Building ecosystems:
identifying tech start-up enablers in ASEAN

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Executive summary

The Association of Southeast Asian Nations (ASEAN) has made great strides in recent years in terms of economic performance. However, the region remains diverse in terms of development and per capita incomes, as well as other factors such as language and culture. Unlocking new types of investment is an important part of the association's strategy to narrow economic differences within the region.[1] This increasingly involves focusing on digital services and, in particular, the role of tech start-ups in creating jobs and wealth.

The ASEAN region is home to a young and vibrant tech start-up ecosystem that is growing at a fast pace. According to the ASEAN Investment Report 2020–2021, there were more than 23,850 tech start-ups in the region as of May 2021, representing a 77 per cent increase since August 2018. Moreover, the rising valuation of several tech start-ups highlights the growing presence of new, tech-enabled business models in the region.

The size of the opportunity for tech start-ups depends on a number of enabling factors, which can have a significant impact on the sustainability and scalability of new services. This report identifies five key enablers for a thriving tech start-up ecosystem in ASEAN low- and middle-income countries (LMICs): economic readiness; regulation; digital infrastructure; digital talent; and investment and support.

Analysis shows ASEAN LMICs are making strong progress on several of these enablers. Evidence includes the following:

○ Average GDP growth in 2021 across ASEAN LMICs was 8 per cent, demonstrating the strength of the region's COVID-19 economic recovery.

○ Malaysia has implemented a number of regulatory reforms in the past decade to make it easier for tech start-ups to do business, while Indonesia and Vietnam have also made progress in terms of enabling regulation in areas such as foreign investment and taxation.

○ By the end of 2021, 380 million people in ASEAN LMICs subscribed to mobile internet services, equivalent to 56 per cent of the region's population, up from 40 per cent in 2017.

○ Venture capital deal size volume for the first three quarters of 2021 surpassed the full-year figure for previous years.

○ There are almost 350 tech hubs across ASEAN LMICs, with the number of hubs in several countries in the region doubling between 2018 and 2021.

While there have been several improvements, progress on these enablers has been uneven and more work needs to be done to unlock the tech start-up opportunity across the ASEAN region. A major barrier is the shortage of workers with the right technical skills. Tech start-ups also face several regulatory barriers in many countries, including difficulties with government coordination, weak enforcement of contracts and ambiguous legislation regarding tax enforcement. Moreover, venture capital firms and tech hubs are unevenly distributed across the region.

Building on the analysis of these enablers, this report categorises ASEAN LMICs to show their progress in building a thriving tech start-up ecosystem. Two countries were identified as having advanced tech start-up ecosystems: Indonesia and Malaysia. The Philippines, Thailand and Vietnam are at the intermediate level, while the tech start-up ecosystems in Cambodia, Laos and Myanmar can be classified as nascent. Stakeholders in each country need to tailor activities to these classifications and their local context in order to develop their tech start-up ecosystems.

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1. ASEAN Investment Report 2020–2021: Investing in Industry 4.0, The ASEAN Secretariat, 2021

Definitions and research objectives

Objectives and scope

Our research aims to identify and analyse the main ecosystem enablers for a thriving tech start-up economy in ASEAN LMICs. The report shares best practices in countries where those enablers have helped to create a vibrant tech start-up ecosystem. It also looks to identify the barriers which are hindering progress among start-ups in the ASEAN tech ecosystem. The report concludes with strategic recommendations for stakeholders in the ASEAN tech start-up ecosystem.

Definitions

There is a fair amount of definitional ambiguity around many of the terms relating to start-ups. For the purposes of this report, the following definitions have been used:

- **Start-up:** An organisation designed to look for a business model that is repeatable and scalable.[2] This distinguishes start-ups from other companies, which are assumed to already have a repeatable and scalable business model. As a result, the type of investment and support that a start-up requires is different from other organisations.

- **Tech start-up:** A start-up leveraging technology or digital channels to look for a business model that is repeatable and scalable. Most start-ups can be classified as tech start-ups, given the dominance of the internet in creating new business models.

- **Start-up ecosystem:** A collection of start-ups and related organisations that interact to create and scale start-up companies. While the term is typically used in relation to a specific area (e.g., Silicon Valley), it can be also used when describing start-up activities in a particular county or set of countries. Actors in start-up ecosystems include start-ups, investors, tech hubs, large corporates, governments, and donors.

Summary of methodology

The information collected, analysed, and presented in our research came from two sources:

- Key informant interviews (KIIs) with tech start-ups, investors, donors, tech hubs, mobile operators, and other experts, focusing on the ASEAN region. Key informants were asked questions on the current state of the ASEAN tech start-up ecosystem, the key enablers for creating a thriving ecosystem and initiatives to support tech start-ups in ASEAN. KIIs were conducted in January and February 2022; and

- Desk-based research on the tech start-up ecosystem in the ASEAN region.

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2. As defined by Steve Blank, American entrepreneur, and adjunct professor of entrepreneurship at Stanford University.

1 The ASEAN tech start-up ecosystem

1.1 A large and diverse region

ASEAN was established in 1967 by five founding members: Indonesia, Malaysia, the Philippines, Singapore, and Thailand. The primary aims of the association are to accelerate economic growth, social progress, and cultural development in the region, as well as promote regional peace and stability. Subsequently, ASEAN has expanded to include Brunei, Cambodia, Laos, Myanmar, and Vietnam. This means the population of the ASEAN region now stands at over 660 million – making it larger than the European Union, the US, or Latin America.

The ASEAN economy has a combined GDP of $2.5 trillion. Moreover, it continues to outpace much of the world on growth in GDP per capita, while income growth and average annual real gains also remain strong. The ASEAN region also has a very young population; more than a quarter of people belong to the 15–29 years age bracket, while only 6 per cent are 65 years old and above. As a result, it is witnessing a steady expansion of consumers who can begin to make significant discretionary purchases.

ASEAN member states aim to tighten economic integration, as demonstrated by the signing of the ASEAN Charter, which turned the association into a legal entity and aimed to create a single free-trade area. This reflects a step towards an 'EU-style' community and a move away from the less structured multilateral framework previously adopted by member states. However, there remain inconsistencies in regulation between member states in areas such as digital services, representing the challenges of integrating trade and harmonising policies within a region that is diverse in terms of development and per capita incomes, as well as other factors such as language and culture.

Unlocking new types of investment is an important part of the strategy to narrow economic differences within the region. This increasingly involves focusing on investment in digital services. The annual ASEAN Investment Report outlines how member states are promoting the adoption of Industry 4.0 technologies to support their industrialisation and enhance overall economic competitiveness.[3] The report recognises the important role that tech start-ups can play in achieving these outcomes through the creation of jobs and wealth. This is supported by a study from the International Economic Development Council and Dealroom, which shows that start-ups grow three times faster than other businesses and have been responsible for 10 per cent of job growth worldwide since 2017.[4]

1.2 A thriving tech start-up ecosystem

ASEAN is home to a young and vibrant tech start-up ecosystem that is growing at a fast pace, as demonstrated by the rising number of tech start-ups. According to the ASEAN Investment Report, there were more than 23,850 tech start-ups across the ASEAN region as of May 2021, representing a 77 per cent increase since August 2018. Start-up activity is centred around Singapore and Indonesia, where almost 60 per cent of ASEAN tech start-ups are headquartered.[5] Malaysia is ranked third in terms of the number of tech start-ups, followed by Vietnam, the Philippines and Thailand.

The increasing presence of tech start-ups in the ASEAN region highlights the ecosystem's growing maturity. In the first half of 2021, an additional 15 tech start-ups in the region reached a valuation of above $100 million, while 16 others graduated to a valuation of above $250 million.[6] This included nine companies attaining unicorn[7] status. This momentum continued into the second half of 2021, when a further 11 tech start-ups recorded a valuation of over $1 billion. Consequently, more tech start-ups in ASEAN became unicorns in 2021 than in all the previous years combined.

It is important to note here that not every tech start-up should strive for unicorn status. While some start-ups might tap into a large market opportunity, others may achieve their appropriate scale within a market niche, reaching a relatively small number of users or lower valuation.

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3. ASEAN Investment Report 2020-2021: Investing in Industry 4.0, The ASEAN Secretariat, 2021
4. "The economic engine of startups: using data to fuel startup ecosystems", Dealroom, August 2021
5. Given the different levels of development between Singapore and the rest of the region, the main focus of this report is on the tech start-up ecosystem in ASEAN LMICs.
6. Southeast Asia Tech Investment – 2021 H1, Cento Ventures, 2021
7. A term coined by Aileen Lee, a venture capitalist, for a start-up with a valuation over $1 billion.

FIGURE 1

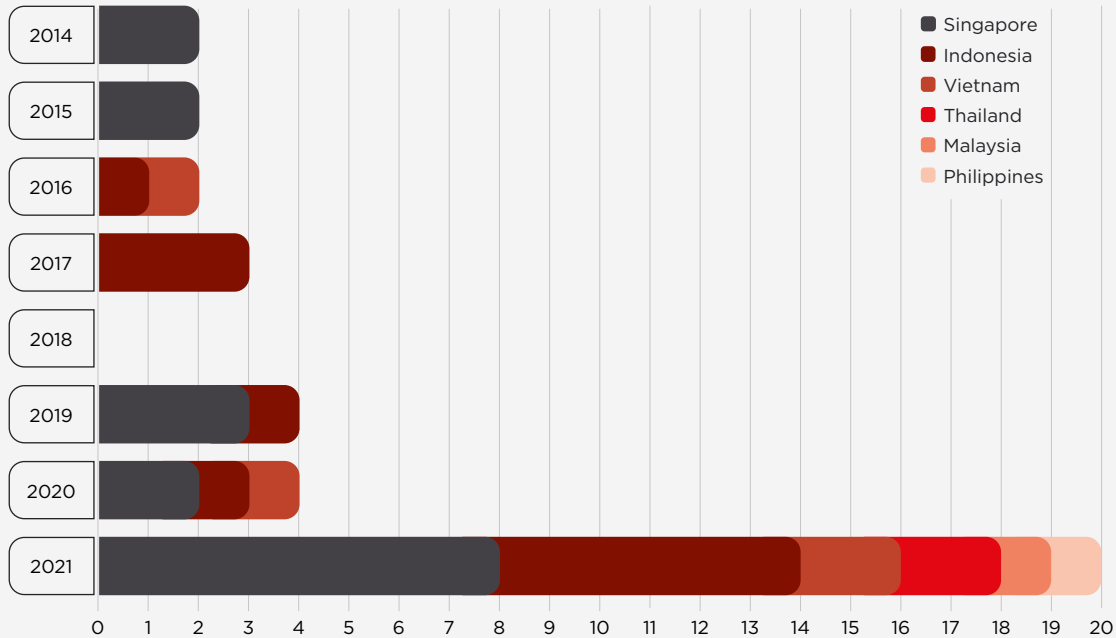# The diverse ASEAN region consists of 10 countries

CHINA

MYANMAR

LAOS

THAILAND

VIETNAM

CAMBODIA

PHILIPPINES

PACIFIC
OCEAN

BRUNEI
DARUSSALAM

MALAYSIA

INDIAN
OCEAN

INDONESIA

MALAYSIA

SINGAPORE

0   500   1000

KILOMETRES

Source: GSMA Intelligence

FIGURE 2

2021 was a record year for tech unicorns in the ASEAN region

Number of new tech unicorns

Source: GSMA Intelligence

## Tech adoption continues to rise in the ASEAN region

An analysis of the six largest ASEAN economies shows there were 60 million new digital consumers (defined as any internet user who has paid for an online service) in the 18 months following the outbreak of the pandemic.[8] This represents a 20 per cent increase on the number of pre-pandemic digital consumers, demonstrating the growing addressable market for tech start-ups.

Moreover, the same study reported that nine in 10 consumers who tried a new digital service in 2020 continued to use the service in 2021. This highlights the positive experiences of new users and the importance of the internet to stay connected and access life-enhancing services.

8.   e-Conomy SEA 2021, Google, Temasek, Bain & Company, 2021

2 Enablers for a thriving tech start-up ecosystem in ASEAN
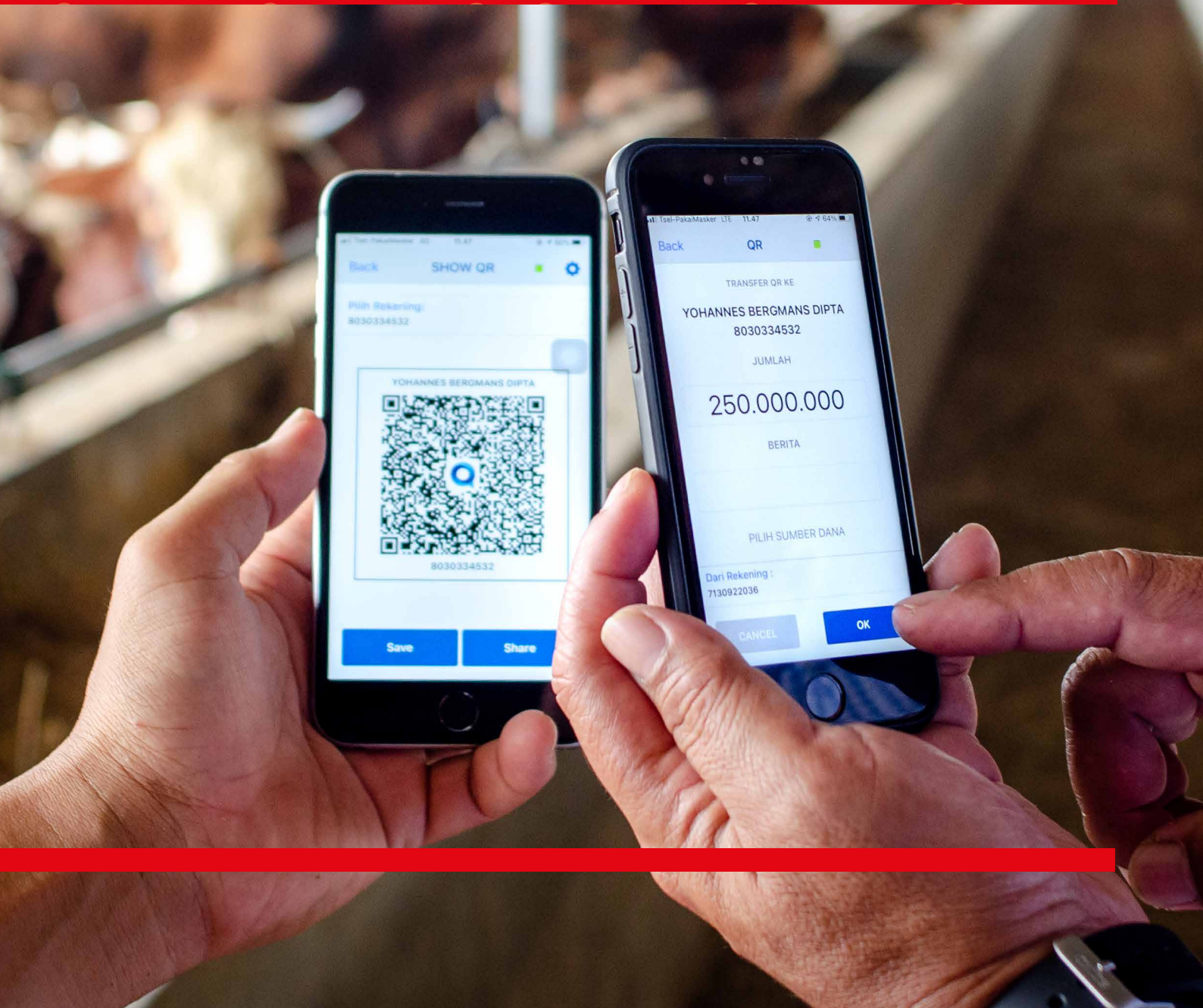
The size of the opportunity for tech start-ups in a given market depends on a number of enabling factors, which can have a significant impact on the sustainability and scalability of new business models. Our research identifies five key enablers in ASEAN LMICs (see Figure 3).

2.1 Economic readiness

Why is economic readiness important for a thriving tech start-up ecosystem?

Strong economic performance is an important enabler of a thriving tech start-up ecosystem. An ecosystem with a rapidly expanding economy implies an emerging middle class with greater purchasing power. This creates significant opportunities for tech start-ups to meet the rapidly evolving and expanding needs of consumers. Economic performance is most commonly measured by indicators such as gross domestic product (GDP), unemployment and inflation.
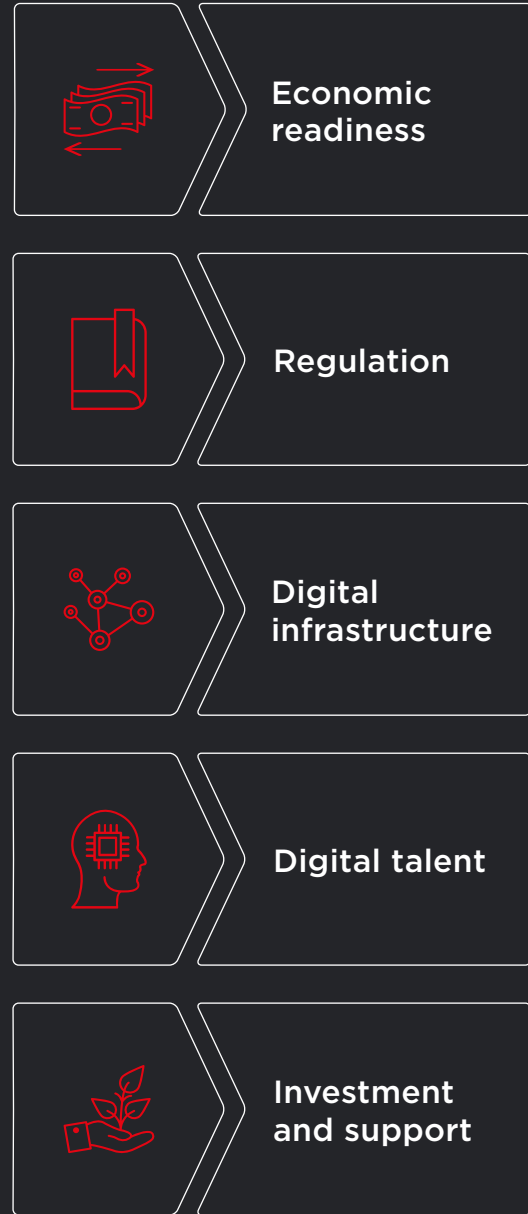
How are ASEAN countries performing on economic readiness?

ASEAN economies performed favourably in 2020 compared with countries in other regions when it came to most economic indicators, largely due to their success in limiting the spread of COVID-19 and swiftly reviving economic activity. However, recurring waves of COVID-19 and a slower vaccine rollout than the US and Europe have stunted their recovery, leading to 9.3 million fewer employed workers in 2021 and a 10-year high in inflation.[9]

Despite these challenges, average GDP growth in 2021 was still 8 per cent, demonstrating the strength of the region's economy. This is rooted in the rising consumption power of consumers, which is underpinned by increasing urbanisation, an emerging middle class, and a large and young population who are typically more technologically literate than older users.[10]

FIGURE 3

Five key enablers of a thriving tech start-up ecosystem in ASEAN LMICs

Economic readiness

Regulation

Digital infrastructure

Digital talent

Investment and support
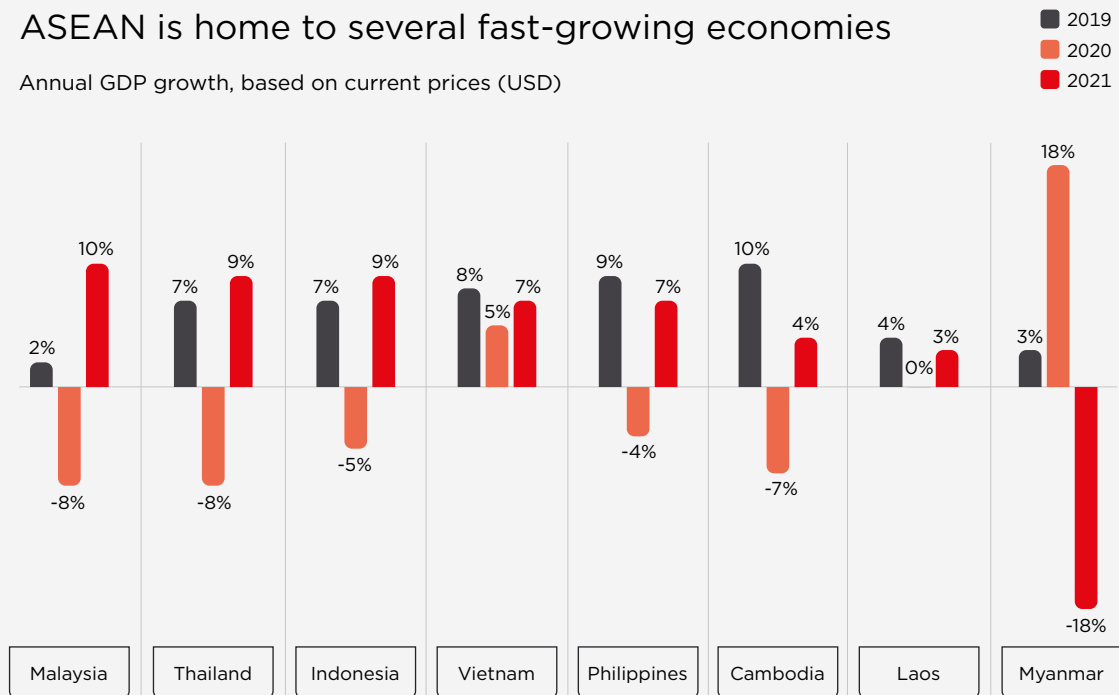
Source: GSMA Intelligence

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9. Southeast Asia Rising from the Pandemic, Asian Development Bank, 2022
10. According to UN Population Data, 50 per cent of the population in ASEAN LMICs are under 30 (compared with 31 per cent in Singapore).

FIGURE 4

ASEAN is home to several fast-growing economies

Annual GDP growth, based on current prices (USD)

Legend: 2019, 2020, 2021

Note: Myanmar YoY trends affected by currency valuations.
Source: International Monetary Fund, World Economic Outlook Database, October 2021

But the ASEAN region remains fragmented. It is home to a mix of fairly advanced economies (e.g., Malaysia and Thailand), as well as lower-income countries (e.g., Laos, Cambodia, and Myanmar), which have populations with more limited purchasing power. Combined with cultural barriers and differences in regulatory environments, it is therefore challenging for start-ups to operate across multiple countries.

2.2 Regulation

Why is regulation important for a thriving tech start-up ecosystem?

Regulation serves many purposes, such as preventing worker mistreatment, ensuring the safety of end users, and protecting shareholder investments. However, regulation does not always achieve its intended purpose, leading to inefficiencies. As such, creating an enabling regulatory environment is vital for start-up success.

Laws and processes relating to business registration are particularly important for a thriving start-up ecosystem. Tech firms of all sizes in the ASEAN region also need support in attracting talent (e.g., special visas for qualified overseas workers). Moreover, given the funding gap faced by many ASEAN tech start-ups, capital gains tax rates and minimum investment rules also play an important role in creating a thriving tech ecosystem by attracting private investors.

There is currently limited data available on regulation relating specifically to tech start-ups. Indicators that assess policies relating to the private sector are therefore used to understand the regulatory environment across the ASEAN region. For example, the regulatory quality indicator from the World Bank's World Governance Indicators measures a government's ability to formulate and implement sound policies and regulations that permit and promote private sector development. This indicator consists of 10 sub-indicators, which include starting a business, registering property, protecting minority investors, trading across barriers, and enforcing contracts.

The role of start-up acts

Recognising that regulatory barriers have a disproportionate impact on smaller businesses, a small number of countries globally have introduced start-up acts, defined as comprehensive legislative and regulatory frameworks aimed at fostering entrepreneurship and enabling the development of new firms with high growth potential.[11] The launch of start-up acts sends an important signal to current and prospective founders that the government recognises the value of entrepreneurship and intends to incentivise this activity.

While start-ups acts vary by country, they typically provide funding to selected start-ups and introduce measures to ease the cost and time associated with starting a business. To qualify as a start-up act, policies must be part of a broader legislative framework targeted at start-ups (as opposed to isolated initiatives).

For example, the Italian Start-up Act adopted in 2012 aimed to create a more favourable environment for start-ups by reducing the cost and time to establish a company, simplifying insolvency procedures, and introducing tax incentives for equity investments. It also provided a subsidised financing scheme for eligible start-ups and a public guarantee scheme for bank credit. OECD research shows that these policies allow firms to increase their revenues, value added and assets by about 10–15 per cent, relative to similar start-ups that do not benefit from it, or benefit at a later stage.[12]

In April 2019, the Philippines became the first country in ASEAN to introduce a dedicated start-up act when it launched the Innovative Startup Act, which aims to strengthen, promote, and develop an innovative and entrepreneurial ecosystem and culture through several measures:

- **Streamlining business registration:** The Innovative Startup Act aims to shorten the registration process and reduce the fees that come with forming a start-up (e.g., registration charges).

- **Offering research and development grants and international exposure:** Grants for research, development, training, and expansion are provided to selected start-ups.

- **Launching the Philippine Startup Ecozones:** A series of special economic zones have been set up with tax privileges to attract private investors and tech start-ups.

While it is too early to fully assess the impact of the start-up act, the Philippine start-up economy has continued to grow at pace since the new laws were introduced. Gobi-Core has mapped over 700 start-ups in the Philippines to date, with the number of start-ups almost doubling between 2019 and 2021.[13]

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11. Startup Acts: an emerging instrument to foster the development of innovative high-growth firms, Investment Climate Reform Facility, 2021
12. "The evaluation of the Italian "Start-up Act", OECD Science, Technology, and Industry Policy Papers, 2018
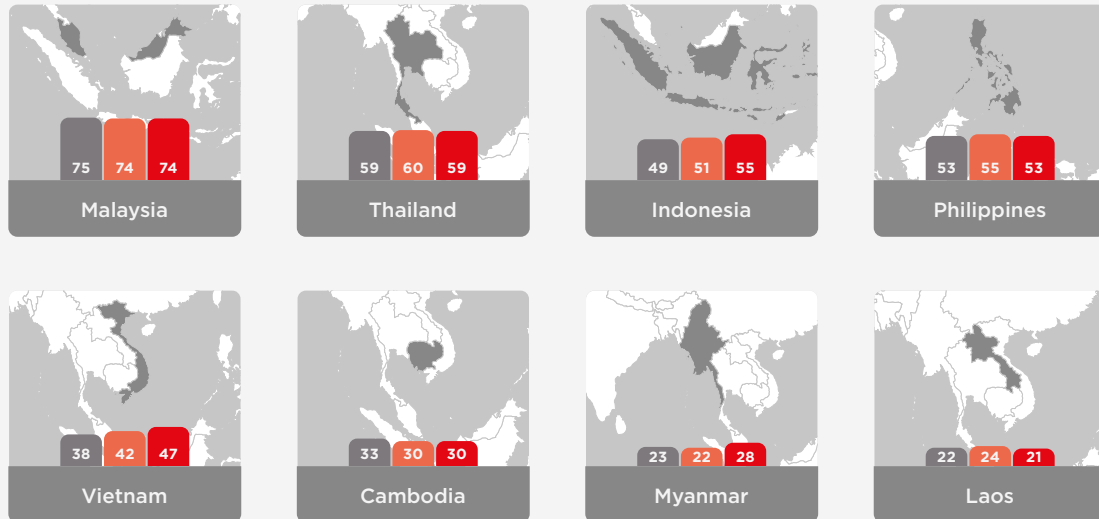13. Philippine Startup Ecosystem Report 2021, Gobi-Core, 2021

FIGURE 5

The regulatory environment varies considerably across the ASEAN region

Regulatory quality score

■ 2018
■ 2019
■ 2020

Malaysia — 75 | 74 | 74
Thailand — 59 | 60 | 59
Indonesia — 49 | 51 | 55
Philippines — 53 | 55 | 53
Vietnam — 38 | 42 | 47
Cambodia — 33 | 30 | 30
Myanmar — 23 | 22 | 28
Laos — 22 | 24 | 21

Source: World Governance Indicators

The role of regulation in Estonia's start-up success

The average number of start-ups in Estonia is five per 100,000 people – six times higher than the European average. The country's success is supported by e-Estonia, a movement by the Estonian government to facilitate business and citizen interactions through the use of online solutions. The country offers a fully digital business infrastructure to start-ups across company founding, banking, digital contracts, and taxation. Combined with relatively low levels of bureaucracy, this enables a founder in Estonia to set up a start-up online in 15 minutes and complete their taxes in 3 minutes. Unsurprisingly, 98 per cent of companies in Estonia are established online, with the same proportion filing their taxes online.[14]

Through its Startup Estonia initiative, the government is accelerating the Estonian start-up ecosystem by driving improvements in the country's economic and business environment. Estonia offers a flat tax system, allowing companies to reinvest their profits tax-free, except for distributed dividends that have to be taxed at the corporate income tax rate. Additionally, the Estonian Startup Visa programme helps the country attract non-EU tech talent. Initiated in 2017, the scheme has enabled over 500 founders and 1,351 employees to relocate to Estonia.

14. https://investinestonia.com/business-in-estonia/establishing-company/establishing-a-startup/

How are ASEAN countries performing on regulation?

Malaysia is the clear leader in terms of regulatory quality score, supported by the implementation of 32 reforms in the last decade, the majority of which have made it easier to do business in the country.[15] This is helping more start-ups to form, with official estimates stating there are now over 3,000 start-ups in the country.[16] Indonesia and Vietnam have made strong progress in terms of their regulatory quality scores over the last few years, reflecting initiatives to simplify business procedures and improve incentives for companies and investors.

However, regulatory quality scores have remained relatively flat in other countries as businesses continue to face several obstacles. Examples include difficulties with government coordination, weak enforcement of contracts and ambiguous legislation regarding tax enforcement.sdsds

2.3 Digital infrastructure

Why is digital infrastructure important for a thriving tech start-up ecosystem?

Mobile continues to be the primary – and in some cases only – way that most people access the internet in ASEAN LMICs. Mobile internet access is therefore a critical component of the digital infrastructure needed to create a thriving tech start-up ecosystem in ASEAN LMICs, creating opportunities for start-ups to build new technologies to disrupt existing business models.

Access to mobile devices, particularly smartphones, is another important component of digital infrastructure. Although there are some applications that are designed for feature phones, the rich interface of smartphones provides a much more user-friendly experience. This broadens the scope for product innovation, creating more opportunities for tech start-ups.

For example, ASEAN fintech start-ups are leveraging the superior user experience of smartphones to reframe financial activities as fun and rewarding to drive user adoption. The user interface of smartphones has also helped the likes of Gojek and Grab to create digital platforms, which integrate a range of different services into one mobile application.

How are ASEAN countries performing on digital infrastructure?

Operator investments in the rollout, upgrade and maintenance of mobile networks have been central to enabling innovation across the ASEAN region, allowing people to connect to digital services in more locations. At the end of 2021, the coverage gap (people with no access to mobile broadband services i.e., 3G and above) in ASEAN LMICs stood at 9 per cent, equivalent to around 60 million people. Moreover, 4G population coverage at the end of 2021 was above 90 per cent in all ASEAN LMICs, with the exception of Laos, where 4G networks covered 80 per cent of the population.

Progress has also been made on mobile internet penetration. By the end of 2021, 380 million people in ASEAN LMICs subscribed to mobile internet services, equivalent to 56 per cent of the region's population, up from 40 per cent in 2017. The key driver of this is the rapid rise of mobile internet in high population countries, namely Indonesia and the Philippines, supported by fast-growing adoption in Myanmar.

However, there remains a usage gap[17] among ASEAN LMICs, with 35 per cent of the region's population not using mobile internet despite living in areas with mobile broadband coverage. This is most likely to affect women and those who live in rural areas, in addition to those who are poorer, less educated, and older. A thriving start-up ecosystem is critical to increasing the availability of locally relevant content, which can help narrow the usage gap.

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15.   Regulatory Governance for Development and Growth: Malaysia's Experience with Good Regulatory Practices, World Bank, 2019

16.   "Malaysia's Startup World: Underrated, Untapped and Unknown", Digital News Asia, August 2021

17.   The usage gap refers to those who live within the footprint of a mobile broadband network but are not using mobile internet. For more details, see The State of Mobile Internet Connectivity Report 2021, GSMA, 2021

FIGURE 6

More than 50% of people across ASEAN LMICs subscribe to mobile internet services

Unique mobile internet subscriber penetration (percentage of population)

- 2015
- 2018
- 2021

Thailand	Malaysia	Vietnam	Indonesia
71%	68%	61%	55%
63%	64%	53%	43%
49%	54%	40%	25%

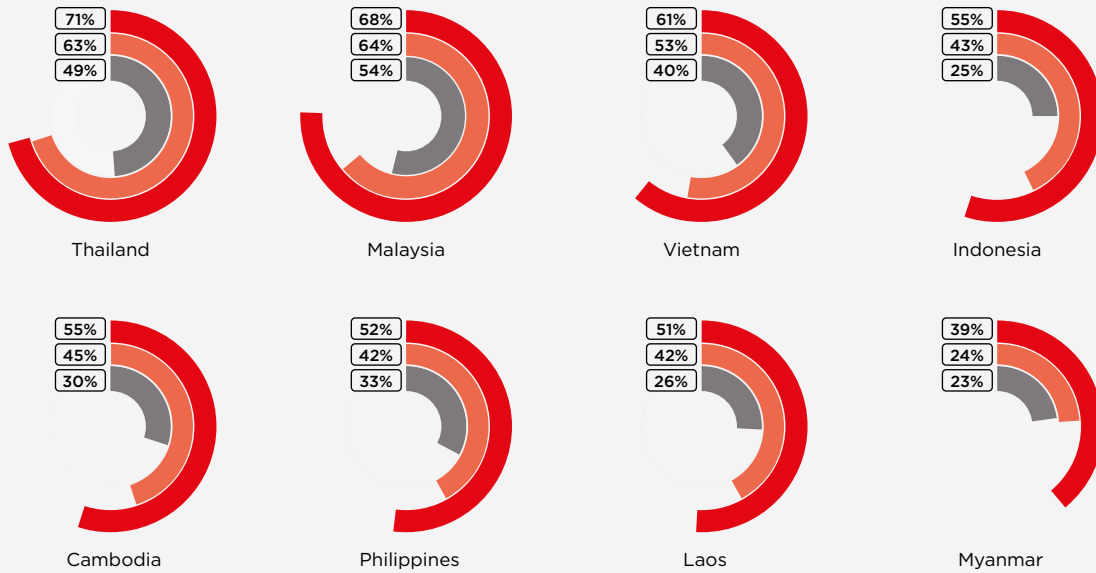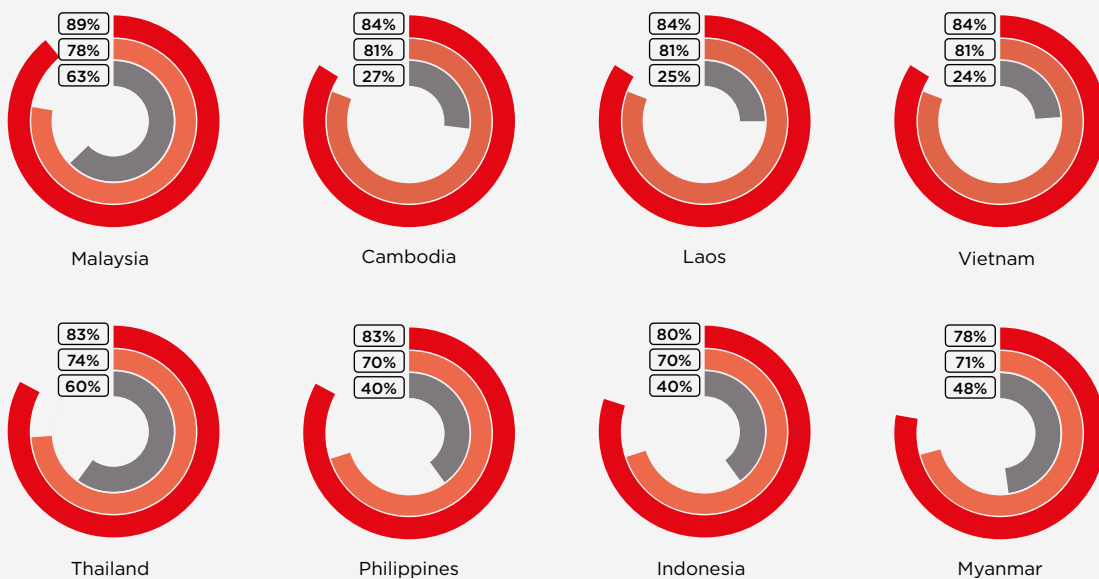| Cambodia	Philippines	Laos	Myanmar
55%	52%	51%	39%
45%	42%	42%	24%
30%	33%	26%	23%

FIGURE 7

Smartphone adoption is above 75 per cent in all ASEAN LMICs

Smartphones as a percentage of connections (excluding licensed cellular IoT)

- 2015
- 2018
- 2021

Malaysia	Cambodia	Laos	Vietnam
89%	84%	84%	84%
78%	81%	81%	81%
63%	27%	25%	24%

Thailand	Philippines	Indonesia	Myanmar
83%	83%	80%	78%
74%	70%	70%	71%
60%	40%	40%	48%

Source: GSMA Intelligence

Additionally, smartphone penetration continues to increase among ASEAN LMICs, accounting for 80 per cent of total mobile connections in 2021, compared to 77 per cent in 2020 and 58 per cent in 2017. This reflects falling device costs and cellular data prices. Despite this, affordability is still a significant barrier for the poorest individuals in ASEAN LMICs. The poorest 20 per cent in terms of income would, on average, currently expect to spend more than 50 per cent of their monthly income on an entry-level internet-enabled handset and more than 6 per cent of their monthly income on a data plan.[18]

2.4 Digital talent

Why is digital talent important for a thriving tech start-up ecosystem?

A thriving tech start-up ecosystem relies on having a population with the necessary skills. Founders ideally have a mix of technical skills and business acumen to take an idea and turn it into a successful business. Moreover, founders need access to a pool of candidates with technical (data science, engineering, product) and non-technical (finance, operations, marketing, sales) backgrounds to build high-performing teams that can help to scale the business.

Data on graduates by field gives an indication of skill levels by country. For example, Malaysia is the only LMIC in the region where more than 40 per cent of graduates study a science- or engineering-related subject. However, there is currently limited data comparing countries in other areas, such as the number of qualified software engineers, product managers and data scientists. There is also a lack of information on the level of digital skills or awareness among the broader workforce.

More traditional skills indicators are therefore used to measure digital talent. For example, the 'basic skills' indicator that is used in the GSMA's Mobile Connectivity Index combines literacy, school life expectancy,[19] mean years of schooling and tertiary enrolment rate. This is a strong indicator of a population's ability to effectively use and engage with digital technology.

The role of financial services in creating a thriving tech start-up ecosystem

Financial services are part of the digital infrastructure needed to support tech start-ups. For example, digital payments provide users with a more seamless experience when using services such as e-commerce, ride-hailing, food delivery and telemedicine. This helps in attracting and retaining users, while also reducing the risks associated with cash payments, including fraud delays to transaction fulfilment.

The use of financial services in ASEAN is spurred by growth in the region's fintech industry, with more tech start-ups creating applications and services for the unbanked population. For instance, Vietnamese e-wallet start-up Momo raised $200 million to expand its service to more vendors and enlarge its user base in rural areas.[20] This is helping users leapfrog physical retail banking to online payments, credit, insurance, and other services.

Supply-side developments can drive further growth in financial services. For example, cross-border digital payment solutions can offer users real-time and cost-effective payment solutions for cross-border transactions. There is also scope to launch additional payment gateways to enable more merchants to accept digital payments.

Initiatives focusing on the unbanked are also important. Many people in the region still rely on cash, which can be unsafe and hard to manage. It can also prevent participation in the digital economy in cases where digital services do not allow cash payments.

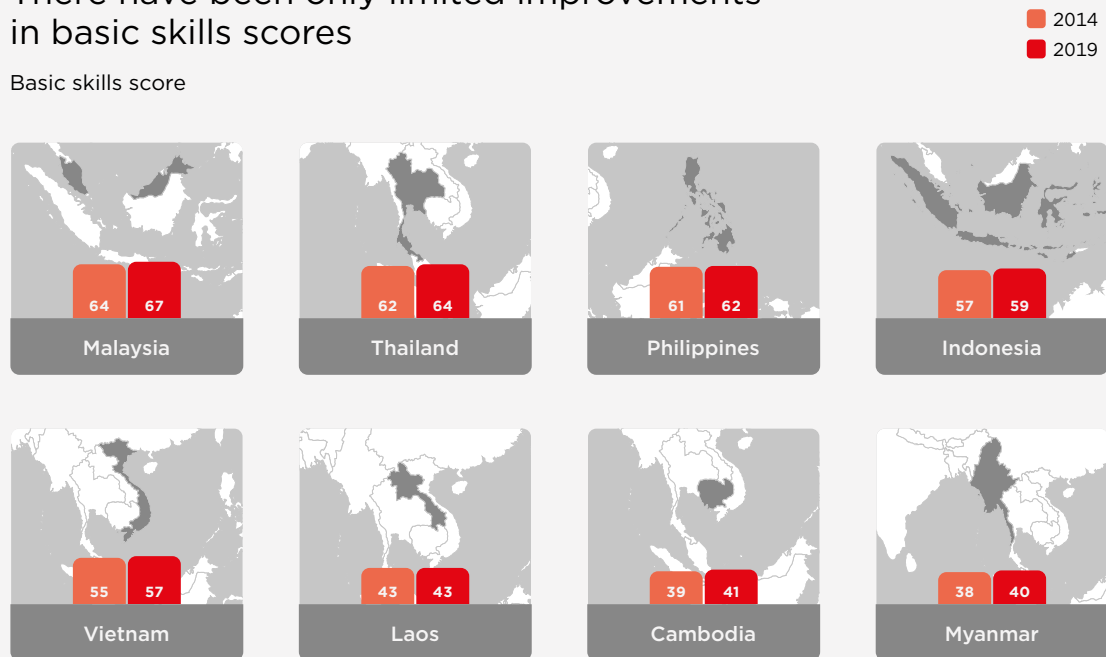18. The State of Mobile Internet Connectivity Report 2021, GSMA, 2021
19. School life expectancy refers to the number of years a person of school-entrance age can expect to spend within the specified level of education.
20. "Vietnam e-wallet MoMo gains unicorn status with $200m investment", Nikkei Asia, December 2021

FIGURE 8

There have been only limited improvements in basic skills scores

Basic skills score

2014
2019

Malaysia	Thailand	Philippines	Indonesia
64 / 67	62 / 64	61 / 62	57 / 59

Vietnam	Laos	Cambodia	Myanmar
55 / 57	43 / 43	39 / 41	38 / 40

Source: GSMA Intelligence

Unlocking the potential of female entrepreneurs in the ASEAN region

Initiatives to promote gender diversity in tech can help to address skills shortages. This starts with ensuring gender equality in the classroom by giving female students the confidence and knowledge to pursue careers in science, technology, engineering and mathematics (STEM). Examples include providing scholarships for high school students taking STEM courses, organising hackathons for young women, and connecting aspiring female students with tech mentors.

Beyond education, ASEAN countries are increasing support for female tech start-up founders. In the Philippines, Startup Pinay is an initiative that aims to foster a community of female-led tech start-ups by providing funding, exposure, and other activities. Data from Gobi-Core shows that the gender gap between female and male start-up founders in the Philippines was 1:2 in 2020 – a significant improvement from 1:5 in 2015. There is also an increasing number of venture capital firms focusing on gender impact, including ADB Ventures and Teja Ventures in Indonesia, as well as development funds established to drive women-focused investment.

How are ASEAN countries performing on digital talent?

Top line scores for basic skills have remained relatively flat, but there have been several bright spots. For instance, Thailand has recorded good growth in school life expectancy over the last five years, while Indonesia and Vietnam have seen notable improvements in tertiary enrolment. However, literacy rates and mean years of schooling show more limited progress across the board. Moreover, Cambodia, Laos and Myanmar continue to lag behind the other ASEAN countries when it comes to the skills needed to value and use the internet. In these countries, children receive around 3.5 years less education than in other ASEAN LMICs.

Although almost every government in ASEAN has a digitisation agenda that includes policies on digital skills development, often focused on upskilling the labour force and teaching information communication technology (ICT) in schools,[21] these initiatives take time to have an effect. As a result, the current shortage of workers with the right technical skills is likely to continue.

The shortage of technical skills is particularly acute among start-ups due to competition for talent from regional tech giants, as well as tech companies from the US and China opening offices in the ASEAN region. Some governments in the region are updating travel and immigration policies to make it easier for tech firms to plug gaps in digital talent, while tech start-ups are also turning to new models (such as outsourcing) to address skills shortages.

2.5 Investment and support

Why is investment important for a thriving start-up ecosystem?

Access to financial capital enables tech start-ups to explore opportunities for growth, such as diversifying into new product areas and expanding into new markets. It is particularly important for tech start-ups to connect with individuals who understand how early-stage tech start-ups differ from normal companies in terms of return profile and other financial metrics. This means tech start-ups can get strategic advice and support, and not just additional funds.

The ASEAN region is highly diverse in terms of the sources of funding available to tech start-ups, which include corporate and venture capital, angel investment, and philanthropic and development money.[22] Data on venture capital is used to assess the state of funding among ASEAN LMICs, with limited data on funds raised from other sources.

How are ASEAN countries performing on investment?

In ASEAN LMICs, venture capital deal size volume for the first three quarters of 2021 surpassed the full year figure in previous years, reflecting rising levels of interest in the region's tech start-ups. Momentum is expected to continue, given the increasing amount of capital raised by ASEAN-based funds and the number of maturing tech start-ups in the region. There is also growing interest in ASEAN tech start-ups from global leaders such as Sequoia Capital and Partech Partners.

That said, funding gaps still exist in the region. Competition among venture capital firms tends to be concentrated in the earlier stages, with noticeably fewer players in Series B and Series C financing rounds. Moreover, venture capital activity tends to be heavily concentrated in Singapore and Indonesia. Philanthropic and development money remains the dominant source of support for start-ups in Cambodia, Laos, and Myanmar.

As the ecosystem matures, a broadening number of exit options are becoming available for ASEAN tech start-ups. This is important for a thriving tech start-up scene, as it helps successful founders to contribute back into the ecosystem by forming new companies and investing in existing ones. There have been a number of start-up acquisitions involving tech unicorns, mobile operators, regional conglomerates, state-owned enterprises, and overseas companies. Secondary sales represent the next most common exit avenue for ASEAN tech start-ups, while the traditional IPO exit route remains rare in the region. This could change due to the successful
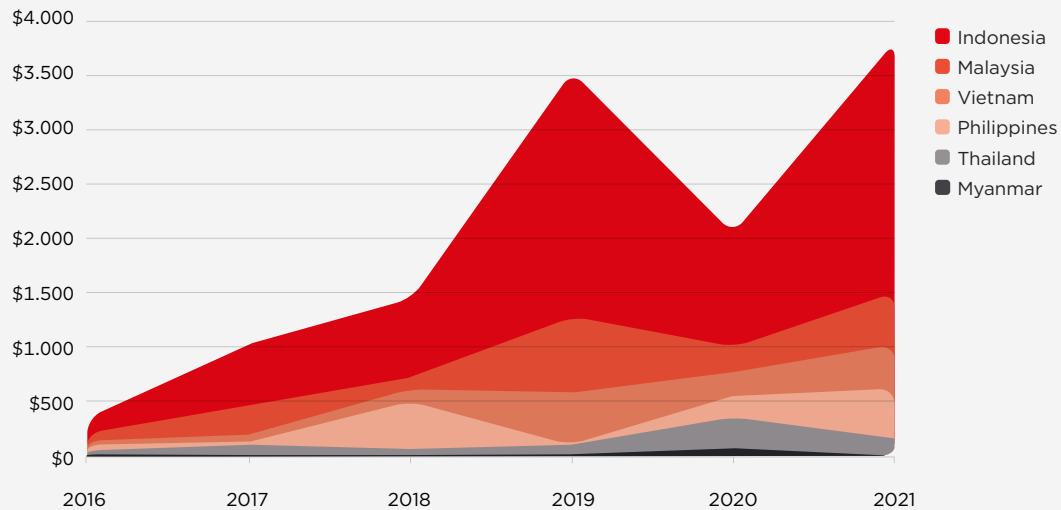
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21.   https://bangkok.unesco.org/theme/ict-education
22.   Investment Trends in the Indo-Pacific Region, GSMA, November 2021

FIGURE 9

ASEAN venture capital investment quickly recovered from the pandemic-related downturn

Deal size volume by company headquarters (million)

Note: 2021 data shows January to September only.
Source: Briter Bridges

IPO of Sea Group on the NYSE and the promising early performance of public ASEAN tech companies.

Why are start-up support organisations (SSOs) important for a thriving start-up ecosystem?

A thriving tech ecosystem also needs a range of tech hubs and other supporting organisations to help start-ups reach scale. These organisations allow start-up founders to connect with fellow founders, investors, and other experts, which can help to overcome any commercial or technical barriers they may be facing. Tech hubs such as accelerators and incubators typically provide assistance in the form of investment, mentorship, workshops, office space and other activities. While there is limited data on the quality of different tech hubs or the types of activities they perform, it is possible to track the number of hubs across the region.

How are ASEAN countries performing on SSOs?

Indonesia is the market leader with over 105 hubs, up from 51 in 2018, followed by Malaysia, which has 84 hubs (an increase of 115 per cent since 2018). Tech hubs have a much smaller presence in Cambodia, Laos, and Myanmar. In these three countries, tech hubs tend to place more emphasis on mentorship and training, rather than networking and investment, given the limited pool of early-stage funding available.

Across the ASEAN region, there are several tech hubs that are either supported or directly set up by mobile operators. These offer many of the activities traditionally provided by tech hubs, as well as the chance for start-ups to benefit from an operator's brand, market reach and other assets.

FIGURE 10

ASEAN mobile operators play an active role in supporting start-ups

Country	MNO programme	Details
Indonesia	MDI Ventures	○ MDI Ventures is a multi-stage VC firm backed by Telkom Indonesia. Since 2016, MDI has managed multiple funds and so far has invested in over 50 companies across 12 countries. ○ MDI manages incubator and accelerator programmes, as well as an angel investment network. These initiatives are meant to capture opportunities as early as possible, and also contribute to building the Indonesian start-up ecosystem.
	Indigo	○ Indigo is a start-up programme run by Telkom Indonesia since 2013. ○ Indigo offers mentoring, funding, co-working space and access to Telkom Indonesia's infrastructure (e.g., hosting and APIs).
	Ideabox.id	○ Ideabox is a joint venture between mobile operator Indosat Ooredoo, Mountain Partners and Kejora. ○ Selected start-ups join a 120-day programme, which offers seed funding, workshops, and marketing support.
	Tinc	○ Tinc is the corporate accelerator of mobile operator Telkomsel. It offers investor and demo days, boot camps, workshops, and other activities. ○ It is targeted at high-potential start-ups, ideally at pre-seed stage and above, which have the potential to leverage Telkomsel's products.
Malaysia	FutureTech 2.0	○ FutureTech 2.0 is a technology accelerator programme run by oil and gas company Petronas, Telekom Malaysia, and venture capital firm 500 Startups. ○ Shortlisted start-ups undergo an intensive 12-week virtual programme, which includes masterclasses, workshops, and coaching.
The Philippines	917Ventures	○ 917Ventures is Globe Telecom's corporate venture builder that ideates, launches, and accelerates new business ideas. ○ Although wholly owned by Globe, it is a separate, independent legal entity offering frameworks, strategies, and partner networks to start-ups.
	IdeaSpace Foundation	○ IdeaSpace is a non-profit foundation providing support to start-ups. It runs an incubator and accelerator programme. ○ It is supported by a host of companies, including mobile operators Smart Communications, Digital and Sun Cellular.
Thailand	Dtac Accelerate	○ Dtac Accelerate has invested in over 60 teams from seven cohorts, with a total valuation of over $200 million. ○ It offers a boot camp, co-working space, extensive PR, marketing and legal support and partnership opportunities.
	True Digital Park	○ True Digital Park, run by mobile operator True Corporation, is a start-up campus spanning over 200,000 square metres. ○ It allows start-ups, tech companies, investors, accelerators, academics, and government agencies to work together in one physical location.
	True Incube	○ True also runs a tech incubator, which has partnered with over 500 start-ups. ○ True Incube offers seed funding, mentorship, product and technical support, media exposure, networking, and other support.

Source: GSMA Intelligence

Understanding the role of tech unicorns in the start-up ecosystem

Tech unicorns have captured a significant share of funding across ASEAN LMICs in recent years. While this could be seen as detrimental to tech start-ups struggling to raise early-stage funding, that would overlook the wider role played by unicorns in the tech ecosystem and the fact that unicorns and early-stage start-ups often compete for different funding sources. Examples of positive influence of tech unicorns include the following:
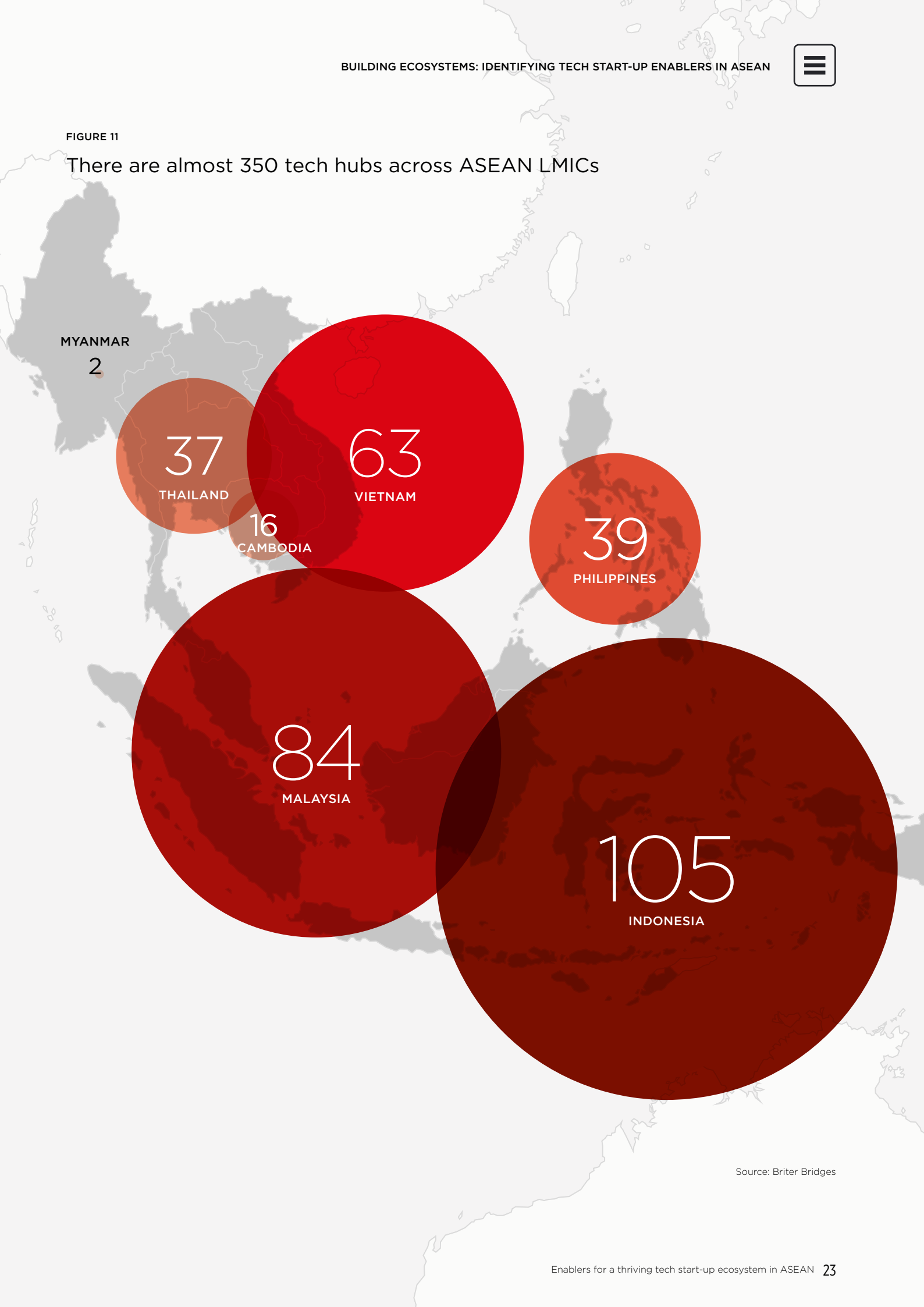
- **Broadening exit options:** Mergers and acquisitions (M&A) are the most common exit route for ASEAN tech start-ups, with regional tech giants such as Grab and Goto making several acquisitions in recent years. Grab acquired a majority stake in OVO, one of Indonesia's biggest e-wallets, in November 2021.

- **Creating new start-ups:** Several alumni of ASEAN tech unicorns have founded their own tech start-ups, leveraging their networks and experience of the fundraising process to scale quickly, while others have become start-up investors.

- **Providing mentoring and coaching services:** Alamanda Shantika (ex-VP of Technology and Product at Gojek), for example, now runs Binar Academy, which offers mentorship and non-formal education to aspiring tech engineers across Indonesia.

- **Inspiring the next generation of founders:** The media coverage and debate around tech unicorns can inspire the rest of the ecosystem. Being a founder, or working at a tech start-up, is increasingly viewed as a viable career path by people in the ASEAN region.
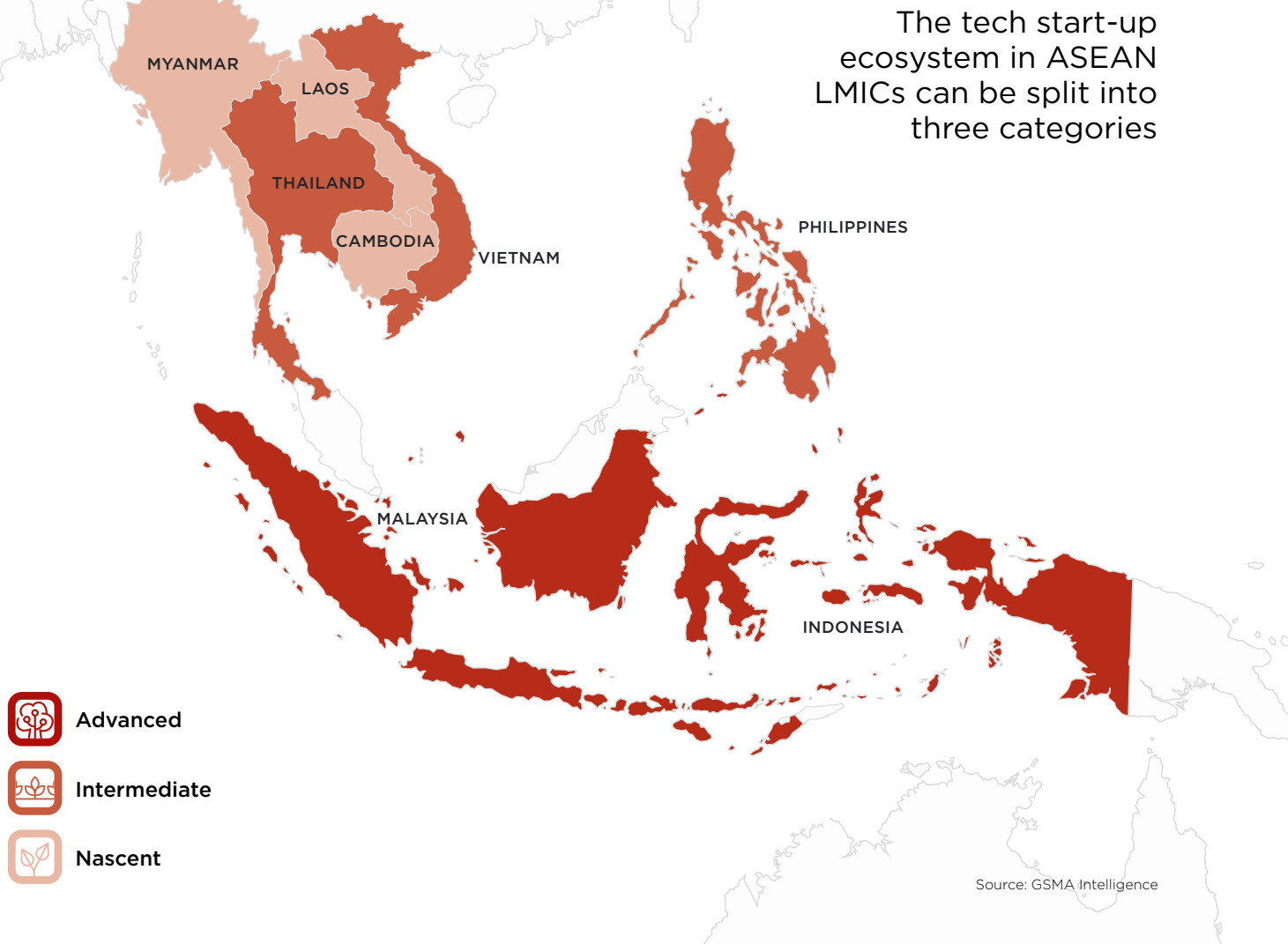
There are almost 350 tech hubs across ASEAN LMICs

MYANMAR
2

37
THAILAND

63
VIETNAM

16
CAMBODIA

39
PHILIPPINES

84
MALAYSIA

105
INDONESIA

Source: Briter Bridges

3 Country spotlights

FIGURE 12

The tech start-up ecosystem in ASEAN LMICs can be split into three categories

Source: GSMA Intelligence

Legend:
- Advanced
- Intermediate
- Nascent

Understanding ASEAN's tech start-up ecosystem

In this chapter, we have split ASEAN LMICs into three categories based on the tech start-up enablers analysed in Chapter 2. This helps countries to understand the level of development of their tech start-up ecosystem and how they compare to regional peers. It also enables stakeholders to identify the barriers that are hindering the progress of tech start-ups in their country. It is possible to expand this analysis to additional markets in the future to get a better understanding of how tech start-up ecosystems compare across regions.

While strong progress has been made in the ASEAN region across several of the enablers identified in Chapter 2, there is more work to be done, even in advanced tech start-up ecosystems. Our analysis shows that the tech start-up ecosystem is markedly different across ASEAN member states. As a result, stakeholders need to understand the strengths and weaknesses of each country's start-up ecosystem. This enables them to tailor their activities to local market conditions and support tech start-ups in the most effective manner.

FIGURE 13

Indonesia's start-up ecosystem
in numbers

Regulatory quality score

49   55

| 2018 | ▶ | 2020 |

Number of tech hubs

51   105

| 2018 | ▶ | 2020 |

Deal size volume (USD)

$715m $2,29bn

| 2018 | ▶ | 2021 |

Sources: Briter Bridges, World Governance Indicators

3.1 Advanced: Indonesia and Malaysia make strong progress

Indonesia and Malaysia were both identified as having advanced tech start-up ecosystems. In Indonesia, the size of the economy, along with the sophisticated venture capital scene, means there is clear potential for tech start-ups to scale. There are also significant opportunities in Malaysia, which is top among ASEAN LMICs for regulatory quality, financial inclusion, and smartphone adoption.

Indonesia

As the largest market in ASEAN, Indonesia has recorded impressive economic growth in recent years, supported by a thriving start-up ecosystem. The country has more unicorns than any other neighbouring country, while the Indonesian Stock Exchange leads the way with notable listings of regional tech giants.

A wide range of supporting organisations: Indonesia has over 100 hubs and boasts the presence of tech giants such as Gojek, Bukalapak, OVO, Tokopedia, and Traveloka. The Indonesian ecosystem is also widely distributed, with a number of secondary and tertiary cities developing innovative scenes locally. Besides the capital city, Jakarta, which hosts over 50 hubs, Bandung, Surabaya, Yogyakarta, and Bali are positioning themselves as new hotspots for digital innovation, with the presence of organisations such as Bandung Digital in Bandung, Amikom Business Park in Yogyakarta, and Entrepreneurs' Organization's Accelerator in Surabaya.

A vibrant funding landscape: With the exception of Singapore, Indonesia boasts the highest funding activity in the ASEAN region.[23] This success, when combined with Indonesia's promising macroeconomic indicators, have earned the country the interest of international venture funds and led to corporate giants such as Tencent, Google, Alibaba, JD, Facebook, SoftBank, and PayPal battling to fund rival companies. As a result, Jakarta is now one of the most attractive centres of innovation in the ASEAN region.

23. Investment Trends in the Indo-Pacific Region, GSMA, November 2021

New laws aim to improve incentives for start-ups and investors: In November 2020, the Indonesian government passed the Omnibus Law, which aims to strengthen the economy by increasing competitiveness, creating jobs, and making it easier to do business. As part of this, the government has digitised business processes for business licensing, eased restrictions on foreign investment and reduced the corporate tax rate from 25 per cent to 20 per cent. However, there have been protests in response to changes to labour laws, such as the reduction in statutory redundancy pay, which were also part of the Omnibus Law.

Malaysia

Malaysia is likely to transition to a high-income economy between 2024 and 2028, a reflection of the country's economic transformation over past decades.[24] The importance of a thriving start-up economy in supporting this transition is recognised by the country's digital economy blueprint, known as MyDigital, which outlined plans to create at least 5,000 start-ups and five tech unicorns by 2025.

Leading the way on business regulation: Malaysia recorded the highest score among the countries studied in this report in terms of regulatory quality, as measured by the World Governance Indicators project. This has been supported by the strong and formal involvement of the private sector in policy development through the creation of Pemudah (The Special Task Force to Facilitate Business) and Malaysia's whole-of-government approach, which establishes metrics to monitor progress at national and sub-national levels. To continue the success of the initiative, the government is moving forward with plans to adopt a more agile regulatory approach, including developing a code of conduct for regulators and expanding regulatory sandboxes.[25]

Home to several established start-up programmes: In Malaysia, names such as MaGIC and Sidec have become leading institutions in the promotion of entrepreneurship through programmes, funding and access to the international investor community. The programmes are supported and driven by partnerships with other entities in the ecosystem, including MaGIC's collaboration with hubs from across Asia, such as Impact

24. Aiming High: Navigating the Next Stage of Malaysia's Development, World Bank, 2021
25. Malaysia Digital Economy Blueprint, Economic Planning Unit, Prime Minister's Department, 2021

FIGURE 14

Malaysia's start-up ecosystem **in numbers**

Regulatory quality score

75 **2018** ▶ **2020** 74

Number of tech hubs

39 **2018** ▶ **2020** 84

Deal size volume (USD)

$124m **2018** ▶ **2021** $487m

Sources: Briter Bridges, World Governance Indicators

Hub Singapore and Seoul Startup Hub, and Sidec's varied network of educational, industry and media partners, from Invest Selangor BHD to Microsoft and Malaysiakini.[26]

Aims to increase tech start-up funding: Data from Briter Bridges shows that growth in venture capital invested in companies headquartered in Malaysia between 2016 and 2021 was uneven. Moreover, there has been limited growth in the number of registered venture capital firms in the country, according to the Malaysian Venture Capital and Private Equity Association. State-backed funds and organisations therefore have an important role to play in growing the Malaysian tech start-up ecosystem. For example, Dana Penjana Nasional is an investment fund set up by the government of Malaysia, which matches investments by foreign investors in local start-ups. The government is aiming to raise MYR1.2 billion ($285.6 million) through the fund in the first quarter of 2022.

In addition to funding, Malaysia's lead agency in digital transformation, Malaysian Digital Economy Corporation (MDEC), plays an active role in supporting start-ups by connecting founders with accelerators, workspaces, and mentors. MDEC also offers visas to help new and established entrepreneurs relocate to Malaysia.

3.2 Intermediate: The Philippines, Thailand and Vietnam show promising signs

Intermediate tech ecosystems, such as the Philippines, Thailand, and Vietnam, already have relatively high levels of start-up activity and score well on several of the enablers identified in Chapter 2. For example, the Philippines benefits from high levels of basic skills, Thailand ranks top among ASEAN LMICs for mobile internet penetration and Vietnam has more tech hubs than most other markets in the region. However, there are typically one or two barriers preventing these ecosystems from being classified as 'advanced', such as talent shortages or a lack of venture capital.

The Philippines

The Philippines has the second largest population among ASEAN countries and the third largest economy when measured by GDP. It has a fast-growing start-up ecosystem, with the number of start-

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26.   "The Indo-Pacific: A look at the 427 active hubs in the region", GSMA, November 2021
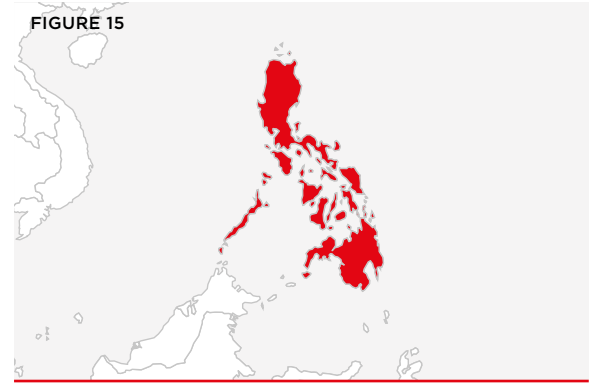
ups nearly doubling in the last three years.[27] While much of the start-up ecosystem is still centred around Manila, there is an increasing number of opportunities to expand into smaller cities and beyond, due to growing mobile internet penetration and adoption of digital services in these areas.

The government has been actively involved in developing the start-up ecosystem: In 2019, the government announced the Innovative Startup Act, which aims to provide tax breaks, special visas and lower registration costs for start-up companies and investors. The legislation also established the Startup Venture Fund (SVF), enabling the government to invest directly in start-ups. The government is also involved in creating tech hubs, such as the QBO Innovation Hub, which is a public-private partnership between the government, IdeaSpace and JP Morgan.

Mobile operators are playing an active role: Globe Telecom supports the start-up ecosystem through Kickstart Ventures, which was founded as a corporate incubator before transitioning into a corporate venture capital (CVC) firm. Today, Kickstart Ventures is a wholly owned subsidiary of Globe Telecom and manages a fund size of over $60 million. Having made over 30 investments in the Philippines, it is the most active CVC firm in the country. PLDT is another mobile operator taking an interest in the country's start-ups. It has conducted a series of hackathons and start-up competitions, such as the Startup Innovation Challenge, which provides the ten finalists with training, mentorship, and product testing.

More early-stage funding required: Data from Briter Bridges shows that, from 2016 to 2021, only 11 per cent of the $12 billion in venture capital invested in the five largest ASEAN economies went to companies headquartered in the Philippines, despite the size of its population and economy.[28] Moreover, the highest funding stage a Philippine start-up reached in this period was Series A. Further funding rounds are often required to expand revenues and users. This did not happen until 2021 in the Philippines, when three Series B rounds and one Series C funding round were announced. The deals were concentrated on the growing e-commerce sector in the country. Livestreaming and social commerce app Kumu raised a Series B and Series C round, while Great Deals, an

27. Philippine Startup Ecosystem Report 2021, Gobi-Core, 2021
28. LMICs only. Does not include Singapore

FIGURE 15

The Philippines' start-up ecosystem **in numbers**

Regulatory quality score

53
2018 ▶

53
2020

Number of tech hubs

34
2018 ▶

39
2020

Deal size volume (USD)

$438m
2018 ▶

$461m
2021

Sources: Briter Bridges, World Governance Indicators

FIGURE 16

Thailand's start-up ecosystem
in numbers

**Mobile internet
penetration**

63%   71%

| 2018 | 2021 |

**Smartphone
adoption**

74%   83%

| 2018 | 2021 |

**Deal size
volume (USD)**

$47m $173m

| 2018 | 2021 |

Sources: GSMA Intelligence, Briter Bridges

e-commerce distributor, and GrowSari, a B2B platform for small stores, both completed Series B rounds.

Thailand

Thailand has undergone rapid transformation, moving from a low-income country to an upper middle-income country in less than a generation. The government's next objective is to achieve high-income classification by 2037. This requires the country to transform into an innovation-led economy, as outlined in the Thailand 4.0 initiative, which includes a dedicated programme (Startup Thailand) to catalyse start-up development.

Strong fundamentals hint at future success: At the end of 2021, 50 million people in Thailand were connected to the mobile internet, equivalent to a 71 per cent penetration rate. This is higher than any of the other countries studied in this report. Thailand also ranks highly on other indicators, including smartphone adoption and financial inclusion, suggesting that many of the foundations for a thriving tech ecosystem are starting to fall into place.

Building a strong talent pipeline: Thailand has the highest rate of tertiary enrolment among the countries studied in this report, as well as a high score when it comes to basic skills. Moreover, the National Innovation Agency works closely with over 40 universities nationwide to promote entrepreneurism, engaging more than 70,000 students through its skills programmes and start-up pitching competitions over the past five years.[29] This is helping the country to create a strong pipeline of tech talent, which can help overcome the global talent shortage for tech roles in areas such as engineering and data science. Thailand also has long-standing initiatives to attract experienced foreign entrepreneurs, such as the Thai Elite Visa and Thailand's Smart Visa, to address digital skills gaps.

Funding lags behind other countries in the region: In the first nine months of 2021, companies headquartered in Thailand accounted for only 5 per cent of venture capital invested in ASEAN LMICs, according to data from Briter Bridges. To improve access to funding, government agencies are working on the ground with city mayors and other local stakeholders to connect start-ups to investors. Mobile operators are also playing an active role in building a vibrant start-up ecosystem. True Incube, the

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29. "NIA to stick with uni startup scheme", Bangkok Post, January 2022

venture capital arm of mobile operator True Corporation, runs Southeast Asia's largest tech and start-up hub. In addition, mobile operator AIS plays a key role in the start-up ecosystem through its own tech hub, which it created in partnership with co-working space Hubba.
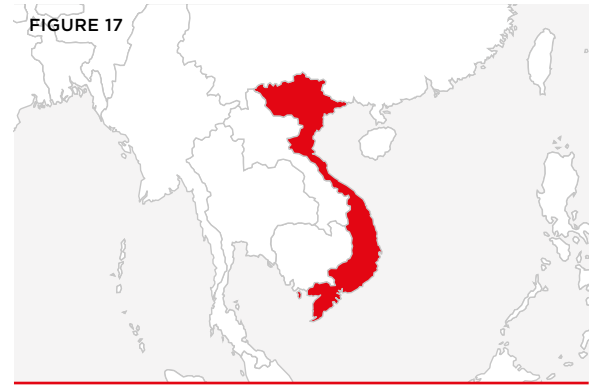
Vietnam

Vietnam's thriving digital ecosystem continues to attract significant investment, underpinned by the country's rapidly growing base of smartphone users.[30] In December 2021, fintech app MoMo became Vietnam's fourth unicorn, alongside Sky Mavis, VNG and VNPay. The government is aiming to have at least 10 unicorns by 2030, according to its national strategy on the Fourth Industrial Revolution, which aims to create a more favourable business climate for local start-ups and foreign investors by simplifying investment rules and establishing new organisations to support start-ups.

A burgeoning venture capital scene: 2019 was a standout year, driven by investment in late-stage start-ups, such as Sendo, Tiki and VNPay. Following this, there was a brief dip in 2020 as a result of the pandemic, but venture capital investment has since recovered. Commitments from foreign and local funds to continue investing in the country's start-ups highlight the confidence of investors.[31] Vietnam also has an active CVC landscape. Large corporates such as mobile operator Viettel, ICT-services company FPT Ventures and conglomerate Vingroup have invested in early-stage start-ups and organised numerous start-up events.

Regulatory changes target further growth: The government has introduced several measures aimed at improving the regulatory environment for private investors, particularly ones from outside of Vietnam.[32] For example, foreign investors no longer have to obtain M&A approval from the local Department of Planning and Investment for share subscriptions or acquisitions. Restrictions on foreign ownership of start-ups have also been lifted. In addition, taxes and fees for start-ups have been simplified. Specifically, the government issued an exemption in corporate tax for four years, followed by a reduction of 50 per cent for the following nine years for science and technology enterprises.

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30. Vietnam added almost 100 million new smartphone connections between 2015 and 2021.

31. "Investors pledge $815m for Vietnamese startups through the next five years, "Tech in Asia, November 2020

32. Decree NO.31/2021/ND-CP

FIGURE 17

Vietnam's start-up ecosystem **in numbers**

Regulatory quality score

38	47
2018 ▶	2020

Basic skills score

55	57
2014 ▶	2019

Deal size volume (USD)

$113m	$386m
2018 ▶	2021

Sources: Briter Bridges, World Governance Indicators, GSMA Intelligence

FIGURE 18

Cambodia's start-up ecosystem **in numbers**

Regulatory quality score

33 2018 ▶ **30** 2020

Number of tech hubs

14 2018 ▶ **16** 2021

Mobile internet penetration

45% 2018 ▶ **55%** 2021

Sources: GSMA Intelligence, Briter Bridges, World Governance Indicators

Initiatives to cultivate digital talent: In recent years, the Vietnamese government has increased its focus on tackling the digital skills gap, as demonstrated by Project 844 (its strategy to support the start-up ecosystem in the period to 2025). A key pillar of this initiative is to create start-up support organisations, such as the National Innovation Center (under the Ministry of Planning and Investment) and the Center for Youth Entrepreneurship (under the Central Ho Chi Minh Communist Youth Union).[33] These organisations provide a variety of support for tech start-ups, including training programmes, working spaces and legal advice.

3.3 Nascent: The tech ecosystem is emerging in Cambodia, Laos, and Myanmar

Nascent tech ecosystems may have one or two building blocks in place to create a thriving start-up tech ecosystem. For example, mobile internet penetration rates in Cambodia and Laos have passed 50 per cent and are catching up with the regional average. However, on the whole, these ecosystems are not yet ready to support a larger number of tech start-ups.

Cambodia

Despite registering a sixfold increase in the number of start-ups between 2013 and 2018,[34] the tech start-up ecosystem in Cambodia faces many challenges. This is recognised by the Cambodia Digital Economy and Society Policy Framework 2021–2035, which lists infrastructure, skills and regulation among the main obstacles faced by Cambodian start-ups.[35]

Mobile internet penetration is high, but connectivity challenges remain: At the end of 2021, 55 per cent of people in Cambodia subscribed to mobile internet services, putting the country on level with Indonesia and ahead of the Philippines, Laos, and Myanmar. Cambodia also compares favourably when it comes to the affordability of mobile services, ranking in the top

33. National Program 844, Initiative for Startup Ecosystem in Vietnam
34. Cambodia's Vibrant Tech Startup Ecosystem in 2018, Responsible Finance Forum, 2019
35. Cambodia Digital Economy and Society Policy Framework 2021–2035, Royal Government of Cambodia, 2021
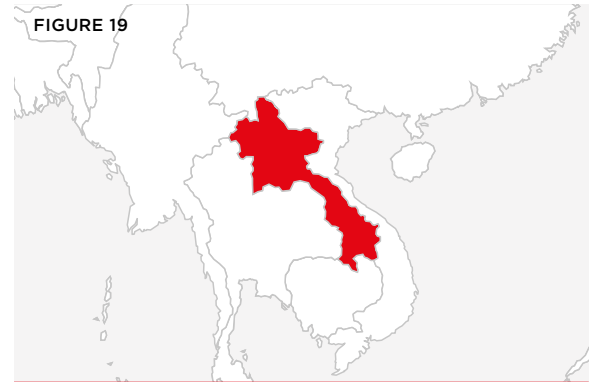
half of countries in East Asia and the Pacific.[36] However, the country's overall connectivity score in the GSMA Mobile Connectivity Index is held back by its slower download speeds compared to most countries in the region. This can be a barrier to accessing digital services with high bandwidth requirements, which can limit opportunities for new and existing companies.

A rising number of tech hubs aim to reduce digital skills shortages: The Cambodian government has announced several initiatives in recent years aimed at encouraging young entrepreneurs and bridging the gap between academia and the private sector. For example, it launched the National Institute of Posts, Telecoms, and ICT (NIPTICT) Innovation Lab in 2019, which offers academic qualifications in telecoms and networking, e-commerce and computer science. The government is also constructing the National Incubation Center of Cambodia (NICC) to support programmes conducted by the Royal University of Phnom Penh and the Institute of Technology of Cambodia. In addition, there is increasing private sector involvement, with organisations such as Impact Hub Phnom Penh, 500 Startups and Seedstars also supporting the drive to develop digital skills.

Regulatory barriers remain high for start-ups: Despite the emergence of new regulatory frameworks, there is still more work to be done when it comes to simplifying the processes for registering a new business in Cambodia. The World Bank's 2020 Ease of Doing Business study notes that it takes nine separate procedures and three months or more to complete all business, tax, and employment registration processes in Cambodia. This means many start-ups in Cambodia remain unregistered, which can prevent them from accessing formal support.

Laos

Despite rising mobile internet penetration and smartphone adoption, the start-up ecosystem in Laos remains fragmented. Research by Emerging Markets Consulting states that private sector development is impeded by three main obstacles: lack of funding, skill gaps in the population and government policies.[37]

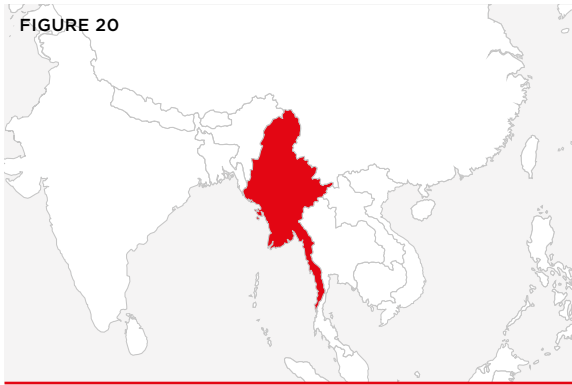
36. Mobile Connectivity Index 2020, GSMA
37. Business Formalization in the Lao PDR, Emerging Markets Consulting, 2017

FIGURE 19

Laos' start-up ecosystem **in numbers**

Regulatory quality score

22	21
2018	2020

Basic skills score

43	43
2014	2019

Mobile internet penetration

42%	51%
2018	2021

Sources: GSMA Intelligence, World Governance Indicators

FIGURE 20

Myanmar's start-up ecosystem
in numbers

Mobile internet
penetration

24%   39%

2018   2021

Smartphone
adoption

71%   78%

2018   2021

GDP per capita
(USD)

$1,250 $1,468

2018   2020

Sources: GSMA Intelligence, Briter Bridges, World Bank

Funding remains a challenge: There are no local venture capital firms in Laos, while the angel investment scene is also in its infancy. To date, there is no established angel investment network (AIN) in the country to consolidate and organise angel investment activities.[38] As a result, start-ups predominantly rely on funding from family members and friends, or grants and development money, as their primary sources of capital.

A shortage of tech skills: Private sector organisations, such as TohLao Coworking Space and Asiastar Business Consultants, are seeking to close the digital skills gap by providing workspaces and facilitating training sessions to support local start-ups. Mobile operator Lao Telecom is also helping to build the start-up ecosystem. It partnered with TohLao to run a competition for local start-ups, with the winners taking part in TohLao's incubation programme.

The government is attempting to stimulate the start-up ecosystem: At the end of 2020, the Laos government announced plans to create an incubator to support start-ups in its 2021–2025 plan.[39] The incubator will provide access to a network of mentors, a co-working space and training programmes. The government is also forging closer ties with international partners to improve the Ministry of Industry and Commerce's understanding of the start-up ecosystem.[40] This should help to improve the effectiveness of future policies and action plans.

Myanmar

Following market liberalisation, Myanmar recorded unprecedented growth in its technology and telecoms sectors in the 2010s. There were signs of a burgeoning start-up ecosystem with several tech hubs as well as local, regional, and international investors taking a greater interest in the country. However, when the military seized control of Myanmar on 1 February 2021, many businesses and international organisations stopped operating in the country. The outlook for Myanmar's start-up economy is therefore uncertain, with recent events threatening to jeopardise the progress of the last decade.

38. The Emergence of Angel Investment Networks in Southeast Asia, Angel Investment Network Indonesia (ANGIN) and Sasakawa Peace Foundation (SPF), 2020

39. Strategic Action Plan for Private Sector Development in the Lao PDR 2021– 2025, Lao National Chamber of Commerce and Industry, 2020

40. "South Korea shares its trade expertise with Laos", The Star, January 2022

Market liberalisation ignites smartphone adoption: Myanmar recorded rapid growth in its mobile subscriber base between 2012 and 2016, primarily due to the liberalisation of its telecoms market in 2014 and subsequent heavy investment from mobile operators and fall in cost of mobile data. Smartphone adoption in Myanmar is now on a par with its regional peers, accounting for four in five of the country's total connections at the end of 2021. Mobile internet penetration still lags behind the regional average, however, with only 39 per cent of the country's population subscribing to the mobile internet at the end of 2021. This reflects the challenges of connecting those still unconnected, particularly poorer and rural communities.

Tech hubs played a key role in seeding the tech start-up ecosystem: Myanmar's first start-up accelerator, Phandeeyar, was founded in 2016, while Impact Hub Yangon and Seedstars were among other programmes to launch in the following years. Most tech hubs focused on equipping first-time entrepreneurs with the skills and networks to grow a business, given the embryonic nature of the start-up ecosystem in the country. For instance, Phandeeyar travelled around the country and held training sessions, community events and small competitions to help include people outside of big cities in the start-up ecosystem. Phandeeyar also invested in 17 start-ups, although it has since scaled back its activities following the military coup.[41]

Ongoing political turmoil and the pandemic disrupts start-up ecosystem: In July 2021, a World Bank report predicted that Myanmar's economy would contract by 18 per cent in 2021 as a result of political turmoil and the pandemic.[42] The country has experienced reduced mobility and incomes, protests and labour shortages, and ongoing disruption of critical business services, including logistics and telecommunications and public services such as health and education. The consequences of the political instability are impeding Myanmar's start-up ecosystem. Myanmar's leading fintech, Wave Money, lost over 50 per cent of its monthly active app users in the first half of 2021.[43] Moreover, Alibaba affiliate Ant Financial pulled out of a deal to acquire a minority stake in Wave Money for $73.5 million amid the political uncertainty.

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41.   "The Interview: Jes Kaliebe Petersen on Myanmar's rapid digital emergence and uncertain future", The Ken, October 2021

42.   "Myanmar Economy Expected to Contract by 18 Percent in FY2021", World Bank, July 2021

43.   "Wave Money has lost half of its app users since Myanmar's coup in February", KrASIA, August 2021

4 Recommendations for key stakeholders

To maximise the potential of the tech start-up ecosystem in ASEAN LMICs, we highlight the following recommendations for key stakeholders to strengthen the enablers identified in this report.

Mobile operators

- **Focus on closing the usage gap:** While increasing coverage of mobile broadband remains an important issue in nascent ecosystems, such as Laos, addressing the usage gap is the most important factor in creating a thriving start-up ecosystem. Mobile operators need to adopt a comprehensive approach to closing the usage gap. This includes boosting knowledge and digital skills, improving the affordability of handsets and data, ensuring there is a compelling value proposition for people to go online and helping users have a safe online experience. This will help tech start-ups reach a wider audience.

- **Support early-stage start-ups:** Ecosystem development should be a top priority for mobile operators, especially in nascent ecosystems. By providing easily accessible APIs, operators can enable seamless integrations with third-party service providers, creating opportunities to build additional services on top of mobile platforms. Hosting start-up competitions and providing grants and prizes to early-stage start-ups can also spur innovation and reduce barriers in areas such as funding.

- **Pursue deeper collaborations:** Intermediate and advanced ecosystems have more start-ups at a later stage of their development. This can help operators to make the business case for investing more heavily and collaborating more closely. Examples include start-up investments (CVC, direct investments, and joint ventures), as well as commercial agreements and over-the-top (OTT) reselling partnerships. This can help reduce funding gaps and support start-ups in areas where they may lack experience, such as product development, sales, and marketing.

Private sector investors

- **Help to improve start-up talent:** As well as providing financial support, investors can add value in other ways, such as providing access to their network of partners and offering strategic advice in marketing, operations, and other fields. This is particularly important in nascent ecosystems, where start-ups need to build their skillsets in areas where they might lack experience. It is important that both the start-up and investor are clear from the outset on what level of engagement and support can be expected, to avoid potential conflicts.

- **Partner to reduce funding gaps:** Partnerships between different investors can be beneficial to all parties. For instance, local investors might lack the capital of regional and global funds. However, they are more likely to relate to the challenges local start-ups have endured. Non-local investors will be able to add value in other ways, including greater scale and a better understanding of markets outside of the region. This can help tech start-ups in nascent, intermediate, and advanced ecosystems to overcome funding challenges.

Donors and development institutions

- **Accelerate funding process where appropriate:** Donor funding can play a catalytic role in spurring innovation. However, some key information interview participants raised concerns about the duration of the application process for securing donor funding. In some cases, it might be appropriate to take a lighter touch approach to due diligence, particularly for early-stage start-ups where there is limited information available. Donors could rely on other indicators to judge the suitability of start-ups, such as the skills and background of the founding team and the potential market size. This allows start-ups to access funding earlier, easing financing constraints.

- **Support capacity building and skills development:** Donors can play an important role in this area given the funding difficulties of tech hubs, especially in nascent ecosystems. For example, the UN Development Programme has recently launched a network of Accelerator Labs in Asia with the purpose of investigating local ecosystems to devise dedicated support strategies to help achieve the UN Sustainable Development Goals by 2030.

- **Target emerging sectors in advanced ecosystems:** Super-apps are the largest recipients of venture capital funding in terms of volume across the ASEAN region, followed by fintech and

e-commerce. In comparison, funding for start-ups in emerging sectors, such as climate tech, remains limited even in advanced ecosystems. This creates opportunities for donors in advanced ecosystems to address funding shortages in nascent sectors and help start-ups scale in new areas that are often underserved by venture capital.

Accelerators

- **Fit activities to local context:** Accelerators should adjust the elements and content of their programmes to match the local ecosystem, as recommended by the Global Accelerator Learning Initiative (GALI).[44] For example, traditional demo days might not be appropriate for nascent ecosystems, which typically have limited early-stage venture capital. Tech start-ups in these ecosystems could benefit more from mentoring, networking, and skills training.

- **Find a sustainable business model:** Funding an accelerator programme through returns on equity taken from participating start-ups (the US model) is an unproven approach in most parts of the ASEAN region. Across ecosystems of different maturities, accelerators have run into financial difficulty due to the time taken for participating ventures to generate a return. Other sources of funding, such as support from a large corporation or donor, are likely to be required to run a sustainable accelerator programme.

Governments

- **Streamline policies and processes for start-ups:** Complying with complex policy and administrative procedures has a disproportionate cost and time impact on start-ups, given their small size. This leads many start-ups to operate unregistered, which can reduce access to funding and other opportunities. To prevent this, and create a more enabling start-up regulatory environment, governments in nascent, intermediate, and advanced ecosystems should aim to remove or reduce unnecessary tax and regulatory burdens, particularly when starting a business.

- **Support initiatives to boost mobile internet adoption:** Governments can directly impact the affordability of mobile internet services by improving the policy environment for mobile operators. Broader poverty reduction initiatives can also be used to boost mobile internet adoption and in turn increase the size of the addressable market for ASEAN start-ups. This is normally most effective in nascent ecosystems because incomes are often low, which has a significant impact on the affordability levels of data and handset.

- **Focus on education:** Given that nascent ecosystems typically have low levels of basic business and digital skills, governments need to take a long-term approach to equipping the population with the expertise needed to start their own tech businesses. This involves improving ICT access and teaching in schools and adding entrepreneurship and technical programmes into school curricula. Establishing more partnerships between governments, universities and tech hubs can also help to enhance digital skills.

- **Develop specialist skills:** While there is still room to improve the teaching of ICT and business skills in schools across the ASEAN region, advanced ecosystems have a relatively high level of basic skills. Nevertheless, there remains a shortage of specialist talent in areas such as engineering and data science. This highlights the importance of public- and private-sector skills programmes and training schemes, as well as initiatives to attract experienced tech workers from overseas (e.g., easing entry and residency requirements for foreign workers).

- **Promote regional harmonisation:** Inconsistent regulation between countries can obstruct tech start-ups looking to expand regionally – a strategy most common in advanced ecosystems. ASEAN countries must work closely together to create integrated digital markets – for example, by harmonising cross-border data transfer regulations, which can help start-ups scale regionally.

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44. Does Acceleration Work?, Global Accelerator Learning Initiative (GALI), 2021