business performance and encourage firms to invest more and hire more workers.

The findings reveal that better quality websites and a higher percentage of firms accessing provincial government websites are associated with a higher level of investment and employment. These relationships are more profound for foreign firms, firms in industrial zones, and large firms. At the same time, state-owned enterprises invest and employ more when budget documents are published in a timely manner.

Part of the reason is that e-government and online public services may reduce the costs of finding information and administrative procedures for businesses and individuals. Moreover, digitalising government services can increase public awareness of government policies and regulations. The increased policy transparency facilitates firms' decisions on long-term strategy setting, risk management, and investment. For that reason, local governments may consider stimulating greater investment by elevating the standard of online public services, facilitating government service delivery, simplifying citizens' compliance with legal requirements, and fostering citizen engagement and public trust.

The next chapter, 'Digital Government in Promoting Trade: The Cambodia Case', investigates possible links between digital government and international trade based on a panel data analysis on bilateral trade flows between Cambodia and its trading partners during 2003 and 2018. The study by **Reth Soeng** and **Thach Kao** reveals the positive effect of digital government in facilitating Cambodia's exports. Increasing the value of the readiness index of digital government by 1 percentage point could lead to an increase of more than 4% in Cambodian exports to the rest of the world. All else being equal, Cambodia tends to trade more with countries that have higher levels of digital government building.

This empirical result, supplemented by the key findings from a case study on the country's Bakong (a blockchain-based payment system), CamDX (an intra-governmental data exchange platform), and a digital integration programme of single-branch specialised bank undertaken by the Agricultural and Rural Development Bank, suggests that digital government efforts can be seen as part of trade facilitation that reduces trade costs and increases ease of doing business. Providing digital public services can improve the effectiveness, efficiency, transparency, and accountability of the government. This will enhance foreign investment and therefore increase the productivity of the Cambodian economy, especially in the export sector.

Shifting the perspective from national to international, **Nobuaki Yamashita** in his chapter titled 'Digital Government in Facilitating GVC Participation' assesses how government digital support can facilitate firms' GVC participation. It views digital government as part of government efforts to provide a digitally inclusive environment for SMEs to participate in GVCs, especially for SMEs that encounter productivity and capacity constraints in facing global competition. Services targeting SMEs – such as a marketing platform promoting companies, products, and brands, with some matching facility functions and an official website promoting products and brands, allowing buyers (importers) to purchase products directly (and a payment facility) – seem beneficial even to firms that are not directly involved with GVCs.

Li, Tong, and **Kong** attempt to provide answers to a research question: 'Can Digital Government Improve Economic Resilience?' Their findings support the viewpoint that the development of digital government can be a pro-growth factor that has a positive effect on improving economic performance and enhancing resilience against external shocks. The experience during the COVID-19 pandemic showed that increasing e-government could effectively discount some negative impacts brought by the pandemic to the economy. Normally, countries with better digitalised government are more responsive to shocks and better prepared to implement stronger stringency policies in controlling the spread of a virus.

However, the development of digital government, especially the construction of the related ICT infrastructure, places high demands on capital inputs. This tends to divert government resources that would otherwise have been allocated to other economic activities, and therefore slows down economic development in the short term. Promoting public awareness and the utility of digital government can mitigate such negative impacts by increasing economies of scale.

Another hot topic in the digital government literature is data sharing. In the chapter on 'Investigating the Growth Effects of Sharing Health Data in ASEAN Member States', **Kling, Guntupalli, and Uddin** attempt to identify the possible impacts of enhanced data sharing in healthcare on economic growth using different methods. The growth accounting analysis reveals that AMS derive greater benefits from ICT capital, a crucial component for data sharing in healthcare. The panel Vector autoregressive (VAR) model considers feedback effects, illustrating how changes in health expenditure can influence capital accumulation and overall economic activity. Causality tests indicate that past health expenditure positively impacts current economic growth. Although digitalisation technically has the potential to facilitate data sharing, realising these benefits require not only continuous investment in ICT infrastructure, but also trust building and regulatory measures addressing security concerns related to privacy and data protection.

References

- ASEAN (2000), *e-ASEAN Framework Agreement*. Jakarta: ASEAN Secretariat. <https://agreement.asean.org/media/download/20140119121135.pdf>
- (2015), *The ASEAN ICT Masterplan 2020*. Jakarta: ASEAN Secretariat. https://asean.org/wp-content/uploads/images/2015/November/ICT/15b%20--%20AIM%202020_Publication_Final.pdf
- (2016), *Master Plan on ASEAN Connectivity 2025*. Jakarta: ASEAN Secretariat. <https://asean.org/wp-content/uploads/2018/01/47.-December-2017-MPAC2025-2nd-Reprint-.pdf>
- (2021a), *ASEAN Digital Integration Index: Measuring Digital Integration to Inform Economic Policies*. Jakarta: ASEAN Secretariat. <https://asean.org/wp-content/uploads/2021/09/ADII-Report-2021.pdf>
- (2021b), *ASEAN Digital Masterplan 2025*. Jakarta: ASEAN Secretariat. <https://asean.org/wp-content/uploads/2021/09/ASEAN-Digital-Masterplan-EDITED.pdf>
- (2021c), 'Joint Media Statement of the First ASEAN Telecommunications and IT Ministers (TELMIN)', Kuala Lumpur, 13–14 July.
- Chen, L. and L. Ruddy (2020), 'Improving Digital Connectivity: Policy Priority for ASEAN Digital Transformation', *ERIA Policy Brief*. No. 2020-07. Jakarta: Economic Research Institute for ASEAN and East Asia (ERIA).
- Government of Singapore (2020), *Digital Government Blueprint*. <https://www.tech.gov.sg/digital-government-blueprint/>
- Government Technology Agency (GovTech) (n.d.), *Digital Government Transformation*. <https://www.tech.gov.sg/digital-government-transformation/>
- OECD (2020), 'Digital Government Index: 2019 Results', *OECD Public Governance Policy Papers*, No. 03. Paris: Organisation for Economic Co-operation and Development.
- Singaporean National Computer Board (1992), *A vision of an intelligent island: IT2000 Report*. Singapore: National Computer Board.
- Smart Nation and Digital Government Office (2018), 'Smart Nation: The Way Forward'. <https://www.smartnation.gov.sg/files/publications/smart-nation-strategy-nov2018.pdf>
- United Nations (2020), *E-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development*. New York: United Nations.