Development in Southeast Asia: Opportunities for donor collaboration

Chapter 2. The digital world

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DECEMBER 2020

Center for Sustainable Development at BROOKINGS

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Chapter 2. The digital world

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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About the project

This research project—**Development in Southeast Asia: Opportunities for donor collaboration**—entails six related papers exploring development opportunities in Southeast Asia and potential areas of collaboration among donors to increase and accelerate their impact. The analysis focuses on seven principal development partners in Southeast Asia—Cambodia, Indonesia, Laos, Myanmar, Philippines, Timor-Leste, and Vietnam.[1] The donor countries are principal donors to these seven countries—the United States, Korea, Japan, Germany, and Australia. As six of the seven countries are lower-middle-income countries (LMIC) according to World Bank categorization, and Indonesia only recently graduated from that status, the two benchmark references will be data on LMICs and on Southeast Asia.[2]

The policy overview paper sets out the overall framework, reviewing relevant donor policies, and different modalities that donors might consider as ways to collaborate. It is accompanied by a set of five papers that analyze needs and opportunities in specific sectors. The topics of the sector papers are digital, education, health, women's empowerment/gender equality, and governance/public administration. The sector papers address: why the sector is important to human and national development; how the seven countries rank on key indicators so as to identify gaps where assistance might be most relevant; levels of donor assistance and activities in the sector; and potential areas for collaboration.

An apparent shortfall in the five sector papers is the incompleteness of information on current donor assistance projects. While information on some projects is found through the International Aid Transparency Initiative (IATI), using the USAID portal Development Cooperation Landscape,[3] the IATI platform does not report the full array of agency projects nor is it always up-to-date and does not reveal projects under consideration. For this study, this is not a significant limitation on the findings, as decisions on collaboration will be determined by the priorities of the specific donors at the point in time of such discussions, not by an independent study, and current projects (presented in the appendices of the sector papers) serve simply as useful, notional guides as to potential areas for collaboration.

These papers were written during the early phase of the COVID-19 pandemic when its manifestations were still emerging and yet to be fully understood, so the papers should be read with that caveat. Donors are still coming to terms with how programming needs to be adjusted in response to the pandemic[4], beyond the obvious critical need for PPE and other health interventions. They are grappling with how to respond to the broad ramifications of the crisis—retraction in economic growth, increased poverty, rising food insecurity, and the loss of educational opportunities, especially impactful for women and girls. The crisis has brought to

[1] Note, Thailand also is a development partner, but development assistance to Thailand has been declining in recent years, so is not included in the study.
[2] The list of countries of Southeast Asia varies, but generally includes, in addition to the seven developing partners listed, Brunei, Malaysia, Singapore, and Thailand.
[3] https://explorer.usaid.gov/donor
[4] USAID, for example, has recently reported the initial findings of its Over the Horizon project that seeks to adjust the Agency's approaches to the realities of COVID-19 fallout.

light the glaring need for enhanced resilience to future shocks—health, social, economic, political, and environmental.

There are both short-term and long-term impacts that are becoming clear. Fortunately, the negative impact on economic growth and poverty in the seven partner countries is projected to be short-lived. As projections by Brookings in Table 1 reveals, COVID-19's negative impact on growth and poverty rates are likely to largely dissipate after 2020. These projections show that, after enduring negative or minimal economic growth and increased poverty rates in 2020, the seven countries will return in 2021 to positive economic growth and declining poverty rates, as they had prior to the crisis (with the exception of an essentially static poverty level in Timor-Leste and Philippines returning to lower poverty rates two years later in 2023).

Table 1. COVID-19 Growth and Poverty Impacts in Southeast Asia

	GDP growth (%)			Poverty ($1.90) Headcount Rate		
Country	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
Cambodia	7.0%	-2.8%	6.8%	1,566	4,715	1,339
Indonesia	5.0%	-1.5%	6.1%	7,370,163	9,047,098	6,023,305
Lao PDR	5.2%	0.2%	4.8%	788,705	836,958	752,975
Myanmar	6.5%	2.0%	5.7%	554,074	520,103	404,468
Philippines	6.0%	-8.3%	7.4%	4,509,436	8,044,238	6,148,002
Timor-Leste	3.1%	-6.8%	4.0%	269,988	273,376	276,746
Vietnam	7.0%	1.6%	6.7%	998,576	988,960	850,240

Source: Brookings (2020) based on IMF World Economic Outlook (Oct. 2020) and World Bank PovCal (Sept. 2020). Poverty is defined as those living below $1.90 per person per day in 2011 purchasing power parity (PPP) terms.

Longer term ramifications wrought by the pandemic are programmatic and vary by economic and social sector. It seems certain that considerably more attention will be paid to health policy and increased funding will be targeted toward disease surveillance and prevention, both to resolve the current pandemic and to stem the next one so it is not as devastating as COVID-19. Some portion of children who have been locked out of school, especially girls, will not return and will live a life cut short of formal education. Hopefully on the positive side, education will deploy lessons from its hyper speed foray into digital learning and integrate digital into non-pandemic learning structures in actions to build back stronger.

COVID-19 has accelerated the essential role of digital connectivity in all aspects of social and economic life, prioritizing massive investment in digital infrastructure and the digitization of previously analog sectors, a trend likely to continue long after the pandemic is over. COVID-19 has demonstrated the value of digital for public services and communications, and leaders with foresight will understand that adoption of e-government can make governance and public administration more transparent, more accountable, more efficient, and less corrupt.

The burden of the pandemic is bearing down more heavily on women, girls, marginalized populations, and those at the lower levels of the economic pyramid. The pandemic has made more evident economic and social inequities that have long existed and in recent times become starker. This provides an opportunity for national and international bodies and institutions to respond forcefully and unequivocally to reduce these inequities, rather than restore the veil that too often hides them—but taking such action is not a certainty.

This project was led by George Ingram, senior fellow at the Brookings Institution. Policy and methodological guidance were provided by Tony Pipa, senior fellow at the Brookings Institution. Extensive data work and critical review of the papers were provided by Meagan Dooley. Research assistance was provided by research analyst Helena Hlavaty and intern Tory Caruana.

Acknowledgements
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Support for this publication was generously provided by the Korea International Cooperation Agency.

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Digitalization: Advantages and perils for development

The world is in the midst of a fast-moving, fourth industrial revolution, driven by digital innovation that is revolutionizing the use of data, information, and technology. COVID-19 has shifted this transformation into warp speed as individuals, companies, and governments have moved to virtual engagement—and discovered that digital has advantages and disadvantages.

Worldwide, cross-border data flows are rapidly expanding. In 2014, this arena generated more economic value than traditional traded goods, accounting for $2.8 trillion of global GDP.[5] Digital technology is estimated to have contributed to 14 percent of the growth of low- and middle-income countries from 1995-2014.[6] In Southeast Asia, digital trade doubled from $155 billion in 2011 to $311 billion in 2018.[7]

Digitalization, or simply "digital"—living and operating in a digital culture—is not just the future. It is now, with the full potential yet unknown. The presence of digital devices and services is ubiquitous. It is transforming societies worldwide—government, industry, commerce, culture, personal lives—even if we do not fully comprehend all the ways it is doing so. Technological advancement is outpacing the development of policies and regulation to provide protections and improve the chances that it will be channeled for positive rather than nefarious purposes. It has the power to improve development outcomes and lift millions out of poverty but also to heighten political divisions, undermine democracy, and exacerbate inequality. Therefore, there is urgent need to establish rules of the road and ensure that underserved populations have both the access and digital literacy they need to avoid being left even further behind.

The scope and reach of digital is hard to fathom. Given the relative ease of rollout and scalability, digital technology has the capacity to achieve a scale of impact of which interventions to-date could only dream. Data travel distances in milliseconds and data solutions can serve local, national, and meta-national populations simultaneously, providing opportunities for communication and collaboration across physically dispersed populations that were previously unimaginable.

Our daily lives are affected by e-commerce, e-finance, e-government, e-social communications, e-media, e-education, e-learning, and even e-gaming. While this paper was enriched by insights from interviews with experts in the digital field, the core of the paper was developed from e-research.

Digital technology is disrupting traditional means of communications, business, learning, how we function at work and at home, and even governing. It is speeding up and deepening access to information and communications, reducing the cost of technologies, driving productivity,

[5] World Bank, p 83
[6] USAID, 2019.
[7] World Bank. 2019. p 29

boosting efficiency, speeding innovation, accelerating economic growth, empowering financial inclusion, building innovative and resilient solutions, and facilitating government transparency and citizen-government interaction. It is providing real-time information in humanitarian and crisis situations, as evidenced in the Ebola pandemic and now in COVID-19.[8]

Digital is putting people at the heart of products and services and empowering them. It is providing affordable education and learning materials for students, real-time weather and market information for poor farmers and fishermen, training for teachers, medical diagnosis and information for those living remotely, and financial services for the unbanked, services previously out of reach for remote areas and underserved populations.

While digital can drive more inclusive economic growth and reduce poverty, the ramifications are not all positive.

De-industrialization is a real threat. As with any economic disruption, the creative destruction of outdated business takes away jobs, often for an older, less mobile, and trainable generation. Digital jobs require more education. Expanding the use of digital can widen income disparity between individuals and countries, with the gains from digital accruing to those at the top of society. COVID-19 is widening the digital divide, as those with computer and Internet access and skills are able to continue learning and working and those without fall behind.

Digital platforms enhance the risk of personal security, the rapid spread of fake news that can drive a wedge in a populace and undercut democratic practices, theft and misuse of data, intimidation, and unchecked surveillance. They can be exploited for hate speech and sexual abuse and empower autocratic government, terrorism, illicit finance, and criminal networks. The ethical use of digital technologies and the data it generates is a fundamental challenge that the world has barely begun to address.

A digital divide is present between urban and rural areas. The seven largest metropolitan areas of Southeast Asia house 15 percent of the region's population but account for 50 percent of the Internet economy.[9]

Women, in particular, have been shortchanged of the benefits of connectivity, with the gender divide in Internet use widening. Worldwide, approximately 327 million fewer women than men have a smartphone and can access the mobile Internet. Women are, on average, 26 percent less likely than men to have a smartphone; in South Asia this stands at 34 percent.[10]

[8]Pathways for Prosperity Commission, 2019, p 40-41
[9] Google
[10] OECD, 2018, p 13

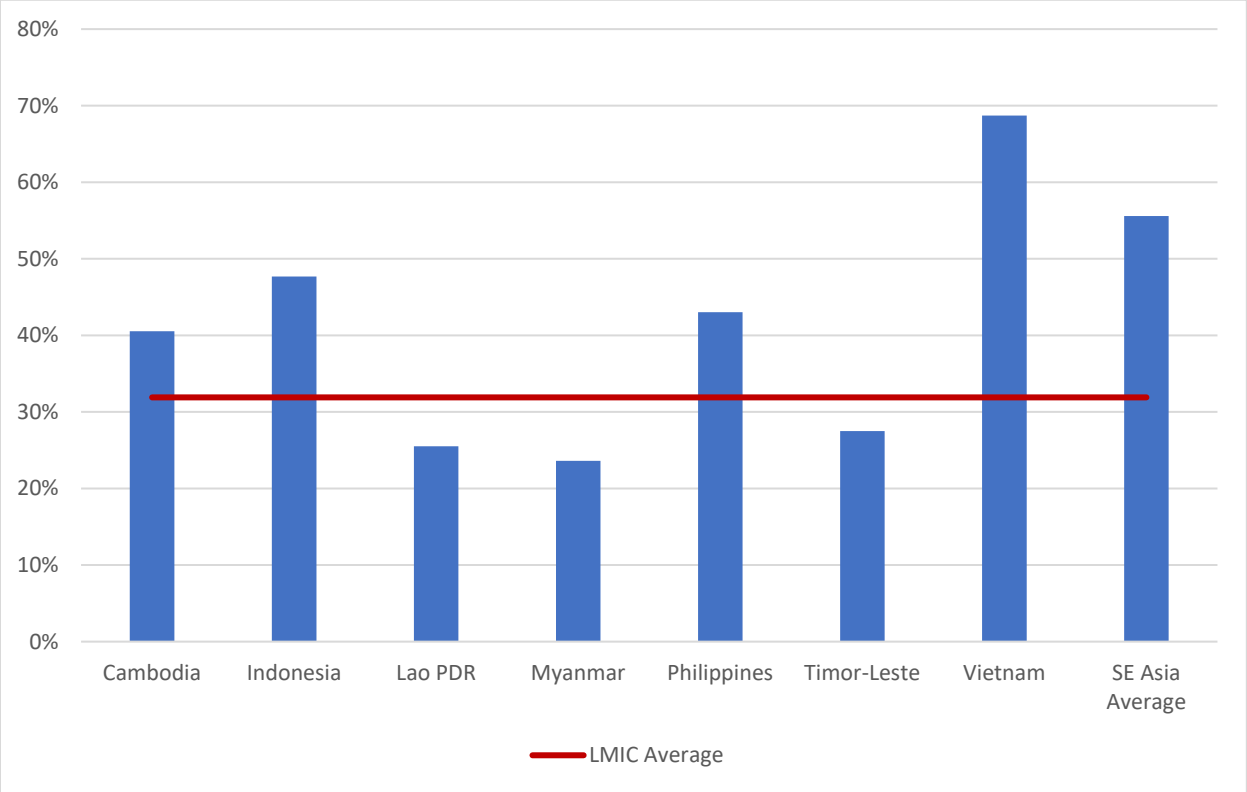
State of digital in Southeast Asia

Connectivity: Infrastructure, access, and affordability

Connectivity is the connective tissue of digital. Access is more of an issue than coverage. As of 2015, 2G covered 95 percent of the world (78 percent for 3G) and 79 percent of Asia (79 percent for 3G)[11]. But some 4 billion people in developing countries do not have access to the Internet,[12] and just over half the population of Asia uses the Internet[13].

While internet usage has increased dramatically in recent years, usage rates vary by country in Southeast Asia. As Figure 1 shows, almost 70 percent of the population has access to the internet in Vietnam, compared with 40-50 percent of the population in Cambodia, Indonesia, and the Philippines. Laos, Myanmar, and Timor-Leste all have relatively low rates of internet usage, below the LMIC average of 32 percent.

Figure 1. Share of population using the internet, most recent year

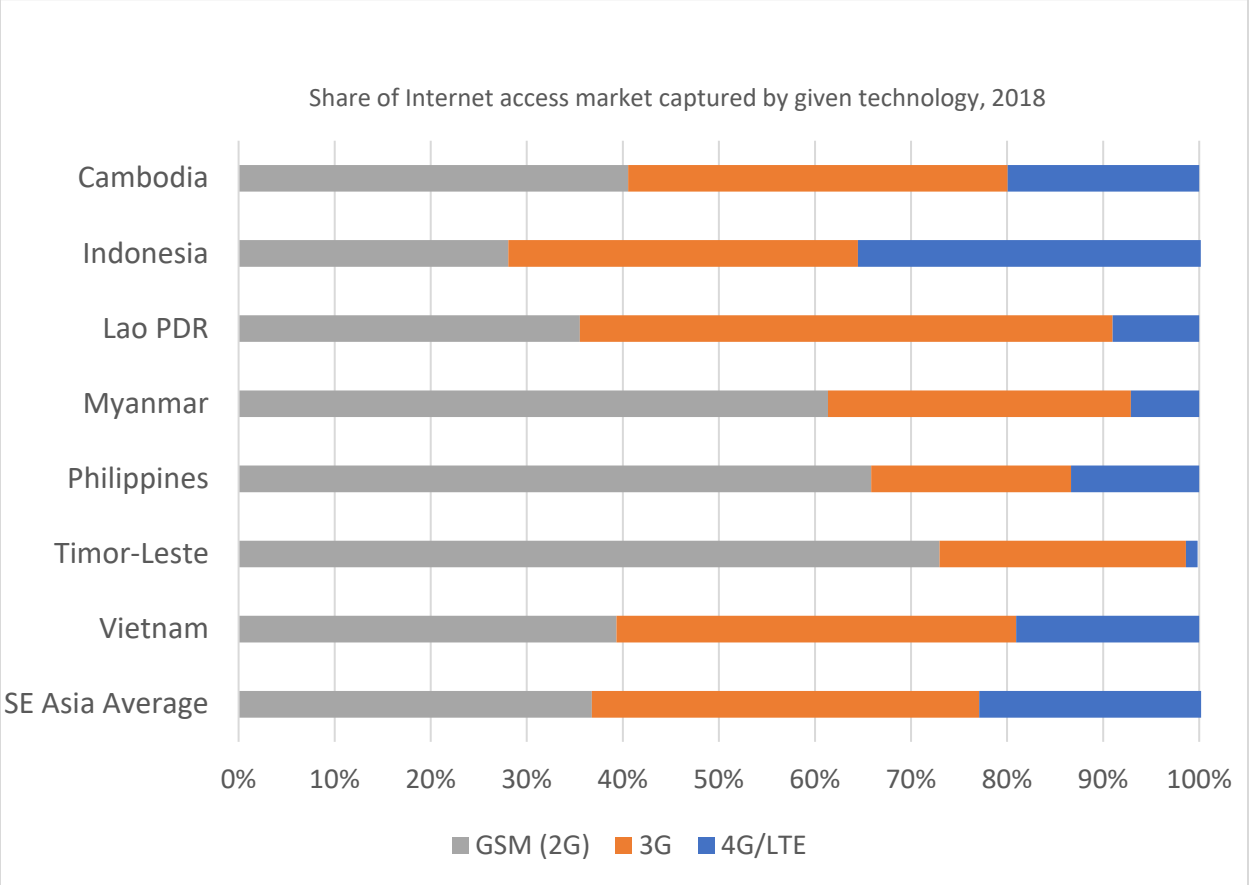


Source: World Bank World Development Indicators (2020)

Figure 2 presents broadband penetration in the seven countries of interest in Southeast Asia. It shows Indonesia with the broadest penetration of 4G and Timor-Leste with the least.

[11] GSMA, p 5
[12] USAID, Digital Strategy
[13] https://www.internetworldstats.com/stats3.htm

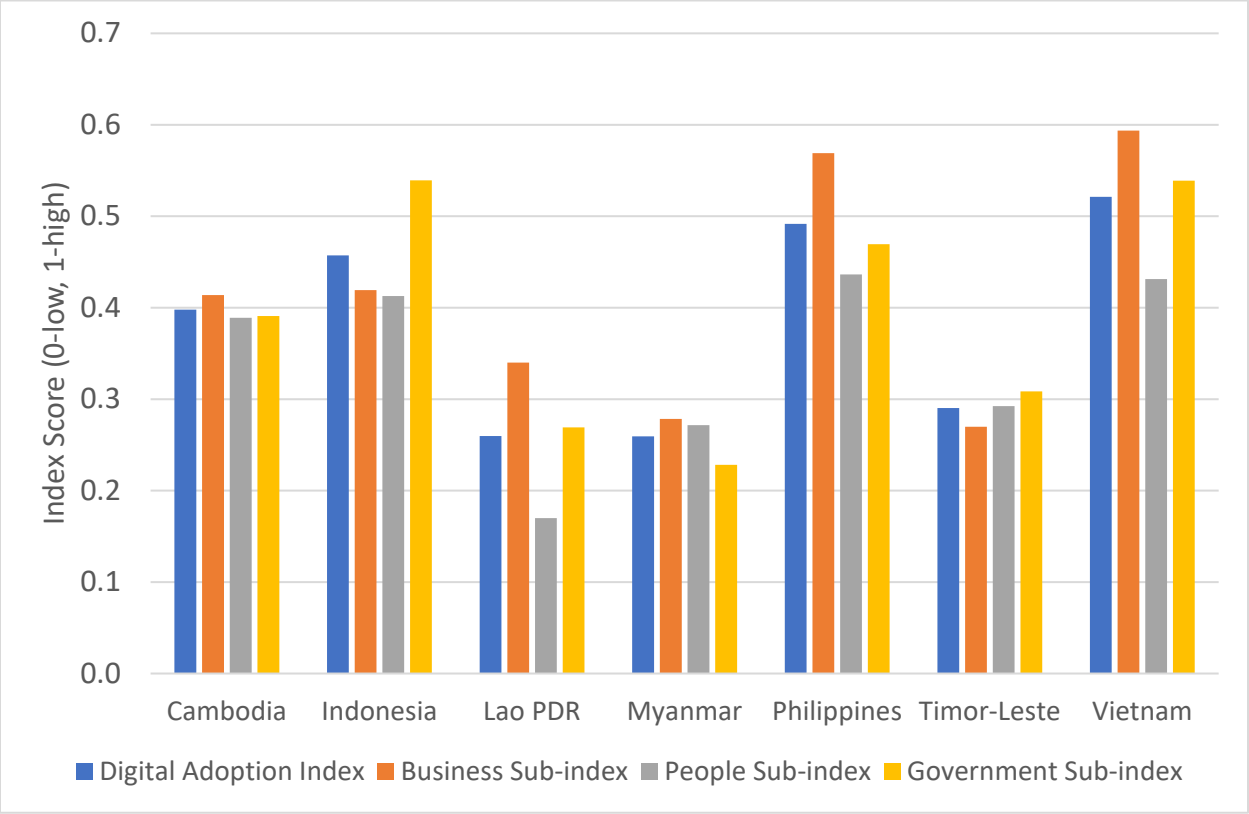
Figure 2. Mobile/mobile broadband penetration



Source: TeleGeography (2018), taken from World Bank (2019)

Figure 3 shows the level of digital adoption in the seven countries. The digital adoption index—the first bar—is a composite of the other three bars that assess digital adoption by businesses, individuals, and governments. Laos, Myanmar, and Timor-Leste are on the low end; Cambodia, Indonesia, Philippines, and Vietnam (in that ascending order) have higher rates of digital adoption.

Figure 3. World Bank Digital Adoption Index, 2016



Source: World Bank (2016) 0—1 scale (1=high)

The internet is typically accessed via mobile broadband, which is less conducive to data-intensive applications compared to fixed broadband. In Southeast Asia the mobile broadband market is generally competitive but not the fixed broadband market.[14]

Affordability[15] is a key issue, and very much an urban-rural issue, as it is the principal barrier to access. Availability and cost of physical infrastructure, a major source of expense for digital connectivity, is affected by geographic location, to the disadvantage of rural areas. When service providers consider inputs (revenue opportunities, operating costs, and capital costs) and corresponding drivers (such as population density, site rental, power, maintenance, and backhaul equipment), return on investment for rural areas is a significant impairment.[16]

[14] World Bank, p 11.
[15] The mission of the Alliance for Affordable Internet is to make the internet affordable for all.
[16] GSMA, 2017, p 11.

Backhaul infrastructure[17] for remote areas is over four times more expensive than for urban areas. It is estimated that a site needs around 3,000 daily active users to be profitable.[18]

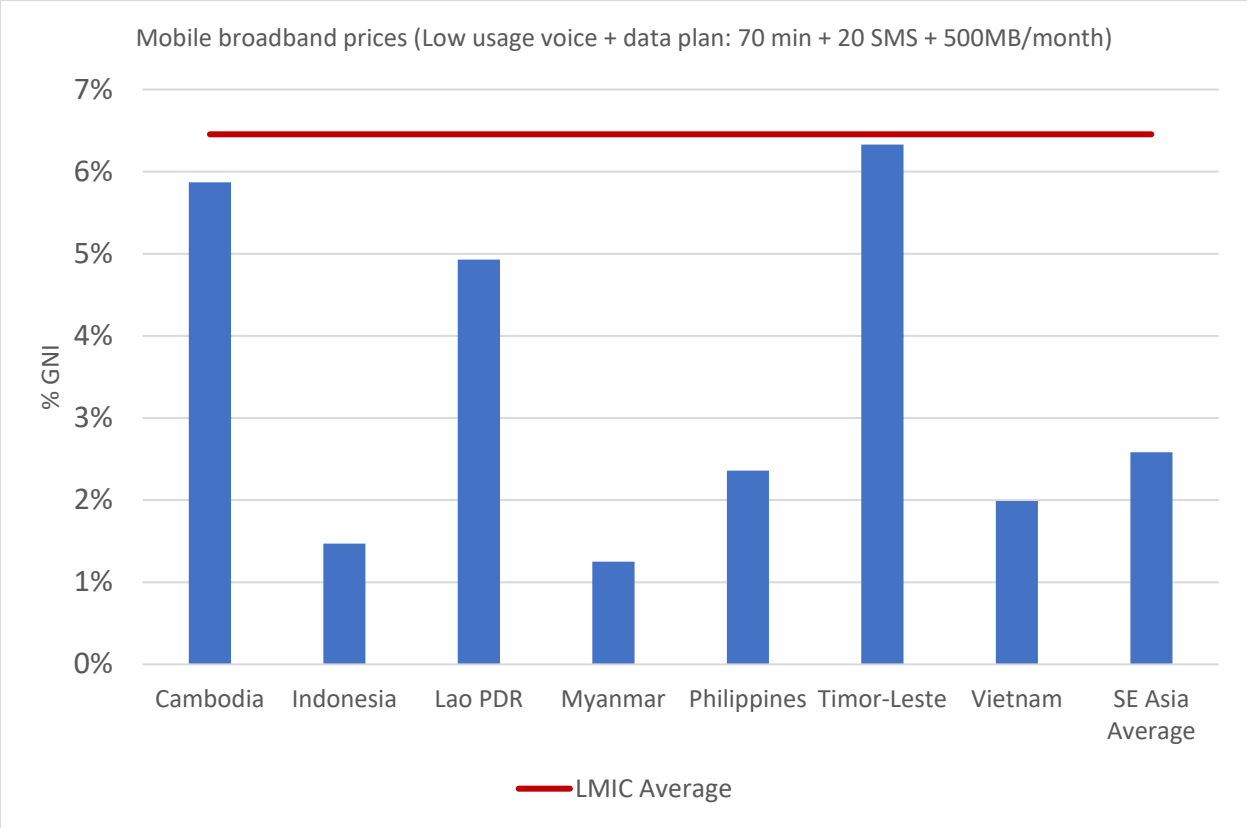
Proprietary network infrastructure (including right-of-way) produces duplication and inefficiencies. 70 percent to 80 percent of fixed broadband investment is generally used for passive infrastructure (poles, ducts, and building access). Costs can be reduced by expanding coverage through network roaming and sharing both active and passive elements of infrastructure.[19] Single Wholesale Network (SWN) and Wholesale Open Access Network (WOAN) are open access policies that serve the objective of building and offering equitable access to backhaul infrastructure. Over 160 regulatory authorities around the world have established some form of open access to passive telecom infrastructure. However, WOANs are not quick fixes for affordability and require years of development and regular check-ups on progress.[20] Other sources of efficiency are optimal allocation and use of radio spectrum, pooled procurement, and advanced market commitments.[21]

Market competition is a key factor in the price of mobile data. Limited competition in various segments of the broadband value chain affects both quality and affordability.[22] An estimated 589 million people live in countries where a lack of competition keeps Internet prices high. Over 260 million people have only one choice for a major mobile network operator. One or two firms dominate in many ASEAN countries.[23] According to the estimate in a recent report by the Alliance for Affordable Internet, transitioning from a consolidated market with little or no competition to a healthy market with robust competition can save users up to $3.42 per GB.[24]

As shown in Figure 4, mobile broadband is more costly in Cambodia, Laos, and Timor-Leste than in Indonesia, Myanmar, the Philippines, and Vietnam. However, all seven countries are below the LMIC average cost of 6.5 percent of GNI.

[17] The backhaul portion of a network comprises the intermediate links between the core network and the small sub-networks at the edge of the network that link to the customers.
[18] Pathways for Prosperity, 2019, p 43; GSMA, 2019, p 7
[19] GSMA, 2017, p 15
[20] Alliance for Affordable Internet, 2019, chapter 4
[21] World Bank, p 51; Digital Impact Alliance, *Financing Digital Markets*
[22] World Bank, p 44 & 49
[23] Alliance for Affordable Internet, 2019, p 10; World Bank, 2019, p 11
[24] Alliance for Affordable Internet, 2019

Figure 4. Mobile broadband prices as percentage of GNI per capita



Source: International Telecommunications Union (2019)

Digital interoperability

Digital tools need to be connected. The more interoperable digital tools and services are, the greater their effectiveness. Efficient and effective digital technology and use require a foundation of "soft" digital infrastructure, such as data standards, microservices, interoperable systems, and interconnections between databases. Microservices (small functions such as transferring money, map navigation, scheduling, messaging) are vital to an effective digital economy but are lacking in many developing countries.[25] Maximizing interoperability entails expanding systems and frameworks across broader areas and countries. This is especially valuable in terms of regional and global cooperation, such as for trade and disease surveillance. There can be considerable benefit to countries sharing data, for which common standards are necessary to do so efficaciously and for proactive and preventative action to assist and protect populations.

Think of the interoperability of digital technology as the plumbing or electrical system in a home—it is the behind-the-scene structures that are hidden and not understood but enable lots of other things to work smoothly. Standards and interoperability set the foundation and

[25] Pathways for Prosperity Commission, 2019, p 42

guardrails for people to more readily innovate and scale solutions, exchange and use information, and provide and benefit from digitally-enabled services. Interoperability of services across providers, points of service, and agents are especially important for digital payments and efforts to expand the reach of financial services to underserved and rural areas.[26]

Regional approaches to privacy and security in Southeast Asia

With greater digital engagement comes increased data generation and collective efforts. As individuals' data footprints increase and become ever more centralized, there is greater need for transparency, accountability, and security around its use. Many countries have underinvested in hard and soft cybersecurity infrastructure. The public sector often is not a well-informed consumer. It often lacks a strong understanding of what investment is necessary and wise. Governments are learning that the data they possess on populations is an important asset but lack an understanding of what elements are valuable, to whom, and how to both protect and best use them.

The countries of Southeast Asia have taken varying approaches to privacy and security concerns, and their populations have differing levels of digital literacy required for good judgment of what consists of abuse. There has been a push to restrict cross-border data flows by some governments in Southeast Asia, driven by a mix of concerns, particularly around data sovereignty and sensitivity to the security of personal data. Vietnam and Indonesia have the most comprehensive restrictions on data flows in ASEAN.[27] The size and nature of cross border data flows, and the negative impact of barring that trade, often goes unobserved, as many governments cannot adequately measure the contribution of data to the digital economy. There are large portions of the global economy that countries miss out on if they bar trade or overregulate. Opening barriers and establishing common trade frameworks are essential for participation in the global digital economy.

Only Malaysia, Singapore, and the Philippines have comprehensive data protection statutes. There is a need to align existing data privacy laws across countries by building on commonalities and bridging differences. This issue is being addressed at the regional level through ASEAN[28], but regional coherence can be advanced only as countries adopt comparable effective consumer protection laws and regulations. As cross-border e-commerce increases, there is strong incentive to advance regional cooperation.[29] While some countries in Southeast Asia have recently established national cybersecurity strategies and agencies, specific government mechanisms and policies are underdeveloped. Individual ministries or specific sectors may have developed digital security strategies, but few countries have a holistic, national approach. This results in multiple duplicative and inconsistent policies and systems.

[26] World Bank, 2019, p 60-61
[27] World Bank, p 89
[28] ASEAN Strategic Action Plan for Consumer Protection (ASAPCP), 2025.
[29] World Bank, p 86 – 89, 91, 96

A lack of skilled professionals in Southeast Asia contributes to the slow progress in cybersecurity protection. As of yet, there is no unifying framework to address cybersecurity at the regional level, though work is being done to establish a regional approach[30]. Digital data is transnational, so laws governing it need to be as well. Effective cybersecurity preparedness calls for a coherent, concrete regional approach and implementation strategy.[31]

National Plans

Southeast Asia is a global economic player and among the more advanced areas of the developing world in embracing digital technology. However, it is still at an early stage in the digital revolution in several areas, such as a low level of digital adoption by business and between countries.[32] There are gaps in quality, access, affordability, infrastructure, skills, competition, inclusion, and policy. The gains to be had from investing in these areas are considerable. By one estimate, greater digital integration in the ASEAN region would add an additional $801 billion to GDP by 2025.[33]

While most governments in Southeast Asia have produced high-level plans for growing the digital economy, concrete implementation remains a challenge. Box 1[34] presents a summary of the priorities for digital development found in national digital plans and national development plans of the seven countries. There is considerable commonality in the plans, apart from Timor-Leste. Connectivity, policy and regulation, skills, and data security and management are a priority for all countries. E-government, digital research and development (R&D) and innovation, and inclusivity are a priority for three or four countries. E-services is a separate policy priority only in the plan of Cambodia.

[30] Singapore ASEAN Cyber Capacity Program
[31] World Bank, p 91-95
[32] World Bank, 2019, p 34
[33] Bain
[34] The categories in this table were developed from reading the plans and categorizing the most frequently found elements.

Box 1. Elements of national development and ICT plans

	Connectivity	Skills	Data security and management	Policy and Regulation	E-Government	E-Services	Digital R&D and innovation	Digital inclusivity
Cambodia	yes	yes	yes	yes	yes	yes	yes	yes
Indonesia	yes	yes	yes	yes	no	no	no	yes
Lao PDR	yes	yes	yes	yes	yes	no	yes	no
Myanmar	yes	yes	yes	yes	no	no	yes	no
Philippines	yes	yes	yes	yes	yes	no	yes	yes
Timor-Leste	yes	no	no	yes	no	no	no	no
Vietnam	yes	yes	yes	yes	yes	no	yes	yes

Appendix I presents greater details on the plans of each country. Drawing on that data, it is useful to see where there is overlap on specific objectives. Under the category connectivity, areas of commonality in several plans, and with varying degrees of specificity, are universal access, bridging the digital divide, upgrading broadband, developing national policy, and creating a government wide network. Within the category of skills, the most common feature is expanding digital literacy. Data security and management are targeted most often at cybersecurity and in some plans on user privacy and protection. There is little crossover among the plans in the category of policy and regulation, but several do include refining government regulation to enhance competition, transparency, and business friendliness.

There is less common ground across plans in other areas. E-governance policies, for instance, are not well defined in the plans, except for the Philippines, which targets a single government wide portal for digital licensing and permitting. There is no commonality among the plans on digital R&D and innovation. Inclusivity is not a targeted focus area in most plans, except for Cambodia, but is woven into other priorities in several plans, especially in relation to those with disabilities. Absent from the plans is a focus on the importance of interoperability, the advancement of which it critical for e-commerce.

Box 2. Agenda on digital need in Southeast Asia

- Infrastructure—expand access and improve affordability, especially for the underserved; provide 5G
- Seamless trade—facilitate digital border processes and logistics
- Data privacy—advance data privacy, balanced with promoting the digital economy
- Digital payments—enable digital financial inclusion and cross-border trade, facilitated by interoperable frameworks, common standards and rules, and digital ID systems
- Human capacity—build digital literacy and skills at all levels, but especially critical is the ability of the workforce to upskill in partnership with the private sector
- Foster entrepreneurship—facilitate the ability of small and medium enterprises to navigate regulatory processes and the digital ecosystem.
- Government rules and regulations—improve the enabling environment, including simplifying rules and regulations, protecting the consumer, facilitating e-commerce, increasing competition, providing for cybersecurity, and building trust in digital finance and e-commerce.
- Cybersecurity—develop common regional rules and standards for cybersecurity

Regional harmony

Regional policy coherence and coordination are important to facilitating digital development. Differential policies and regulations make compliance difficult for businesses operating cross-border and internationally. Policies affecting data openness, cross-border flows, privacy, and cybersecurity need to be developed in a coordinated fashion to increase quality and foster trust and increased use. There are substantial benefits to be had from an open, integrated Southeast Asian digital economy rather than fragmented national digital economies.

Regional digital harmonization has been a priority for the members of ASEAN. Regional policy statements and plans include: “Master Plan on ASEAN Connectivity 2015”; “ASEAN Digital Integration Framework”; “Digital Integration Framework Action Plan 2019-2025”; “Work Plan on Electronic Commerce 2017—2025”; “ASEAN Economic Community Blueprint 2025”; “ASEAN Framework for Personal Data Protection”. Issued over a period of five years, they comprise a comprehensive, common agenda and call to action, as presented in Box 2.

Comparing this list from ASEAN documents with the priorities in national plans in Box 1 identifies commonalities and differences. Common to both is connectivity (infrastructure and seamless trade), human resources (skills), data privacy and security, and government policy and regulation. The ASEAN documents also prioritize digital payments and entrepreneurship. The national plans also cover e-government, R&D and innovation, and inclusion.

The ASEAN Coordinating Committee on E-commerce is a principal forum for pursuing digital harmony. The Digital Integration Framework sets out five priorities—digital connectivity and

affordable access; business ecosystems; financial ecosystems; commerce and trade; and workforce transformation. The goal is to lift ASEAN GDP by $1 trillion by 2025 through digital integration across the region. The focus is on bringing SMEs into the digital economy—SMEs represent 99 percent of enterprises, 83 percent of employment, 50 percent of GDP, but only 16 percent are fully digitally integrated.[35]

At the regional level, the 2019 "ASEAN Outlook on the Indo-Pacific" includes the goal of cooperation in "connecting the connectivities" in the region. It commits members to promote connectivity that is seamless, competitive, and inclusive. It calls for regional public-private partnerships to mobilize resources for infrastructure in the Indo-Pacific. "ASEAN Community Vision 2025" prioritizes enhancing regional networks and connectivity, along with regional economic integration and reducing the development gap.

Particularly relevant today, the Asia eHealth Information Network[36] promotes collaboration and peer-learning amongst Asian professionals working in digital health. Established in 2011 by the World Health Organization (WHO), the Network provides a range of services, including workshops to explore national health issues, a community of practice for mutual learning, open source software to manage health protection schemes, research, training sessions, and online courses.

ASEAN currently is in deliberations, with stakeholder consultations, on developing a Digital Master Plan 2025. The alternative themes under consideration are "digitally connected community", "responsible digital community", and "holistic digital ecosystem". Besides an overarching focus on inclusion, the potential priorities are well-know—secure and transformative services; fair and competitive markets and economic blocks; trust; savvy citizens; interoperability; governance; and cooperation/collaboration. [37]

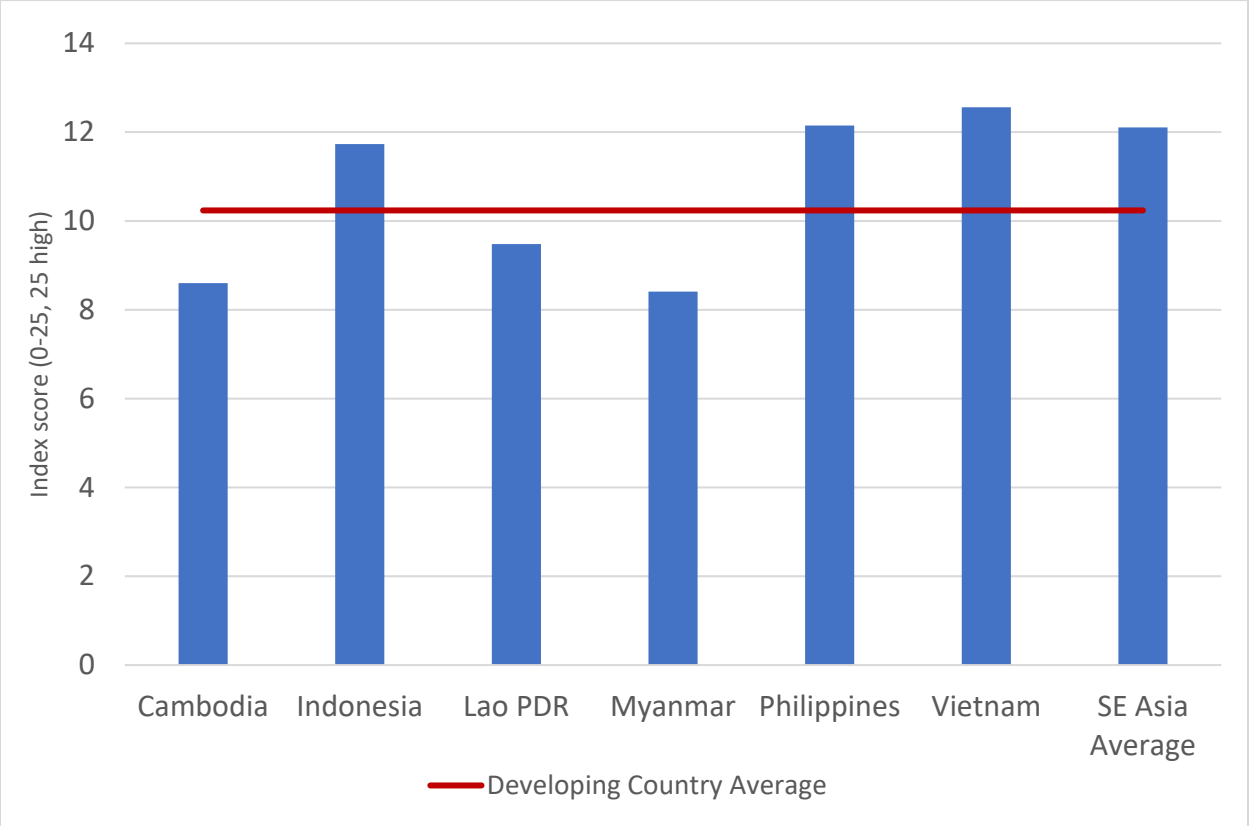
Gaps in digital in Southeast Asia

While digital adoption is expanding rapidly in Southeast Asia, it is not at the level it should or could be. The digital economy is 35 percent of the U.S. economy, 27 percent for the EU-5, and 16 percent for China, but only 7 percent of the ASEAN economy.[38]

Data on the digital readiness of the six countries (data on Timor-Leste is missing) is aggregated in Figure 5 and presented in detail for all countries of Southeast Asia in Appendix II. At the aggregate level, the Philippines, Indonesia, and Vietnam enjoy a somewhat more advanced state of digital adoption, above the average for all developing countries.

[35] Global Digital Development Forum, Phuc Lee presentation.
[36] http://www.aehin.org/
[37] Global Digital Development Forum, Lin May-Ann presentation.
[38] Bain

Figure 5. Digital readiness score, 2018



Source: Yoo et al. (2018)

Reviewing the detailed data in Appendix II reveals a considerable divide between the six countries and their ASEAN companions, with Malaysia and Singapore being dramatically more advanced in all areas.

Cambodia, Laos, Myanmar, and Timor-Leste are particularly behind—specifically in digital infrastructure; technology adoption; human capital capacity; ease of doing and starting up business; and business, government, and investment. Indonesia, Philippines, and Vietnam score poorly on digital infrastructure and on business, government, and investment; middling on human capital; but relatively well on ease of doing and starting business.

Key issues in digital development

Four issues in digital development are particularly worth highlighting—digital finance, digital identification, digital skills, and the enabling environment.

Digital finance

Expanding access to digital payments—person-to-person mobile payments, remittances, lending, investment, and insurance—serves as an enabling factor for growing other aspects of the digital economy and e-services. Digital payments are less costly than traditional modes of finance and free small borrowers from exploitive moneylenders and unresponsive traditional bankers. They are a major driver of financial inclusion and a core means of incorporating the informal sector into the formal economy. Worldwide, an estimated 1.7 billion people, including 77 percent of those earning under $2 per day, do not have access to a bank account or a mobile money provider.[39]

The scope for digital finance is vast in Southeast Asia. Of a population of nearly 400 million, 198 million are unbanked. The reasons include: cost; the absence of public registers, identification systems, and reliable credit information; and a lack of competition and innovation due to stringent regulation. Digital finance provides the opportunity to overcome these obstacles and offer value, choice, and convenience. [40]

Only 19 percent of financial account holders in Southeast Asia access their accounts via the internet or phone (sub-Saharan Africa has an average of 24 percent). The readiness for digital payment expansion across Southeast Asian countries varies considerably. The relatively low-level use of digital payments in some countries—specifically Cambodia, Myanmar, and Laos—underlines the potential for growth with the right enabling environment in place.[41] Digital payments account for only 3 percent of consumer expenditures in ASEAN compared to 30 percent in China.[42]

An example of the potential benefits of expanding digital payments is M-Pesa, which provides a low-cost method of storing and transferring value over the mobile phone network in Kenya. The system has lifted 2 percent of the Kenyan population out of poverty and allowed 185,000 women to shift their predominant labor force engagement from agriculture to business.[43]

E-finance can improve the security and transparency of transactions, reduce leakage, and improve efficiencies. However, expanding digital payments to unserved populations faces challenges. Financial services for the poor and unserved raises issues of consumer protection,

[39] Pathways for Prosperity Commission, 2019, p 44
[40] Google
[41] World Bank, 2019, p 57-58
[42] Bain
[43] Pathways for Prosperity Commission, 2019, p 44

including disclosure and privacy, product standards, fraud, and liability.[44] Digital financial inclusion involves new providers, services, and consumers and requires cross-sectoral coordination and communication among regulators and supervisors, at the national, regional, and global level.

Identification

Broad coverage of personal identification in many parts of the developing world is a fundamental source of exclusion from basic rights and benefits of citizenship and a driver of inequality. One billon people in the world lack formal identification. Digital technology can offer a secure, unique legal identity that allows citizens to access basic services and protection.[45] While creating comprehensive customer identity/digital identification can increase inclusion and reduce money laundering and financing terrorism, it raises issues of privacy and risk of fraud. There is need for more advanced monitoring systems linking financial institutions with real-time monitoring capabilities and appropriate privacy/data protection.[46] Best practices for personal identification are found in the ten principles for digital identification that cover design, governance, and inclusion.[47]

An example of the potential of digital identification is Aadhaar, India's digital identity system that rapidly brought digital ID inclusion to 1.2 billion Indian citizens (90 percent of the population), not without some accompanying difficulties such as concerns over privacy. In Southeast Asia, as of 2019, Indonesia and Philippines, along with Malaysia, Thailand, and Singapore, had adopted some form of digital ID.[48]

Digital Skills

Digital capability is essential to everyday life and to bridge the digital divide. A baseline level of foundational ability in digital skills, literacy, and numeracy is essential simply for participation in the digital world. Basic computer literacy (using email, managing passwords, web browsing, understanding applications) is a prerequisite for higher-level digital skills.[49] Labor skills in Southeast Asia have been increasing but leave much room for improvement. Workforce competency in digital capability is asymmetrical between the more economically advanced and lower-middle-income countries of Southeast Asia.

Education strategies must incorporate the skills needed for the digital economy. This requires retooling school curriculum to train future generations of workers, as well as investing in reskilling and retraining efforts among the current working age cohort. Workers need to be able to adjust to digital disruption in the labor market through continuous education teaching

[44] For example, India's "digital transformation" and enterprise architecture (IndEA stack) enabled vastly improved government subsidy payments to citizens. Often referenced as an example for other countries to learn from, it is a valuable for demonstrating both the potential as well as the risks, as there were egregious data breaches.
[45] Pathways for Prosperity Commission, 2019, p 43; USAID Digital Strategy
[46] World Bank, 2019, p 59
[47] https://blogs.worldbank.org/digital-development/ten-principles-identification-sustainable-development
[48] CIO
[49] OECD, 2016, p 79

adaptable skill sets. Digital opportunities must be designed to be more inclusive. Effective government-industry skill partnerships can play an important part. Teaching digital skills at a young age and reskilling the existing workforce ("upskilling") should be part of a long-term digital strategy.[50]

Channels through which soft and digital skills can be provided include formal education, formal TVET (technical and vocational education training), non-formal TVET (via NGOs, trade unions, private organizations, public/private sector cooperation), and employer-provided training. TVET training and vocational curricula need to be dynamic and involve the private sector in order to ensure trainees are taught the right technical, job specific skills. Private sector collaboration is important to identify market needs and skills gaps in order to upgrade skills. Regional efforts to promote talent mobility can play a key role in optimizing the region's long-term human capital potential.[51]

Enabling environment—policy and regulation

The enabling environment, as fixed by government policy and regulation, directly affects the digital world. An open market and competition are vital to spread the adoption of technology. Yet an open digital marketplace without the proper enabling environment comes with a host of risks, including discrimination, coercion, intellectual property theft, intrusive government surveillance, and self-censorship.[52] Such concerns prevent many from fully engaging in the digital economy. Indeed, OECD research has determined that security and privacy concerns prevent almost 30 percent of Internet users from providing information to social networks.[53] Government policies and actions can build trust in digital services, essential in areas such as data privacy, digital safety, cybersecurity, and consumer protection.

Inadequate data governance and regulatory frameworks can expose people and businesses to risks such as cyber-attacks and data leakages, undermine confidence, and lead to inefficiencies. Trust can be built through effective data privacy, consumer and cybersecurity protection, and secure digital ID laws. Government must provide a clear legal framework for digital business (e-transaction law) and ensure national policies are underpinned by institutions and policies that support digital development. Civil society must be empowered, including with digital skills, to hold government accountable for safeguarding rights in the digital space.

Consistency of law and policy is a driver of digital adoption. Some countries lack appropriate policies, laws, and regulations to support a productive digital sector. This inadequacy can result from lack of understanding of the value and role of good laws and regulation, the inability to implement them, or the willingness to misuse digital tools and the data they enable. Governments that have inadequate national rules and regulations or flip-flop on policies can discourage and drive out investment and implementing partners, as well as stifle adoption of digital solutions.

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[50] OECD, 2-16, p 72; Banga
[51] Banga, p 19; World Bank, p 77
[52] Pathways for Prosperity Commission, p 26 & 35
[53] OECD 2019, p 16

Consumer protection laws are vital to build trust and confidence in e-commerce. Lack of trust fuels fears of online fraud, product safety, and the viability of product returns, and restrains growth. Both business and government have a role in fostering consumer trust. The free flow of data for commercial and social purposes must be balanced with the protection of personal data.

Donor collaboration

The keys to digital development are not held by a single actor, either within a country or globally. They require coordinated efforts and interconnected decisions and actions by government, the private sector, civil society, and international bodies, with the support and guidance from donors. Government must establish a conducive policy and regulatory regime. The private sector provides much of the investment and technical knowledge, hardware/software, and innovation. Civil society can facilitate awareness and cultural change, establish and monitor ethical standards and behavior, and reach the underserved. Beyond the national level, government alliances and international organizations can establish regional and global compatibility of standards and norms. Donors can play a supportive role by providing capital for infrastructure, technical assistance for policies and standards, and advice and advocacy for measures that expand inclusive access, such as building digital skills and literacy and supporting service expansion to the underserved.[54]Public-private-partnerships, industry-public-civil society alliances, and regional/global forums can be key instruments for coordinate efforts.

Donor digital strategies & priorities

Southeast Asia is the fastest growing region for Internet adoption and digital connectivity. At the same time, considerable progress is still to be made. Infrastructure and digital skills are inadequate, only 16 percent of SMEs in Southeast Asia are digitally integrated, interoperability needs to be enhanced, and the region has weak laws and regulations governing cybercrime, e-commerce, and e-governance.

The United States is the only donor that has issued a formal digital strategy. The USAID "Digital Strategy 2020-2025"[55], released in April 2020, is targeted at "strengthening the openness, inclusiveness, and security of country digital ecosystems". The components of the strategy are enabling sound government policy and regulation, robust and resilient digital infrastructure, capable digital service providers and workforce, and empowered end-users. The strategy is structured to engage the private sector as a partner and promote the adoption of appropriate international standards and best practices. It includes strengthening cybersecurity and protection of data privacy and responsibility. It is designed to address gaps in governance policy and standards, market failures, and the security and resilience of partner country digital ecosystems.

The strategy includes the development of an Information and Communication Technology Adoption metric (ACT Adoption indicator) that will serve as an indicator of country capacity. USAID is piloting a Digital Ecosystem Country Tool (DECA) in Colombia and Kenya.

Specific to the Indo-Pacific region, in 2018 the Department of State and USAID launched the Digital Connectivity and Cybersecurity Partnership (DCCP), designed to engage the private sector in communications infrastructure development, promote regulatory reform for

[54] Change, 2015
[55] USAID. Digital Strategy 2020-2024

competitive digital markets, and strengthen cybersecurity capacity. It promotes open, interoperable, and secure communications networks. In partnership with government, private sector, and civil society, the initiative sets out specific priorities to advance:

- rules-based policies
- international standards and best practices
- investment in infrastructure
- digital skills
- civil society's role in advocacy and accountability
- security from privacy abuse, cybercrime, and misinformation
- trafficking in people and illicit goods.[56]

The Korean Digital Partnership for Inclusive Development Program for ASEAN[57] is targeted at enhancing connectivity and contributing to digital innovation. It is designed to accelerate the digital economy and build successful business models based on digital infrastructure and expanding digital networks in rural areas. Its priorities are improving public administration for public services such as health and education, especially for the underprivileged, and streamlining social service delivery, enhancing digitally-based rural business models, and enhancing financial innovation.

JICA's strategic priorities for digital are improvement in capacity for ICT policy-making capacity, ICT human resources, ICT infrastructure, and application of ICT. Implementation has covered a range of activities, including providing policy advisors on ICT, training ICT engineers, developing fiber-optic networks, and supporting ICT for education, industrial promotion, and disaster risk reduction. JICA works with ASEAN members, through the Japan-ASEAN Ministerial Policy Meeting on Cyber Security Cooperation, to assist countries in building cybersecurity capacities.[58]

Germany in 2018 issued a digital "toolkit" that prioritizes digitalization to support employment and economic growth, innovation, education, healthcare, democracy and human rights, and trade and investment. Project implementation has covered all of these areas plus rural development, infrastructure, environment protection, and security.[59]

Australia's 2015 economic strategy identifies digital priorities, including ICT policy and regulatory reform to support competitive markets in telecommunications and ICT that improve connectivity in the region through efficiency of commerce, financial services, and transport logistics.[60]

[56] USAID, 2018
[57] KOICA. "Digital Partnership for Inclusive Development in ASEAN".
[58] JICA. ICT. https://www.jica.go.jp/english/our_work/thematic_issues/ict/activity.html
[59] *Toolkit 2.0 – Digitalization in Development Cooperation.*
[60] *Strategy for Australia's Aid Investment in Economic Infrastructure.*

Opportunities for donor collaboration

Benefits from digital are immense. Well-designed policies can help mitigate the risks that come with connectivity. Effective policies can help developing countries leapfrog and take advantage of the benefits of greater digital connectivity, and hard and soft infrastructure elements can build a robust digital economy.

Project/Country level

The quickest and easiest way to commence collaboration is to expand on-going activities, to find (1) a donor program that is operating in multiple countries, (2) a country where several donors have on-going comparable projects, and another donor could add funding or other support to that activity, or (3) where several donors have parallel projects that could be coordinated or linked. Appendix III presents a list of donor projects as reported to IATI, a list that is incomplete as donors vary in the extent to which they report to IATI.

In the first category are two Australian projects. As indicated by the name, the ASEAN-Australia Digital Trade Standards Initiative is a collaboration of Australian and ASEAN members to advance the adoption of international standards for digital trade. It is operative in Cambodia, Indonesia, Laos, and Myanmar. Other donors could support its expansion into one or more of the other three countries, the Philippines, Timor-Leste, and Vietnam. Similarly, the Cyber Cooperation Program is designed to help build country capacity to respond to the challenges and opportunities of cyberspace. It operates in all seven countries; other donors could join to take it deeper and wider in those countries. The USAID IGNITE project that works with ASEAN includes work on connectivity, specifically cross-border trade and e-services.

At the level of comparable projects in a single country, the Philippines is a logical candidate as several donor agencies are working on e-government. USAID's E-PESO project is designed to help advance e-government in the Philippines by supporting policy reform, capacity building, and e-services at the national and local levels. It is working to shift government disbursements and revenue collection to electronic payments. The rationale is to increase transparency, reduce leakage, and enhance efficiency. The Korean project KSP Policy Consultation III is working with the government of the Philippines in support of more open e-government. These two projects would be ripe for cross-fertilization and collaboration, and support from other donors. Given the significant benefits of e-government, specifically e-procurement, to improving efficiency and transparency (and therefore serve to block corruption)—for example, the government of Ukraine reports Prozorro, the online procurement program supported by the USAID/UK Aid financed TAPAS program, has saved $5.1 billion over five years and nine months[61]—e-government taken by the five donors to all seven partners countries could make a significant contribution to economic and political advancement.

[61] Those savings, calculated since February 2015, are the accumulation of the difference between the value of what a state buyer estimates a given contract ought to be and the actual value of the contract once it goes through Prozorro's reverse auction system (i.e., lowest bidder wins) November 1, 2020, email from Rob O'Donovan, Eurasia

Three of the donors have digital activities in Indonesia that might serve as platforms for collaboration. The Australian CSIRO Partnership is using blockchain to facilitate trade-related transactions and a transport supply chain-mapping tool. South Korea is engaged in enhancing the digital capabilities of the national police through the provision of equipment, training, and technical assistance. USAID is working to advance the digital capabilities of women and girls, through digital literacy, training, relevant content, policy work, and on-line networks.

The place to launch consideration of potential collaboration at the project level is through targeted discussions among technical and country experts, either at the country or headquarters level, on active and planned digital projects, with the goal of identifying common interests and explore modalities to amplify or expand each other's work. This is most likely to occur where in-country donor staff are already in touch or headquarters issue a mandate on collaboration.

Another opportunity for donor cooperation is through the USAID Digital Asia Accelerator. Inspired by the broader U.S. initiative Digital Connectivity & Cybersecurity Partnership, the newly launched Accelerator is designed to strengthen the digital economy by enhancing digital literacy and cybersecurity. The initiative has three components: (1) capacity building—enhancing the digital skills of SMEs and civil society (through training); (2) public awareness of digital safety (especially youth); and (3) policy prescription—strengthening the ability of the private sector and civil society to influence public policy. The initiative is just commencing in Cambodia, Laos, and Myanmar. Indonesia and the Philippines have been identified as potential partners. Other donors could join in the initiative at this early stage and help deepen and expand the reach in the current target countries and/or take it to Timor-Leste and Vietnam.

A potential framework for collaboration on digital programs is the MOU signed in 2018 by the Australian Department of Foreign Affairs and Trade (DFAT) and Export Finance and Insurance Corporation (Efic), the Japan Bank for International Cooperation (JBIC), and Overseas Private Investment Corporation (OPIC) (now the Development Finance Corporation—DFC). The MOU commits the three governments to cooperate in investing in sustainable infrastructure and to operationalize the Trilateral Partnership for Infrastructure Investment.[62] As of October 2020, the first several investments were moving to consideration. As bringing digital infrastructure to rural and unreached populations can require extra incentives and subsidies, including blended finance and technical assistance, this endeavor could involve joint funding by development finance agencies and grant assistance agencies. This trilateral arrangement could be joined by the other two donors, Germany and South Korea, to become a five-donor framework for collaboration on digital infrastructure.

Foundation; also, https://www.brookings.edu/blog/future-development/2019/10/31/fighting-corruption-in-ukraine-usaids-strategy/

[62] Stromseth, 2019; White House. 2018. "Joint Statement of the Governments of the United States, Australia, and Japan"; White House. November 13, 2018. "U.S.-Japan Joint Statement on Advancing a Free and Open Indo-Pacific Through Energy, Infrastructure and Digital Connectivity Cooperation".

2020-2040 digital partnership for Southeast Asia

Digital is a priority focus for all five donors—either through a digital strategy or through specific policies and programs. This common interest in the digital development of Southeast Asia, and the only partially tapped economic, social, and political potential that digital holds for the region, suggests that what would be in order is something more ambitious than the normal donor collaboration on a policy or a project.

Beyond connecting on existing activities, donors could seize the opportunity to work together to develop a major new multi-party platform for public/private collaboration for investment in digital infrastructure, policy reform, interoperability, cybersecurity, and capacity building. While launching such an initiative would require considerable expenditure of political capital, time, and human resources, it would provide the best opportunity to address the multiple interconnected issues—and draw the scale of investment necessary—to unleash the vast potential for digitalization to accelerate development outcomes.

Given the presentation in the first part of this paper on the transformative and wide-reaching power of digital—for governments, individuals, the economy, education, health care, communications, security—which has only become more apparent and important during COVID-19, and the significant digital gaps in the lower-income countries of Southeast Asia, donors could make a significant contribution to the economic, social, and political development of the region by joining forces to advance digital development, implemented according to the specific needs and priorities of each country. The five donor countries are all global digital leaders with strong economic and security interests in the digital development in Southeast Asia and how it contributes to the prosperity and security of the region.

A model for such an initiative is the successful U.S. program Power Africa, launched in 2013 to identify and remove constraints holding back high-value energy projects in Africa. To understand the reach and potential impact of such an initiative, Power Africa today joins the assets of over 170 public and private partners, including twelve U.S. government agencies, various international donors and organizations, companies, and civil society organizations. Financial commitments from all partners have totaled $56 billion, about $16 billion from public sector entities and $40 billion from the private sector. In seven years, Power Africa has brought to closure 126 power generation deals (52 are now operational), valued at an estimated $21 billion and bringing power to 16 million homes and businesses representing 74 million beneficiaries. USAID has invested over $500 million in the program. Another $70 million has come from the U.S. Trade and Development Agency and $11 million from the U.S. Africa Development Foundation. The Overseas Private Investment Corporation (OPIC) was an original partner, whose role has now been assumed by its successor, the Development Finance Corporation (DFC).

The digital gaps in Southeast Asia are particularly notable in five broad areas—infrastructure, government policy and regulation, interoperability, cybersecurity, and digital skills. Power Africa offers a variety of support tools—finance, transaction assistance, technical advice for policy and regulatory reform, capacity building, and legal assistance. These instruments are all

relevant to digital, but one additional element would need to be added—enhancement of the digital skills of government, business, civil society, and individuals.

This initiative would not just be compatible with, but would advance implementation of donor digital priorities through a framework of public/private partnerships. Principles to guide the initiative, including partner collaboration, are readily adaptable from the Principles for Digital Development.[63]

Principles for Digital Development

Design with user

- Design for scale
- Be data driven
- Address privacy & security
- Use open source, open data, open innovation

Understand existing ecosystem

- Build for sustainability
- Reuse and improve
- Be collective

https://digitalprinciples.org/

There also is a set of principles for donor collaboration in health[64] that provide a framework for donor collaboration on digital activities in any sector.

Donor Investment Principles for Digital Health

Donors should:

- Collaborate
- Quantify costs
- Strengthen donor skills
- Prioritize national plans
- Track & measure

Donors should invest in:

- National strategies
- Country capacity
- Sharing & peer-learning
- Maturity continuums
- Global goods

https://rpr.org.ua/en/news/the-principles-of-donor-alignment-for-digital-health

[63] https://digitalprinciples.org/

[64] https://rpr.org.ua/en/news/the-principles-of-donor-alignment-for-digital-health

As an example of the roles of various government agencies in a digital initiative, on the U.S. side, USAID would serve as the hub. All participating U.S. government agencies could identify potential opportunities. USAID would work with relevant agencies to vet and develop project opportunities and provide specific support through technical assistance for government policy and regulations, transaction and legal assistance, and capacity building for government, business, civil society, and individuals. The Department of State would contribute its diplomatic weight at the policy level. The Development Finance Corporation (DFC) would play a central role in vetting investment projects and provide financing (debt and equity), political risk insurance, and technical assistance. The Trade and Development Agency (USTDA) would support feasibility studies and procurement reform.

Other donors might have a comparable configuration of agency involvement. The foreign ministry would likely be responsible at the policy level. The development program would engage in technical assistance for capacity building and transactions. Financing for infrastructure could come from development finance institutions and programs—KEXIM and KIND (Korea), DEG and KfW Development Bank (Germany), JICA and JBIC (Japan), and Australian Infrastructure Financing Facility for the Pacific (AIFFP) (Australia).

Singapore, with its strong digital development and interests, would be a natural founding partner. In 2000 the government launched the e-Government Action Plan that has digitized many government services. In 2014 it established the Smart Nation to deploy technological solutions to urban challenges. Building on that, Infocomm Media 2025[65] sets the ambitious goal of making Singapore number one in the world in using digital technology, specifically targeting four areas: productivity growth, creation of high-skilled jobs, support for an aging population through health solutions and services, and strengthening national identity through the collective pursuit of positive social goals.[66]

ASEAN, with the priority it is placing on digital connectivity—as documented in the ASEAN Digital Framework, 2019 ASEAN Outlook on the Indo-Pacific, Asian Community Vision 2025 - would be a natural partner in this initiative. The donors could engage with ASEAN on and align their initiative with the Digital Master Plan 2025 that still being formulated.

Korea Telecom, which already has a presence in the region and knows the territory well, would be a natural private sector partner, along with telecommunications and IT companies of other countries.

[65] https://www.mci.gov.sg/portfolios/infocomm-media/infocomm-media-2025

[66] Lin, Diaan-Yi. "What Makes Singapore's government a digital leader – and how it might do better"; Government of Singapore - https://www.edb.gov.sg/en/news-and-events/insights/innovation/government-leads-digital-disruption-in-singapore.html

A model on how to structure a digital initiative, particularly on methodology for country diagnostics, and a potential partner, is the World Bank with its program Digital Economy Initiative for Africa (DE4A)[67].

Two factors add to the rationale, even urgency, for such an initiative. One is the challenge of China in the marketplace of 5G and other digital services and technologies. The other is the economic retrenchment and debt burden in Southeast Asia calls out for donor assistance in de-risking the massive public and private investment needed for digital infrastructure and the companion policy and administration reforms. As evidenced by the data in appendix IV, Cambodia, Indonesia, Laos, and Vietnam have high levels of external debt (range from 37.6 percent of GNI for Indonesia to 90.2 percent for Laos) and an annual debt service burden, 5.4-5.6 percent of GNI for Cambodia, Indonesia, and Laos to 8.1 percent for Vietnam. In comparison, the average for lower-middle-income countries for the external debt burden/GNI is 29.6 percent and for debt service/GNI is 3.2 percent. This level of debt makes access to external capital difficult and expensive and calls out for significant support from donors.

A multiparty public/private partnership would be a 10-25-year high-profile, pragmatic initiative that would ramp-up the digital capacity for the economic, social, and economic development of the lower-income countries of Southeast Asia. Building the digital development of the seven countries would, in turn, advance the foreign policy and development interests of the donor countries and the region. These overarching common interests and potential impact should provide the incentives for donors to overcoming their individual priorities and differing budget and program requirements to align behind an initiative to leapfrog Southeast Asia into the digital 21st century.[68]

[67] https://www.worldbank.org/en/programs/all-africa-digital-transformation

[68] See Runde et al "Post-pandemic Infrastructure and Digital Connectivity in the Indo-Pacific" for a proposal for a U.S. digital infrastructure investment plan for the broader Indo-Pacific region.

Appendix I. Digital Readiness Index components, most recent year

Criteria	Indicators	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Timor-Leste	Vietnam	SE Asia Average
Technology infrastructure	Fixed telephone subscriptions (per 100 people)	19	1	3	21	20	1	4	35	4	0	4	10
	Fixed broadband subscriptions (per 100 people)	12	1	3	1	9	0	4	28	13	0	14	8
	Secure internet servers (per 1 million people)	1989	81	1283	20	5713	9	93	84714	954	29	1769	8787
Technology Adoption	Mobile cellular subscriptions (per 100 people)	132	119	119	52	135	114	126	149	180	116	147	126
	% of pop using internet	95	40	40	26	81	31	60	88	57	27	70	56
Human capital	Quality of math and science education (1-7, 1=low)	5	3	5	4	5		4	7	4		4	4
	Adult literacy rate (% 15+)	97	81	96	85	94	76	98	97	93	68	95	89
	% population age 0-14	23	31	27	33	24	26	31	12	17	38	23	26
Basic needs	Life expectancy at birth	76	69	71	67	76	67	71	83	77	69	75	73
	Mortality rate, under 5, total (per 1000 live births)	12	28	25	47	8	46	28	3	9	46	21	25
	Access to basic sanitation services (% pop)	96	59	73	74	100	64	77	100	99	54	84	80

Criteria	Indicators	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Timor-Leste	Vietnam	SE Asia Average
	Access to electricity (% pop)	100	89	98	94	100	70	93	100	100	80	100	93
Ease of doing business	Ease of doing business rank (1=best)	66	144	73	154	12	165	95	2	21	181	70	89
	Time to get electricity (days)	25	179	32	87	24	70	37	26	30	93	31	58
	Logistics performance index, infrastructure (1-5, 1=low)	2	2	3	2	3	2	3	4	3		3	3
	Rule of law index (0-1, 0=low)		0.8	0.6		0.6	0.4	0.5	0.8	0.5		0.5	0.6
Business, government, &	FDI inflows (current $, billions)	0.5	3.2	19.7	1.3	8.6	1.3	9.8	82.0	13.4	0.0	15.5	155
	High tech exports (current $, billions)	0.0	0.2	6.4	0.3	90.4	0.3	34	155	45		74	406
	Government success in ICT promotion (1-7, 1=low)	5.0	3.6	4.3	4.1	5.8	3.0	3.8	4.0	5.9	2.9	4.2	4.2
Start-ups	Strength of legal rights index (0-12, 0=low)	12	10	6	6	7	2	1	8	7	0	8	6
	Time to start a business (days)	6	99	13	173	18	7	33	2	6	13	16	35
	Venture capital availability index (1-7, 1=low)	2.9	2.9	4.0	3.2	4.4		2.8	4.8	3.6		3.4	3.6

Appendix II. Priorities for digital development in national digital and national development plans

CAMBODIA Elements of the Cambodian ICT Master plan 2020		
Themes	**Focus area**	**Priorities, Activities, and Projects**
Connectivity	E-Awareness	Connecting universal access
	National ICT Infrastructure	Founding the national backbone network—upgrading bandwidth of national backbone network
	National ICT Infrastructure	Accelerating the national information network—install the separate network according to the national policy purpose such as administration, finance and education & research.
	National ICT Infrastructure	Building-up the nationwide internet service base—to set up an environment to improve internet services
	National ICT Infrastructure	Bridging the digital divide—build an environment to easily access ICT services at affordable price for Cambodia citizens regardless of their income, obstacle and region by minimizing the gap between the information rich and poor person.
	National ICT Infrastructure	Enhancing digital TV—open high-quality and two-way digital broadcasting communication services anytime and anywhere.
	National ICT Infrastructure	Building-up broadband convergence network (BCN)—establish an environment to provide seamless and integrated broadband multimedia services anytime and anywhere.
	ICT Industry	Establish fundamental basis of ICT ecosystem

Themes	Focus area	Priorities, Activities, and Projects
Skills	ICT Human Resource Development	Building a national ICT Human Resource Development System
	ICT Human Resource Development	Training Employees in Government and Industry by MPTC/NIPTICT
	ICT Human Resource Development	Strengthening ICT education
	E-Awareness	Building digital minds (e-awareness) establish a special Division in NiDA for the Promotion of e-Awareness.
	E-Awareness	Enhance digital literacy
Data security and management	Cybersecurity	Bolstering cybersecurity—enhancement plans of information security as applied to administrative, technological and physical areas in order to provide reliable and stable ICT services.
Policy and regulation	Legal Framework	Refining regulatory ICT laws to 1) be competition oriented and business friendly, 2) make regulatory procedures and standards transparent and objective 3) exercise regulatory authority in a timely and relevant manner in accordance with prescribed rules and laws
	ICT Standards	Developing National Standardization Body
	ICT Industry	Selective and Gradual Industrialization of ICT Ecosystem
E-Government	Legal Framework	Implementing e-government act
	E-gov services	Expanding e-Government Services
E-Services	E-public services	Extending e-Public Services
	E-economy services	Improving e-Commerce Environment
	E-economy services	Enhancing e-Banking and Financial Network
	E-economy services	Improving e-Tourism Services
	E-education services	Enabling e-School Services
	E-education services	Implementing e-Learning Services

Themes	Focus area	Priorities, Activities, and Projects
Digital R&D and innovation	ICT Research & Development	Building-up Governance and Policy for ICT R&D
Inclusivity	E-Awareness	Accessibility for persons with disabilities
	National ICT Infrastructure	Bridging the digital divide—build an environment to easily access ICT services at affordable price for Cambodia citizens regardless of their income and region by minimizing the gap between the information rich and poor person.

Source: Cambodian ICT Master plan 2020

INDONESIA ICT Elements of the Master Plan Acceleration and Expansion of Indonesia Economic Development 2011-2025		
Themes	**Focus area**	**Priorities, Activities, and Projects**
Connectivity	Connectivity (infrastructure)	Provision of backbone and last mile connection with required broadband capacity to support business entities
	Connectivity (infrastructure)	Development of government communication and information systems that are safe (secure) and integrated
	Posture forming components of National (ICT) Connectivity	Integration of infrastructure application and national data
	Posture forming components of National (ICT) Connectivity	Broadband network development
	Posture forming components of National (ICT) Connectivity	Migration towards convergence
	Posture forming components of National (ICT) Connectivity	Equitable access and services
Skills	Human Resources and Science & Technology	Encourage capacity building in the ICT sector in every layer of society, both for civil society, government agencies, and decision maker(s)
	Human Resources and Science & Technology	Expand the scope of laboratory testing capabilities so as to test the technical specifications of other countries
	Human Resources and Science & Technology	Build and develop Smart and Techno parks
	Posture forming components of National (ICT) Connectivity	Increasing e-literacy, independent domestic ICT industry, ICT HR availability
	Human Resources and Science & Technology	Build data centers and data recovery center based on in-country potentials and human resources

Themes	Focus area	Priorities, Activities, and Projects
Data security and management	Posture forming components of National (ICT) Connectivity	Improving network and security and information system
Policy and regulation	Regulation and Policy	Evaluate TKDN (Level of Local Content) calculation and guidance for domestic industries including for SMEs
	Regulation and Policy	Provide tax incentives for ICT components that cannot be produced in Indonesia
	Regulation and Policy	Prepare mechanism of cooperation among government agencies, private, and research institutes
	Posture forming components of National (ICT) Connectivity	Synergy of national ICT activities and investments
E-Government	-	-
E-Services	-	-
Digital R&D and innovation	Human Resources and Science & Technology	Build domestic applications and digital content industries
Inclusivity	-	-

Source: Master Plan Acceleration and Expansion of Indonesia Economic Development 2011-2025

LAO PDR ICT Elements of National Development Plan	
Themes	**Priorities, Activities, and Projects**
Connectivity	Establish the National Information and Backup Centre with adequate capacity to efficiently meet domestic demand.
	Construct two national Internet backup centers in the Northern and Central regions.
	Ensure 100 percent internet coverage across the country.
	Expand telephone centers to ensure 100 percent local connection.
	Manage radio frequencies and maintain operational communications equipment that can be monitored to reduce impacts on society.
	Construct a center to monitor frequencies in the provinces where necessary.
	Prepare for ASEAN integration in the area of telecommunications to support the installation of connections devices within and outside the country.
	Set up the national policy on broadband services to determine an expansion plan and the ability to ensure access to broadband services by people across the country.
	Construct an internet backup center in the Northern and Central Regions by 2018.
	Create an intranet and long-distance meeting system to link 50 percent of government offices, districts, and villages.
	Expand the fiber optic transmission network, both aerial and underground, by 10,000 km to reach the Vientiane Capital and municipal districts of each province across the country as part of the infrastructure system to support e-governance.
	Extend quality, efficient, and low cost 3G and 4G transceiver stations to cover all areas nationwide.
	Develop and expand media infrastructure, manage media products, and improve IT as a central service.
	Complete installation of the management and services system on the national internet service code (.la) before 2016.
Skills	Establish learning centers on the application of technology, communications, and information in at least two centers at village group level and two centers at district level by 2020, by focusing the target areas under the 3-builds directive to be training centers for the government and the general population on ICT.
	Increase the computer literacy rate to 30 percent and internet literacy rate to 40 percent of the population, the proportion of households with computer literacy to 20 percent of all households, the proportion of registered landline and wireless home phone users to 15 percent, the proportion of registered mobile phone users to 100

	percent, and the proportion of registered landline and wireless internet users to 20 percent of the total population, by 2020.
Data security and management	Establish a cyber-crime monitoring system to ensure that the internet system in Lao PDR is secure and enable links with international warning systems.
	Establish a national data center as a place for consolidated electronic data of both the public and private sectors by 2018.
Policy and regulation	Review, develop, and improve laws, decrees, agreements, and regulations related to management of ICT application and services so they are consistent with international agreements and have adequate capacity to facilitate AEC participation.
	Develop and improve telecommunications and internet-related legislation to fit regional and international integration conditions.
	Establish the ICT development fund and regulate expenditure as indicated in the law on telecommunications.
	Apply a policy that promotes and attracts both domestic and foreign private investment in the telecommunications sector.
	Promote the post and telecommunications sector to contribute revenue to the GDP growth, to reach the target of GDP growth at 8 percent by 2020.
E-Government	Continue implementing the e-government project and satellite project to ensure they are completed as planned.
	Gradually develop e-management and services for 50 percent of the government offices.
E-Services	-
Digital R&D and innovation	Create policies to promote the development and application of open source software.
Inclusivity	-

Source: Lao PDR 2016-2020 Socio-economic Strategic Development Plan

MYANMAR Elements of the 2019 Myanmar Digital Economy Roadmap		
Themes	**Focus area**	**Goals**
Connectivity	Digital connectivity	Unique mobile subscriptions
	Digital connectivity	Mobile network coverage (% of population)
	Digital connectivity	Improve rankings in ITU ICT Development Index
	Digital skill and inclusion	Internet users (% of population)
Skills	Digital skill and inclusion	Qualified tech-related graduates (annual)
	Digital skill and inclusion	Number of people employed in the digital economy
Data security and management	Digital security	Improve ranking in ITU Global Cybersecurity Index
	Digital Transformation and Digital Trade	Legal protections for privacy and personal data
Policy and regulation	Crosscutting regulations and policy	Improve rankings in UN-Egovernment Development
	Digital Transformation and Digital Trade	Online consumer protection
	Digital Transformation and Digital Trade	Digital transformation across business sectors
E-Government	-	-
E-Services	-	-
Digital R&D and innovation	Digital innovation	Foreign direct investment in digital industry
	Digital innovation	Improve rankings in Global Innovation Index
Inclusivity	-	-

Source: 2019 Myanmar Digital Economy Roadmap

PHILIPPINES Elements of the 2019 National ICT Ecosystem Framework			
Themes	**Strategic Thrust**	**Priorities, Activities & Projects**	**Project Description**
Connectivity	Improved public links and connectivity	Free Wi-Fi Internet Access in Public Places Project	The Free Wi-Fi Internet Access in Public Places Project aims to provide free broadband Internet access to cities and municipalities nationwide.
	Improved public links and connectivity	Government Network	The Government Network (GovNet) develops fiber optic cables to connect government agencies to a data center which acts as the medium of communication, traffic controller, server and applications host, and keeper and manager of data.
	Improved public links and connectivity	National Broadband Program	The National Broadband Program (NBP) seeks to accelerate the deployment of fiber optic cables and wireless technologies to improve the Internet speed in the country. The NBP may enhance ICT-related services by establishing better broadband access.
	Industry and Countryside Development	Spectrum Roadmap	The Project is a development of a strategic plan to assess the spectrum economics related to improving broadband access and economic benefits of spectrum in the entire country, including the identification of appropriate methodologies in setting up a spectrum monitoring system or framework.
	Industry and Countryside Development	Tech4ED	The Technology for Education, Employment, Entrepreneurs, and Economic Development (Tech4ED) Project promotes digital inclusion by establishing eCenters as access points for ICT-enabled services to various communities. The project addresses the issue on bridging the digital divide in the country by bringing ICT facilities to the unserved and underserved areas.

Themes	Strategic Thrust	Priorities, Activities & Projects	Project Description
Connectivity	Improved public links and connectivity	Philippine Roadmap for 5G Technology	The Philippine Roadmap for 5G Technologies and Beyond is one of the initiatives of the government that is poised to lay down the groundwork for the development, planning, and implementation of 5G and Beyond-based technologies.
Skills	Resource sharing and capacity building through ICT	Digital Literacy Training Project	The Digital Literacy Training Project seeks to promote digital literacy for the special needs sector such as out-of-school of youth, senior citizen, and persons with disability through the conduct of trainings. The project also aspires to increase ICT Literacy in the special needs sector so that they would be able to cope up with the current trends and livelihood.
	Resource sharing and capacity building through ICT	Government-wide Medium-term ICT Harmonization Initiative	The Medium-Term Information and Communications Technology Harmonization Initiative (MITHI) is an e-Government and ICT support initiative that aims to harmonize ICT-related resources, programs, and projects in all agencies and on all levels of the bureaucracy.
Data security and management	ICT user protection and information security	Data Privacy Breach and Security Incident Reporting System	The Data Privacy Breach and Security Incident Reporting System is an initiative of the National Privacy Commission which seeks to establish an accessible, responsive, and easy-to-use complaints system.
	ICT user protection and information security	National Cybersecurity Plan 2022	The National Cybersecurity Plan 2022 addresses the cyber threats and creates innovative measures for a secure and resilient cyberspace for the Philippines.

Themes	Strategic Thrust	Priorities, Activities & Projects	Project Description
Data security and management	ICT user protection and information security	Cybersecurity Management System	The Cybersecurity Management System is a platform of technologies and tools house at the DICT Security Operation Center (SOC). The platform will assist the National Computer Emergency Response Team (NCERT) to accelerate intelligence and facilitate rapid incident response. NCERT focuses on the day-to-day protection of the Critical Infrastructure (CII), Government Network (Public and Military), Individuals, and Business and Supply chains.
	Enabling and Sustainable ICT Environment	Alternative Dispute Resolution System for Data Privacy Complaints	The Alternative Dispute Resolution System for Data Privacy Complaints is designed to establish a processing/docketing system for the cases filed to the National Privacy Commission. The project seeks to benefit data subjects, personal information controllers and processors.
	Improved public links and connectivity	National Government Data Center (NGDC) Project	The National Government Data Center (NGDC) is a launching point of government services like cloud computing, web hosting, server colocation, and other operations. The NGDC will enable faster data exchange and collaboration among government agencies as it provides centralized servers and colocation and storage facilities.
Policy and Regulation	National ICT Ecosystem Framework (NICTEF)	National ICT Ecosystem Framework (NICTEF)	Consistent with mandate of the Department to “harmonize and coordinate all national ICT plans and initiatives,” the DICT hereby promulgates the National ICT Ecosystem Framework (NICTEF) in order to promote the national ICT development agenda, and to serve as a blueprint for the harmonization and coordination of national ICT plans, programs, and projects.

Themes	Strategic Thrust	Priorities, Activities & Projects	Project Description
Policy and Regulation	Industry and Countryside Development	Digital terrestrial television broadcasting: comprehensive nationwide implementation	This is a comprehensive document which details policy and legal framework, and provides technical guidance for concerned stakeholders, measures for fiscal considerations as necessary, and communications strategies for public awareness for the smooth implementation. The migration process has the objective that broadcasting services currently delivered through the analog network will be fully replicated and provisioned for the digital network, through the Integrated Services Digital Broadcasting–Terrestrial (ISDB-T) standard.
E-Government	Participatory e-governance	National Government Portal	The National Government Portal (NGP) is a single window containing all online information and operational infrastructures, and public services of the government. Citizens can log in to the portal and access government services through online filling of forms and payment.
	Participatory e-governance	E-Government Masterplan 2022	The EGMP 2022 serves as the blueprint for a harmonized government information system. The plan outlines DICT's intent of developing the country's e-Government systems through the digital transformation of basic services such as public health, basic education, and other programs that cut across the whole of government.
	Participatory e-governance	Integrated Business Permits and Licensing Systems (iBPLS)	The Integrated Business Permits and Licensing System (iBPLS) Project envisions to streamline the processing not only of business permits but also the processing of building permits, certificates of occupancy, and barangay clearances.
E-Services	-	-	-

Themes	Strategic Thrust	Priorities, Activities & Projects	Project Description
Digital R&D and innovation	Industry and Countryside Development	seedPH	The seedPH Program aims to develop the Philippine Startup Ecosystem and spread the economic potential of digital entrepreneurship in the countryside. It works with local startup communities in advocating and providing interventions that encourage the formation of digital startups and build the capacity of Filipinos to become successful innovators and digital entrepreneurs.
	Industry and Countryside Development	Rural Impact Sourcing	The program aims to promote and develop the online freelancing industry / home-based outsourcing through advocacy workshops and technical trainings in the rural areas. This is intended to create meaningful ICT-enabled jobs in socio-economically disadvantaged areas in the country.
	Industry and Countryside Development	digitalcitiesPH	The digitalcitiesPH aims to establish ICT hubs outside of the metro and create job and investment opportunities, thereby promoting countryside development.
	Industry and Countryside Development	Stepping Up the Value Chain	Stepping-Up the Value Chain Program is a long-term strategy to strengthen the country's global positioning in targeted high-growth segments of the IT-BPM industry, including healthcare information management outsourcing; finance, accounting, and insurance outsourcing; HR outsourcing; Multilingual BPO; IT Outsourcing; Creative Process Outsourcing; Engineering Outsourcing. Its major target is to conduct industry capacity/capability building through the provision of industry trainings, seminars, workshops, and rural impact sourcing.

Themes	Strategic Thrust	Priorities, Activities & Projects	Project Description
Inclusivity	Enabling and Sustainable ICT Environment	Women's ICT Development Index	The Women's ICT Development Index (WIDI) is part of the government's effort to mainstream ICT gender initiatives of the country, and the need for the country to have its own ICT-related statistics and establish its own ICT-related database in order to identify areas where the gender digital divide reside in order to inform the Philippines' ICT policy and address these gaps.
	Resource sharing and capacity building through ICT	Digital Literacy Training Project	The Digital Literacy Training Project seeks to promote digital literacy for the special needs sector such as out-of-school of youth, senior citizen, and persons with disability through the conduct of trainings. The project also aspires to increase ICT Literacy in the special needs sector so that it would be able to cope up with the current trends and livelihood.
	Industry and Countryside Development	Tech4ED	The Technology for Education, Employment, Entrepreneurs, and Economic Development (Tech4ED) Project promotes digital inclusion by establishing eCenters as access points for ICT-enabled services to various communities. The project addresses the issue of bridging the digital divide in the country by bringing ICT facilities to the unserved and underserved areas.
	Industry and Countryside Development	Rural Impact Sourcing	The program aims to promote and develop online freelancing industry / home-based outsourcing through advocacy workshops and technical trainings in the rural areas. This is intended to create meaningful ICT-enabled jobs in socio-economically disadvantaged areas in the country.

Source: National ICT Ecosystem Framework. 2019. Philippine Department of Information and Communications Technology.

TIMOR-LESTE ICT Elements of the Timor-Leste Strategic Development Plan 2011-2030		
Themes	**Priorities, Activities & Projects**	**Targets**
Connectivity	Introduction of a Universal Service Policy	(By 2015) There will be reliable and affordable mobile phone coverage provided to all Timorese people
	Introduction of a Universal Service Policy	(By 2015) There will be reliable, affordable and high-speed internet access available in all district capitals and surrounding areas
	Introduction of a Universal Service Policy	(By 2015) All schools, health posts and health clinics will be connected to the internet
	Introduction of a Universal Service Policy	(By 2020) All Timor-Leste will have access to reliable, affordable and high-speed internet
	Introduction of a Universal Service Policy	(By 2020) All students and health professionals will have portable internet access devices
	Introduction of a Universal Service Policy	(By 2020) Timor-Leste will be part of the technology enabled world
Skills	-	-
Data security and management	-	-
Policy and Regulation	Introduction of a Universal Service Policy	(By 2015) The regulatory framework will be in place to manage a competitive telecommunications market
E-Government	-	-
E-Services	-	-
Digital R&D and innovation	-	-
Inclusivity	-	-

Source: Timor-Leste Strategic Development Plan 2011-2030

Vietnam Elements of the National Digital Transformation Programme 2025/2030		
Themes	Focus area	Goals
Connectivity	Infrastructure	The basic targets by 2025 include: optical fiber broadband network infrastructure covers over 80% of households, 100% of communes; universalize 4G / 5G mobile network services and smart mobile phones; percentage of population with electronic payment accounts over 50%; each locality actively selects a commune/ward to pilot communication work
	Digital connectivity	The popularization of smart mobile phones: one smart mobile phone for each citizen and the popularization of broadband infrastructure (one optical cable per household, promoting digital transformation)
Skills	Skills improvement	Each locality actively selects a commune/ward to disseminate basic digital skills to people
Data security and management	Data management	Fundamentally and comprehensively renovate the management and administration activities of the government and the production and business activities of enterprises
	Digital security	Ensuring network safety and security is the key to a successful and sustainable digital transformation; By 2025, Vietnam to be in the group of 40 leading countries in cybersecurity and security (GCI)
Policy and regulation	Crosscutting regulations and policy: overarching	The participation of the whole political system, synchronous action at all levels, and the participation of the entire population are factors that ensure the success of digital transformation
	Legal framework	Accept testing products, solutions, services, and digital business models; experimental legal framework development; Review, amend, and supplement the system of legal normative documents in specialized fields; Review, amend, and supplement the system of legal documents on enterprises, creative start-ups, intellectual property, commerce, investment, and business.

		Along with that, it is necessary to study, propose, amend, and supplement legal documents on IT and communication; to study specific tax and fee policies and regulations to encourage people and enterprises to use and provide digital services; review and amend civil and criminal legal documents and specialized laws in the direction of increasing levels and penalties for frauds and frauds when dealing on cyberspace.
E-Government	Develop digital government	100% of national databases create an e-Government development platform, including national databases on Population, Land, Business Registration, Finance, Insurance; databases are completed, connected, and shared nationwide
		The Steering Committee for E-Government Construction / E-Government of ministries, ministerial-level agencies, Governmental agencies, and People's Committees of centrally affiliated cities and provinces shall urge and coordinate the development of open digital transformation activities within their ministries, branches, or localities
	Develop digital economy	By 2025, bring Vietnam's digital economy to 20% of GDP; the proportion of digital economy in each branch or field reaches at least 10%
Digital R&D and innovation	Digital innovation	Vietnam becomes a digital, stable, and prosperous country, pioneering the experiment of new technologies and models
	Competitive edge	By 2025, Vietnam to be in the group of 50 leading countries in IT (IDI), the group of 50 countries leading in the competitive index (GCI), and the group of 35 countries leading in innovation (GII)
Inclusivity	People-centered digital transformation	Developing a safe, humane, and wide digital environment everywhere

Source: https://mic.gov.vn/Pages/TinTuc/142415/Viet-Nam-se-tro-thanh-quoc-gia-so-vao-nam-2030.html (translated to English with Google Translate)

Appendix III. Donor ICT Projects from IATI Platform

Active ICT education projects

International Aid and Transparency Initiative (IATI) data collected from d-portal.org. Last accessed 7/14/2020

Donor	Country	Project Title	Start (actual)	End	Project summary
Republic of Korea	KHM	(19/20 KSP Policy Consultation III) Digital Switch Over in Cambodia in 2020	18-Apr-19	30-Nov-20	Provide support for nation-wide digital service provision roadmap and relevant personnel enhancement
Republic of Korea	PHL	(19/20 KSP Policy Consultation III) Plan for Establishment of Open Government Cloud Platform, Philippines	18-Sep-19	30-Nov-20	Policy Consultation and Preparation of common standard for establishment of eGovFrame
Australia—Department of Foreign Affairs and Trade	LAO, IDN, KHM, MMR	ASEAN-Australia Digital Trade Standards Initiative	1-Jun-18	30-Jun-24	An initiative for Australia and ASEAN Member States to develop, adopt and increase the use of international Standards to promote digital trade and support inclusive economic growth.
Australia—Department of Foreign Affairs and Trade	MMR, LAO, TMP, IDN, PHL, KHM, VNM	Cyber Cooperation Program	1-Jul-16	30-Jun-23	The Cyber Cooperation Program aims to equip countries in ASEAN and the Pacific regions with the capacity to respond to the challenges and opportunities that cyberspace presents.

Donor	Country	Project Title	Start (actual)	End	Project summary
USAID	PHL	E-PESO	2015-03-2018	17-Feb-21	This activity will support select Philippine national government agencies in driving growth in electronic payments through policy reforms, business process improvements, and capacity building. The activity will focus on key areas where volume of payment transactions is high, including in government disbursements and revenue collections, at both the national and local government levels. E-PESO will support the Department of Budget and Management and the Bureau of the Treasury to shift national government disbursements from the current system using only government authorized depository banks, to PESONet, a U.S.-supported electronic payment initiative. PESONet makes payments to suppliers and contractors possible, whether or not the supplier's/contractor's bank is a government depository bank. U.S. assistance will also support agencies with large payment streams involved in the delivery of critical public services to shift to electronic payments. This will help increase transparency, reduce spending leakages, and enhance the efficiency in disbursements for public infrastructure, public services, and social support funds. E-PESO will also help improve efficiency of government collections, including support for the Bureau of Internal Revenue to expand options for revenue collection. It will provide advice to the Philippine central bank and the payment industry to establish more electronic payment channels to accelerate the shift towards electronic payments in retail transactions. Together, these different improvements will increase government resources for spending priorities, while improving the ease of doing business. Overall, the shift towards digital and electronic payments in retail transactions will increase domestic consumption and economic activities, and hence, economic growth.

Donor	Country	Project Title	Start (actual)	End	Project summary
Republic of Korea	KHM	Establishment of ISP for modernization of Cambodian employment service	1-Jan-18	31-Dec-20	Establishment of ISP for modernization of Cambodian employment service
Australia—Department of Foreign Affairs and Trade	TMP	Submarine Cable—Timor-Leste—Telecommunications	1-Jul-19	30-Jun-23	The Australian Infrastructure Financing Facility for the Pacific (AIFFP) is supporting Timor-Leste Government to design and deliver an undersea telecommunications cable that will allow for faster, more affordable and reliable telecommunications in Timor-Leste. This will include a grant-funded Front-End Engineering and Design activity during 2019-20 and 2020-21 valued at $1.5m. AIFFP proposes to deliver the cable through a blend of grant and loan. The cost and terms of this financing arrangement will depend on the design of the project and negotiations with Timor-Leste Government.
Republic of Korea	MMR	The e-Government Integrated Data Center Establishment Project	1-Sep-19	3-Jun-22	To prevent redundant investments in ICT infrastructure through the operation of a single system at the national level and DB construction
Republic of Korea	KHM	Establishment of IT based Job Incubation Center in Cambodia	1-Jan-19	31-Dec-23	Constructing and designing of the incubation center at RUPP and ITC; Strengthening of startup competitiveness; Consulting and capacity building for operation of business incubation centers; Promoting of startup incubation support program; Business incubation centers, incubation center operation plans, technology entrepreneurship support programs, competent incubation center staff, startup support mentor consultants and students at the Royal Phnom Penh University of Cambodia (RUPP) and Cambodian Institute of Technology (ITC)

Donor	Country	Project Title	Start (actual)	End	Project summary
Republic of Korea	IDN	Integrated Trunked Radio System for Indonesian National Police Project	1-Dec-11	30-Jun-21	To develop the Integrated Trunked Radio System for Indonesian National police by procuring of goods and works, training, and relevant consulting services
USAID	IDN	T-Digital Finance-NetHope (buy-in)	30-Sep-10	29-Sep-20	(USAID Economic Growth, Education and Environment (E3)): This activity is now known as Women and the Web. It is a public-private partnership among USAID, NetHope, Intel Corporation, World Pulse, World Vision, UN Women, and Women in Technology in Nigeria. Alliance partners will combine efforts to transform the lives and livelihoods of girls and women in Africa through digital literacy training, relevant content, policy work, and online social networks. The Alliance will introduce girls and women to the transformative benefits of the Internet. All partners share a common interest in increasing access to and use of the Internet to realize the socio-economic benefits of bringing more girls and women online. This effort will expand opportunities for young women to generate greater income, receive a quality education, increase their sense of empowerment and equity, extend their support networks, and increase their political participation. Funding to support this activity comes from the Women's Leadership initiative.
Australia—Department of Foreign Affairs and Trade	IDN, VNM	CSIRO Partnership	1-Jul-17	31-Dec-20	Funding under this investments supports the Australian Department of Foreign Affairs and Trade's (DFAT) partnership with the Commonwealth Scientific and Industrial Research Organization (CSIRO) to develop a prototype of a blockchain platform facilitating trade related transactions in a selected country and a transport supply chain mapping tool, which will be applied to specific commodity transport supply chains. The total value of this investment is $1.7 million over 3 years, starting 2017-18.

Donor	Country	Project Title	Start (actual)	End	Project summary
Republic of Korea	KHM	2018 ICT Innovative Education for Primary Education and Girls and Disabled Children for Cambodia	20-Dec-18	31-Dec-21	Training schoolteachers on using computers in preparation of teaching via cooperation with other schools. Introduction of computer science education to primary schools for enhancing teachers` teaching capacity, and to reduce primary school dropout rate. Introducing elementary and secondary computer science and STEM public education curriculum, facilitating technology-based entrepreneurship during the 4th Industrial Revolution, and promoting women's social advancement / strengthening teacher-based teaching capacity
Republic of Korea	NVM	Development and Distribution of Portable Radar to Resolve Inequalities of Public Transportation Safety in Vietnam	3-Dec-2019	9-Dec-2020	Prevention of Public Transport Accidents in Viet Nam through development of portable radar-censored auto-x- system, and saving social cost from prevention of public transport accidents
Republic of Korea	VNM	Project for Establishment of Total Water Resources Information Management System in Ma River Basin of Central Vietnam (Thanh Hoa Province)	1-Dec-2019	2-Nov-2023	This project targets irrigation facilities located sporadically in various dams, reservoirs and river basins and aims at water resources information management by comprehensively establishing the real-time floodgate information management system, decision support system, water facility management system, water resources DB and management system and an operating situation room.

Donor	Country	Project Title	Start (actual)	End	Project summary
Republic of Korea	VNM	Vietnam Digital Korean language education Capacity Enhancement Project	6-Dec-2018	6-Dec-2023	1. Korean E-learning platform operation, 2. Smart Korean class operation, 3. Job searching website operation
Republic of Korea	VNM	Project for Smart City Establishment of Quang Nam Province (Tam Ki City)	1-Dec-2019	2-Nov-2024	Project for IT oriented city and public administration capacity enhancement of Quang Nam Province and Tam Ky City through establishment of Smart City
Germany—Ministry for Economic Cooperation and Development	VNM	Smart grids for renewable energies and energy efficiency	24-April-2017	31-Dec-2021	Smart grids for renewable energies and energy efficiency
Australia—Department of Foreign Affairs and Trade	VNM	Cyber Cooperation Program	1-July-2016	30-June-2023	The Cyber Cooperation Program aims to equip countries in ASEAN and the Pacific regions with the capacity to respond to the challenges and opportunities that cyberspace presents.

Appendix IV. Country debt burden

Total debt service (% of GNI)				
Country Name	**2015**	**2016**	**2017**	**2018**
Cambodia	4.1%	4.0%	4.9%	5.6%
Indonesia	7.2%	7.1%	6.0%	5.6%
Lao PDR	3.1%	3.7%	4.9%	5.4%
Myanmar	0.8%	1.2%	1.0%	1.1%
Philippines	3.1%	3.1%	3.1%	2.3%
Timor-Leste	0.0%	0.0%	0.1%	0.1%
Vietnam	3.6%	3.7%	6.6%	8.1%
Lower middle income	2.8%	3.1%	2.8%	3.2%
Low & middle income	3.1%	3.6%	3.4%	3.6%

Source: World Bank International Debt Statistics. Total debt service is the sum of principal repayments and interest actually paid in currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF.

External debt stocks (% of GNI)				
Country Name	**2015**	**2016**	**2017**	**2018**
Cambodia	54.6%	52.6%	54.0%	58.2%
Indonesia	37.0%	35.4%	36.0%	37.6%
Lao PDR	84.7%	89.5%	91.8%	90.2%
Myanmar	24.8%	22.9%	23.2%	21.5%
Philippines	21.6%	19.9%	19.7%	19.9%
Timor-Leste	4.2%	3.6%	5.5%	6.7%
Vietnam	42.5%	43.6%	48.9%	46.7%
Lower middle income	28.5%	28.1%	29.0%	29.6%
Low & middle income	24.6%	25.5%	25.7%	25.6%

Source: World Bank International Debt Statistics. Total external debt is debt owed to nonresidents repayable in currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt. GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.

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