



ADVANCING TOWARDS ASEAN DIGITAL INTEGRATION

Empowering SMEs to Build ASEAN's Digital Future

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About our advisors

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ASEAN SMEs winning through digital integration

MYANMAR

"Online retail has enabled us to sell across Myanmar today, and we aspire to export Myanmar products globally in the future."

Win Nander Thyke, Founder
rgo47



THAILAND

"E-commerce has transformed Clarte with faster revenue growth and better customer experience. We want to use e-commerce to increase our exports and customer base."

Jarunun Danuva, CEO/Founder
Clarte



MALAYSIA

"Digital integration is a key enabler for Photobook Worldwide to become a global digital retailer of photo products."

Wee Jonn Leow, CEO
Photobook Worldwide



SINGAPORE

"Automation of our production line has allowed us to scale production and increase exports in the last three years."

Desmond Goh, Director
People Been Hoon



INDONESIA

"Online retail and digital marketing tools enable us to sell our Indonesian watches to customers across the world."

Lucky D. Aria, CEO/Founder
Matoa





LAOS

"Our digital marketing business has grown significantly along with the number of Internet users in Laos."

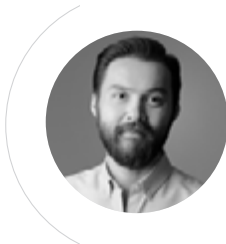
Souliyo Vongdala, Co-Founder/CTO
Bizgital



CAMBODIA

"We are able to export our software development services from our Cambodia office to international clients through digital technology."

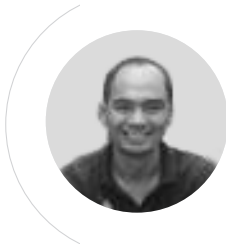
Steven Path, CEO/Founder
Pathmazing



PHILIPPINES

"Technology has been the No. 1 reason for our success. Going digital kept our costs low, which has allowed us to compete with larger logistics players in the Philippines."

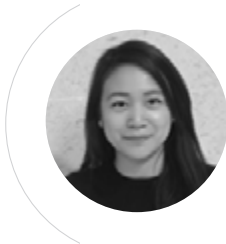
Bjorn Pardo, CEO/Founder
Xend



VIETNAM

"Smart farming allows me to grow vegetables with lower cost and higher yield. E-commerce also lets me reach my customers easier."

Nguyen Duc Huy, Founder
Vietponics



BRUNEI

"Digital technology enables farmers to upskill and access best farming practices to achieve higher farm productivity and profitability."

Vanessa Teo, Founder
AgromelQ

Report highlights

ASEAN is a key global economy but not yet a key digital economy. Digital integration is critical for the region to compete with other major economies.

- ASEAN is ranked third in the world in population, sixth in GDP and fourth in trade value.
- ASEAN's digital economy is 7% of GDP vs. 16% for China, 27% for EU-5 and 35% for the US.
- Digital integration is harnessing the digital economy to power and accelerate intra-regional trade and growth, and could stimulate GDP uplift of US\$1 trillion by 2025.

Small and medium enterprises (SMEs) are critical for expanding digital integration. In turn, digital integration will enable them to become regional and global players.

- SMEs contribute to more than 50% of ASEAN's GDP, employ more than 80% of the workforce and represent 99% of enterprises in key sectors, but on average, SMEs only contribute to 20% of their country's export value.
- Currently, 75% of SMEs see digital integration as an opportunity, but only 16% of SMEs truly utilise digital tools. Among those that do, more than 95% export their products.

But SMEs face barriers to digital integration.

- **Accessing ubiquitous Internet and affordable digital tools:** Broadband coverage has improved across ASEAN, but rural areas are still a priority, with 65% of rural SMEs citing weak Internet connections. Furthermore, half of all SMEs say that affordability of advanced digital tools is a challenge.
- **Transacting seamlessly overseas:** Approximately 25% of SMEs need more seamless cross-border payment options to sell online overseas.
- **Engaging in cross-border trade:** More than 50% of SMEs see cross-border trade processes and logistics infrastructure as key barriers to selling overseas through digital channels. Many digital businesses see data localisation regulations as a barrier to seamless digital trade.
- **Using technology confidently:** 45% of SMEs are uncertain about or lack understanding of digital technology, and more than 40% see gaps in workforce digital skills.
- **Navigating the business ecosystem in the digital age:** 40% of SMEs cited barriers to navigating digital regulations and starting a business.

Proposed Digital Integration Framework for ASEAN, with good progress made across many areas.

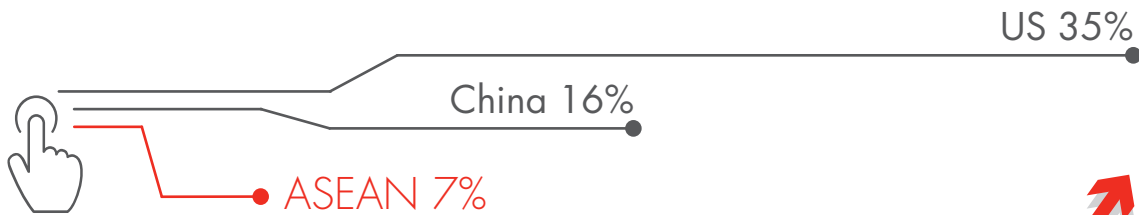
- **Digital connectivity and affordable access:** A focus on connectivity has delivered impressive results. Internet access now covers more than 90% of the ASEAN population.
- **Financial ecosystem:** Early efforts enabled digital payments to constitute 3% of consumer expenditures. ASEAN needs to scale adoption and achieve regional interoperability.
- **Commerce and trade:** Good plans have been developed for seamless trade. Implementation needs to be accelerated.
- **Workforce transformation:** Early investments have been made across all areas from primary and secondary digital education, to workforce digital literacy skills, to advanced digital skills.
- **Business ecosystem:** Steps have been made to create an environment that is more conducive to business. Yet SMEs still face obstacles to starting and operating businesses.

Opportunities to accelerate progress; six actions for ASEAN to prioritise in the next 12 to 18 months.

1. Step up efforts to facilitate seamless trade.
2. Implement a harmonised ASEAN approach to data protection whilst supporting digital trade and innovation.
3. Enable seamless digital payments, domestically and regionally.
4. Broaden digital talent base through private sector partnerships on workforce upskilling programmes.
5. Foster entrepreneurship and eliminate the burdens of doing business for SMEs.
6. Ensure coordinated actions through a single designated ASEAN body.

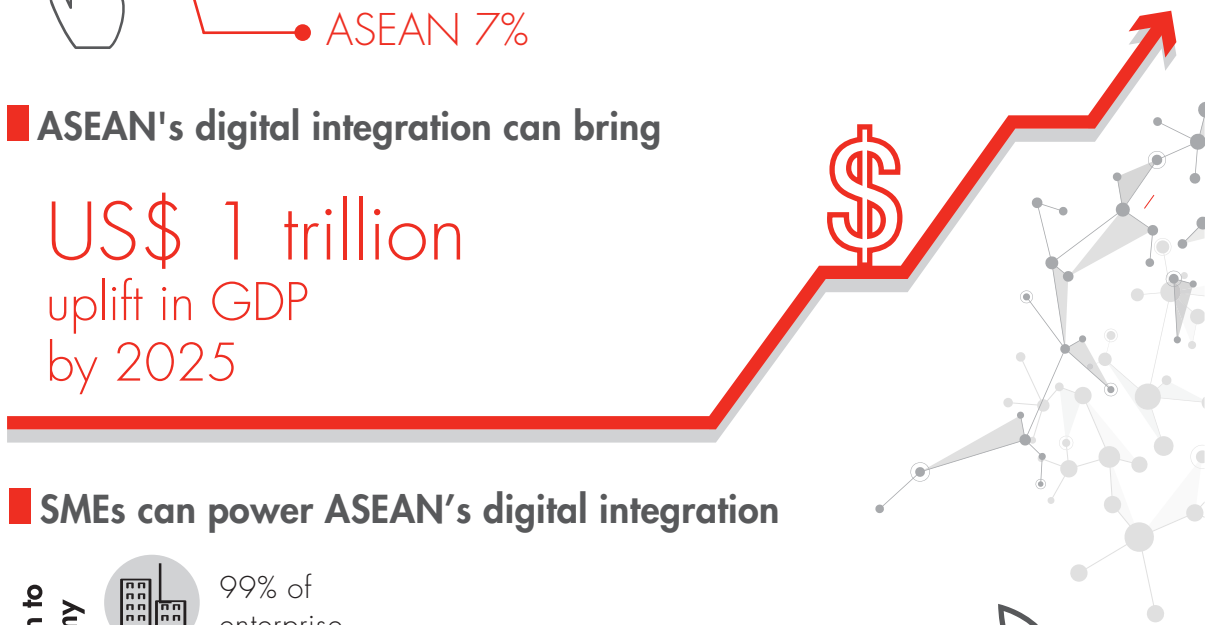
ASEAN DIGITAL INTEGRATION

ASEAN's digital economy is only 7% of its GDP



ASEAN's digital integration can bring

US\$ 1 trillion
uplift in GDP
by 2025



SMEs can power ASEAN's digital integration



However, SMEs face many barriers to adopt digital today



Executive summary



Why digital integration is a “must-have” for ASEAN

Digital technology is generating a dramatic wave of change throughout the world. As with previous revolutions, the digital revolution will create winners and losers. Countries like China and the US are moving ahead to secure winning positions. ASEAN is in the early stages of the digital revolution, with massive opportunities to become a leader.

Today, ASEAN is a key global economy but not yet a key digital economy. ASEAN is ranked third in the world in terms of population, sixth in terms of GDP and fourth in terms of trade value.

However, ASEAN’s digital economy lags, currently representing just 7% of GDP, compared with 16% in China, 27% in Europe and 35% in the US.

ASEAN can work together to maximise its digital potential. Member states can lay the foundation for the digital economy to power and accelerate intra-regional trade and growth (what we term “digital integration”). By doing so, ASEAN can enable local businesses to grow domestically, regionally and globally, ultimately competing with and even leapfrogging those in other major economies.

By 2025, digital integration can transform how ASEAN competes in the global arena, allowing individuals and businesses of all sizes to not only reap the benefits of adopting digital technology but also connect to the broader ASEAN economy beyond their borders. Digital integration can improve the efficiency within and between companies and remove the physical distance between individuals and local businesses to enable ASEAN to harness the scale of all entities. The collective power of all ASEAN member states ultimately will enable ASEAN to more effectively compete globally as an integrated economy.

Member states play an important role in enabling digital integration in a way that will benefit both individuals and local businesses. If this role is not fulfilled, progress will be slow and uneven, risking the widening of the digital divide (the economic gap created by different levels of digital integration) across ASEAN. It is critical for ASEAN to accelerate the progress of digital integration and ensure all member states take deliberate and coordinated actions to build a regionally integrated digital economy that lifts every participant.

Making local businesses boom

This report focuses on the benefits of digital integration for small and medium enterprises (SMEs) and the barriers to digital integration that exist today. SMEs are critical for achieving digital integration and ensuring it is spread broadly and deeply throughout ASEAN. In turn, digital integration will enable them to participate as regional or global players. Our findings are based on numerous interviews with SMEs, local and regional businesses, and on our ASEAN Digital Integration SME Survey of more than 2,300 SMEs across all 10 ASEAN member states.

We targeted five key sectors within ASEAN's economy—manufacturing, agriculture, retail, transport and logistics, and information and communication technology (ICT)—which will all see significant benefits from digital integration. Together, these sectors represent more than 50% of ASEAN GDP and employ more than 60% of the ASEAN workforce. SMEs play a particularly important role in these sectors, representing about 50% of GDP, more than 80% of the local workforce and 99% of the local enterprises.



What local business leaders say

Today, 75% of the SMEs in these five key sectors see digital integration as an opportunity for growth, yet only 16% of SMEs are truly digitally integrated.

Our survey and interviews provided insights into how digital integration can help SMEs and local businesses grow, as well as what they see as the biggest barriers to digital integration. Based on our research, five major barriers emerged:

“We are excited by the potential of ASEAN as a core growth market. Digital integration will make it more accessible.”

Wee Jonn Leow, CEO
Photobook Worldwide, Malaysia

1. Accessing ubiquitous Internet and affordable digital tools

Broadband coverage has improved in recent years across ASEAN. Rural areas, where 65% of rural SMEs welcome stronger Internet connections, remain a priority. Furthermore, half of all SMEs said the affordability of advanced digital tools is a challenge.

“The exponential Internet growth has certainly helped e-commerce businesses like rgo47 to take off rapidly in Myanmar.”

Win Nander Thyke, Founder
rgo47, Myanmar

2. Transacting seamlessly overseas

Approximately 25% of SMEs cited limited cross-border payment options as a key barrier to selling online to other countries.

3. Engaging in cross-border trade

Among SMEs that sell online, roughly half see complex cross-border trade processes or poor logistics infrastructure as the top barriers to selling online to other countries. Many digital businesses see data localisation regulations as a barrier to seamless digital trade.

“Data localisation requirements across ASEAN are very restrictive for us and raise the question, ‘Do we want to play in the market or not?’ For SMEs, these would be big considerations when thinking about which markets they can look at to grow their business.”

Jun Hasegawa, CEO
Omise, Thailand

4. Using technology confidently

SMEs cited uncertainty about or a lack of understanding of digital technology as a top barrier to digital integration. In addition, they frequently cited a shortage of workforce digital skills as a key barrier.

5. Navigating the business ecosystem in the digital age

Among the digital entrepreneurs and digitally integrated SMEs we interviewed, 40% reported barriers related to navigating the business ecosystem—from complying with digital regulations to the difficulty of starting a business, which can take as long as 99 days across ASEAN member states.

The opportunity: US\$1 trillion prize for ASEAN

Across ASEAN, pioneering SMEs are overcoming these barriers, paving the way for others to follow. By harnessing digital power, these pioneers have expanded their reach to the rest of ASEAN and globally. Digital integration will enable them to further grow their businesses and elevate their communities. Whilst their ranks are small, these pioneers provide a view of the future ASEAN can achieve through digital integration.

ASEAN policymakers can play a major role in removing barriers and making digital integration a reality for all local businesses. The opportunity is huge: a US\$0.8 trillion–\$1.1 trillion increase in GDP across ASEAN by 2025.

Where ASEAN policymakers can focus: a framework for digital integration

Our Digital Integration Framework proposes key policy areas that will address these barriers and set the foundation for local businesses to achieve the US\$0.8–\$1.1 trillion in GDP uplift. This framework provides ASEAN policymakers with a starting point for achieving digital integration to benefit ASEAN SMEs, local and regional businesses and individuals (see Figure 1).

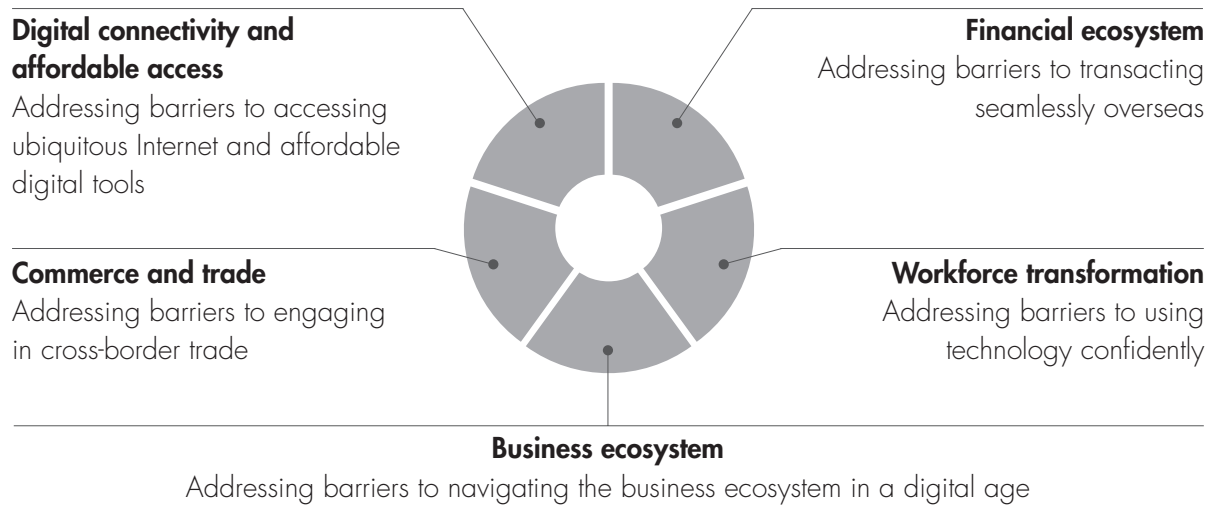
The framework has two key objectives:

- Provide ASEAN member states with an overview of the current state of digital integration at the regional and member state levels, indicating the degree of readiness for full digital integration.
- Enable ASEAN member states to prioritise the policy actions that will deliver the full potential of digital integration.



This framework addresses the five barriers identified through our research:

Figure 1: ASEAN Digital Integration Framework



Digital connectivity and affordable access

- Enhance domestic and cross-border infrastructure for reliable Internet coverage and access.
- Improve affordability of access to the Internet and digital tools.

Financial ecosystem

- Improve nationwide and region-wide payments adoption and connectivity.
- Extend financial inclusion through access to digital financial services.
- Streamline and harmonise regulations across ASEAN.

Commerce and trade

- Facilitate seamless regional digital trade environment.
- Build domestically and regionally connected logistics infrastructure.
- Streamline and harmonise regulations across ASEAN.

Workforce transformation

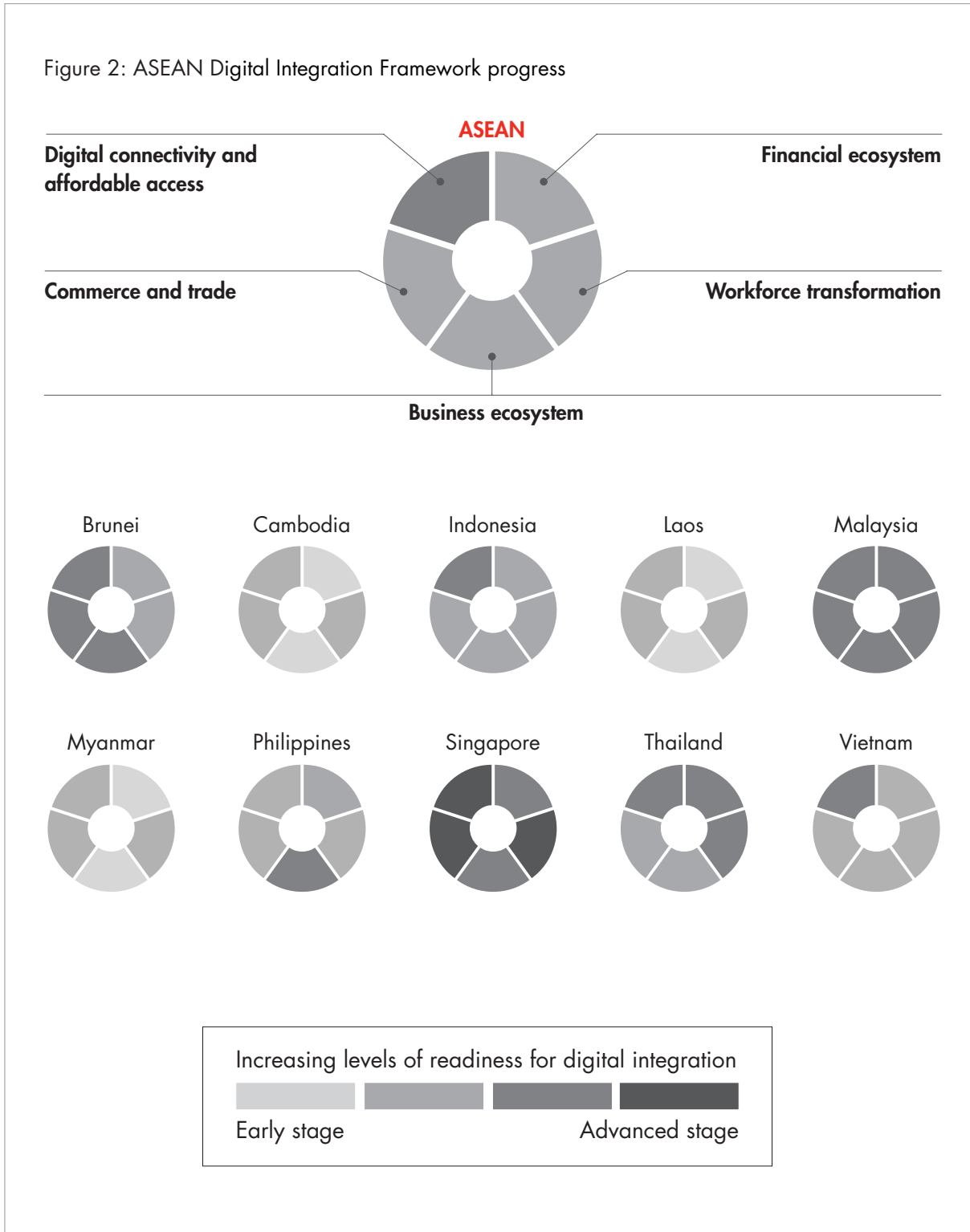
- Support population to achieve digital literacy.
- Develop skilled personnel to facilitate domestic and regional digital growth.

Business ecosystem

- Encourage domestic and international investments.
- Build ecosystem to support innovation and entrepreneurship.
- Remove regulatory burden on SMEs; harmonise regulations.

ASEAN's Digital Integration progress

To understand the current status of digital integration across all 10 ASEAN member states, we examined 65 policy actions and the outcome metrics that indicate the readiness level across the five policy areas defined in the Digital Integration Framework (see Figure 2).



We learned that ASEAN is making good progress across many areas of the Digital Integration Framework. One particular area to highlight is the major advance in digital connectivity across all countries, which sets the foundation for digital integration across the region.

Common themes of progress and improvement were identified across all ASEAN member states:

- 1. Digital connectivity and affordable access:** Large investments by the private and public sectors have vastly increased Internet access (3G and 4G coverage) to more than 90% of the ASEAN population. Bandwidth constraints and rural coverage gaps still exist, but governments are addressing the gaps by improving and extending digital inclusion.
- 2. Financial ecosystem:** As a result of the early introduction of digital financial services across the region, digital payments are roughly 3% of consumer expenditures in ASEAN. This contrasts with around 30% in China, which is on the forefront of digital payments. Whilst many member states have taken measures to develop the digital financial ecosystem to increase financial inclusion of businesses and individuals, most are still in the process of adopting common global standards and best practices.

“Local and regional interoperability is critical for the sector to grow the payment ecosystem in ASEAN.”

Mohd Khairil Abdullah, CEO
Axiata Digital Services Sdn Bhd, Malaysia

- 3. Commerce and trade:** Member states have made significant progress towards realising the ASEAN Free Trade Area. Through the Common Effective Preferential Tariff (CEPT) scheme, tariff rates have decreased from 13% in 1993 to 0.2% in 2015. The number of non-tariff barriers, however, has risen from around 1,600 in 2000 to roughly 6,000 in 2015, which must be addressed. On logistics infrastructure, ASEAN member states developed the Master Plan on ASEAN Connectivity (MPAC) even before the formation of the ASEAN Economic Community (AEC). These plans remain critical for digital integration, but implementation has been challenging.

Furthermore, data localisation concerns remain when considering digital trade. Whilst the ASEAN Framework for Personal Data Protection has been adopted, more could be done to support cross-border digital trade.
- 4. Workforce transformation:** ASEAN member states recognise the importance of digital education and are ramping up actions to provide digital curriculum in primary and secondary schools, as well as advanced ICT skills training. The most important area of transformation required—digital upskilling programmes for the existing workforce—is still at small or pilot scale for most ASEAN member states.
- 5. Business ecosystem:** Member states have become more receptive to investments. However, with the exception of a few member states, SMEs still face barriers to start and liquidate businesses due to complicated processes, long wait times, regulatory uncertainties and, at times, prohibitive costs. New policies still do not consider the administrative burden on SMEs.

Opportunities to accelerate: six priorities in the next 12 to 18 months

Significant work is already underway that will contribute to full digital integration across the region, as outlined in the AEC 2025 Blueprint, ASEAN ICT Master Plan 2020, MPAC 2025, ASEAN Framework for Personal Data Protection, and the ASEAN Strategic Action Plan for SME Development 2025.

However, we see six areas that member states should prioritise over the next 12 to 18 months to address the critical barriers and thus accelerate existing ASEAN platforms and plans:

- 1. Facilitate seamless trade:** Continue to eliminate non-tariff barriers, using the ASEAN Seamless Trade Facilitation Indicators (ASFTI) to identify roadblocks to trade across ASEAN. Focus on implementation of the existing transportation agreements outlined in MPAC 2010, as well as new initiatives under seamless logistics in MPAC 2025.
- 2. Protect data whilst supporting digital trade and innovation:** Harmonise domestic policies with the principles outlined in the ASEAN Framework for Personal Data Protection and international frameworks, striking the right balance between data protection and facilitating data flows.
- 3. Enable seamless digital payments:** Develop digital payment ecosystems by adopting interoperability frameworks aligned with global standards that provide flexibility for cross-border integration; encourage inclusive and open application programming interface (API) standards and roadmaps; develop or build on existing national digital ID systems to simplify processes to adopt digital financial services.
- 4. Broaden our digital talent base:** Roll out digital upskilling programmes for the workforce in prioritised sectors, working closely with the private sector to develop the most relevant digital skills roadmaps and accelerate the roll-out of these programmes.
- 5. Foster entrepreneurship:** Continue to simplify existing and new regulatory processes for SMEs—such as those pertaining to starting a business—and simplify navigating digital regulations by implementing an SME burden test. New policies such as digital economy taxes should not deter digital integration and innovation for SMEs.
- 6. Coordinate actions:** Designate a single body, such as the ASEAN Coordinating Committee on E-Commerce (ACCEC)—extending its mandate beyond e-commerce to oversee and coordinate the delivery of all aspects of the Digital Integration Framework.

As the chairs for ASEAN in 2018 and 2019 respectively, Singapore and Thailand can play a role in helping to accelerate the pace of digital integration. By prioritising the implementation in these critical areas and facilitating the sharing of best practices among member states, ASEAN can advance towards digital integration for the benefit of all.

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The US\$1
trillion prize
for ASEAN



The US\$1 trillion prize for ASEAN

Today, ASEAN is a key global economy but not yet a key digital economy. ASEAN is ranked third in the world in population, sixth in GDP and fourth in trade value. However, ASEAN’s digital economy lags, representing just 7% of GDP today, compared with 16% in China, 27% in Europe and 35% in the US.

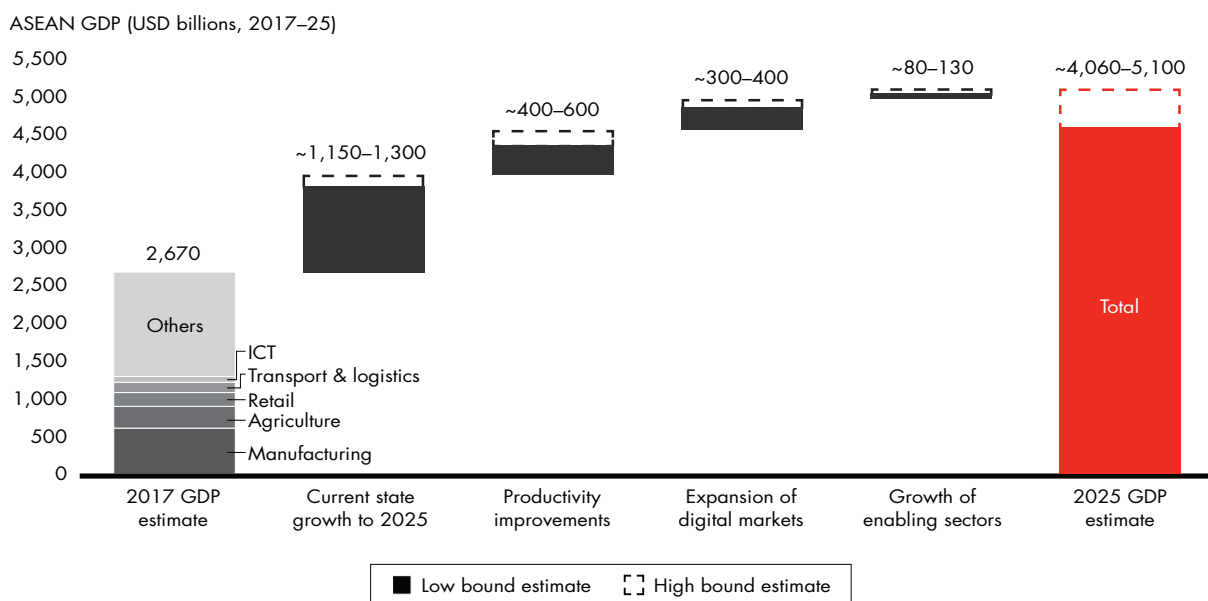
ASEAN can work together to maximise its digital potential. Member states can lay the foundation for the digital economy to power and accelerate intra-regional trade and growth (what we term “digital integration”). By doing so, ASEAN can enable its local businesses to grow domestically, regionally and globally, ultimately competing with and even leapfrogging those in other major economies.

The opportunity is huge: We estimate that by removing the barriers to digital integration, there is US\$0.8 trillion–\$1.1 trillion of GDP value to be gained across ASEAN by 2025 (see Figure 3). By achieving this, ASEAN could leapfrog the GDPs of both Germany and the UK by 2025.

We calculated this potential increase in GDP by considering three factors:

- 1. Productivity improvements** in offline sectors enabled by digital adoption, such as productivity improvements in the manufacturing sector from adoption of Industry 4.0.
- 2. Expansion of digital markets** enabled by digital integration, such as access to new markets through e-commerce or financial inclusion through digital financial services.
- 3. Growth of enabling sectors** that lay the foundation for digital integration, such as growth in ICT or logistics sectors that will support digital integration.

Figure 3: ASEAN digital integration can add US\$1 trillion to GDP by 2025



Notes: The current state of growth to 2025 is based on real GDP growth forecasts, and the real GDP is based on 2017 current prices and fixed exchange rate; productivity improvements relates to use of digital technology (examples include automation, enterprise resource planning software) digital payments, predictive advanced data analytics, robots, 3D printing) to increase the output of every input unit; expansion of digital markets includes increased regional consumer expenditure due to access to options and increased access to export markets regionally and globally; the growth of enabling sectors includes ICT, transport & logistics, financial services, public & administration, and education

Sources: ASEAN Digital Integration SME Survey; Euromonitor; IHS; Japan Center for Economic Research; expert interviews; Bain analysis



Why digital
integration:
spotlight on
five key
sectors

Why digital integration: spotlight on five key sectors

This report focuses on the benefits of digital integration for SMEs and the barriers that exist today. SMEs are critical for achieving digital integration and ensuring it is spread broadly and deeply throughout ASEAN. In turn, digital integration will enable them to participate as regional or global players. Our findings are based on numerous interviews with SMEs, local and regional businesses, and on our ASEAN Digital Integration SME Survey of more than 2,300 SMEs across all 10 ASEAN member states.

We focused our research on five key sectors for ASEAN's economy—manufacturing, agriculture, retail, transport and logistics, and ICT—which will see significant benefits from digital integration (see Figure 4). Together, these sectors represent more than 50% of the ASEAN GDP and employ more than 60% of the ASEAN workforce. SMEs play a particularly important role in these sectors, representing about 50% of GDP, more than 80% of the local workforce and 99% of the local enterprises.

Figure 4: Five sectors contribute more than 50% of GDP and employ 60% of ASEAN's workforce

	Manufacturing	Agriculture	Retail	Transport & Logistics	ICT
ASEAN GDP size (USD billions)	600	300	170	140	75
ASEAN GDP (percent of total)	23%	11%	6%	5%	3%
Employment (millions)	45	100	45	15	5

Sources: Euromonitor, World Bank, BMI, government agency statistics

Manufacturing

Reimagining ASEAN manufacturing

Digital technology can transform the basis of competition for manufacturing SMEs, making ASEAN a global manufacturing hub in which SMEs seamlessly participate in the global value chain. A fully digitally integrated ASEAN manufacturing SME will rely on digital tools ranging from automated production lines, enterprise resource planning (ERP) and manufacturing execution systems (MES) to radio-frequency identification (RFID) and predictive maintenance, integrating with customers and suppliers through e-commerce platforms and connected supply chains.

SME profile: PTS Technologies, Singapore

PTS Technologies is a Singapore manufacturer of Internet of Things (IoT) and RFID solutions for smart farming and asset tracking. By using advanced robotics in its manufacturing process, the company generated more than 20% in cost savings. This enables PTS Technologies to compete globally and export its proprietary smart solutions to key markets in the US and Europe.



“Advanced robotics helped us streamline our manufacturing process and effectively compete in exporting overseas.”

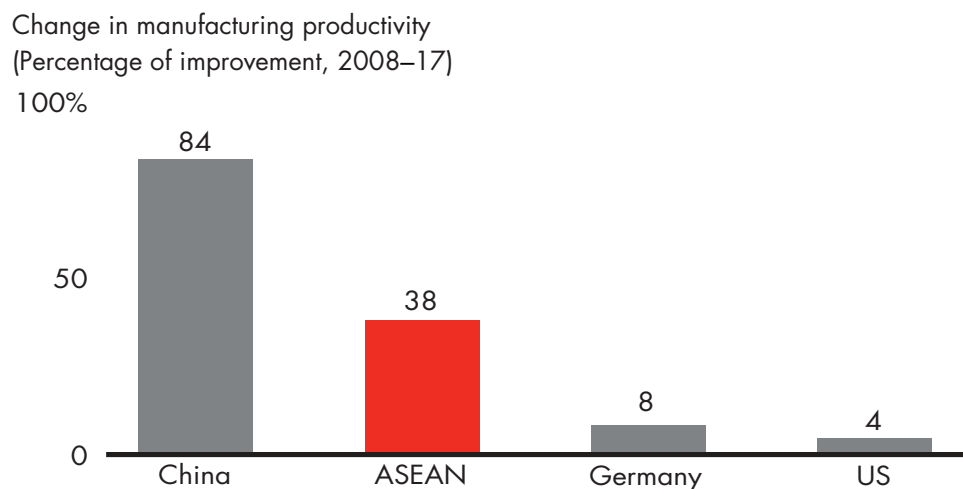
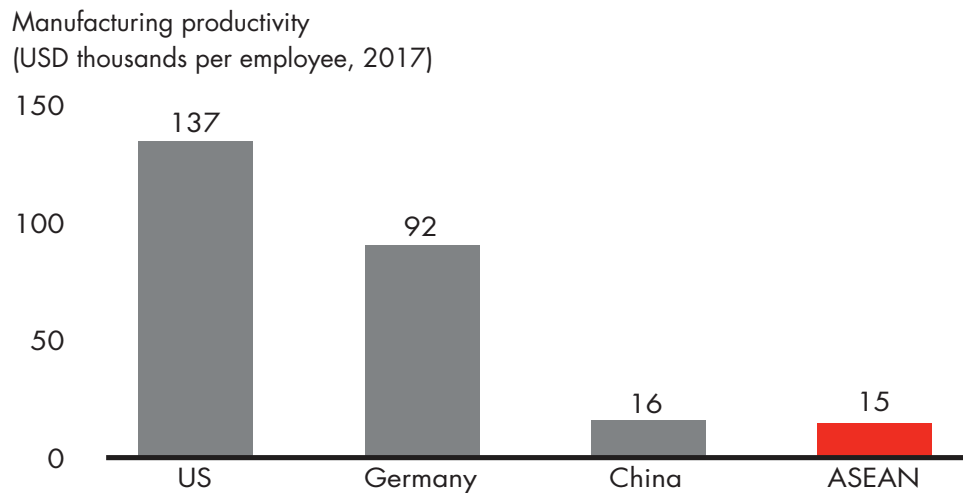
Albert Loh, CEO

Winning in the global value chain

ASEAN's manufacturing sector represents 7% of the global export value, ranking fourth behind China, the US and Germany. Whilst many ASEAN member states have performed successfully in the global arena by relying on competitive wages, average productivity across all ASEAN member states—except Singapore—is significantly lower than the US and Germany (see Figure 5). China, which historically has also depended on competitive wages to lead in global manufacturing, has invested heavily in automation and robots in the past 10 years, a move that enabled productivity to grow by 84%, compared with 38% on average for ASEAN.

Enabling manufacturing SMEs to digitally integrate—within and across ASEAN member states—will allow these SMEs to enhance productivity and compete more effectively at a global level.

Figure 5: ASEAN's manufacturing productivity has room to grow to compete with the US, Germany and China



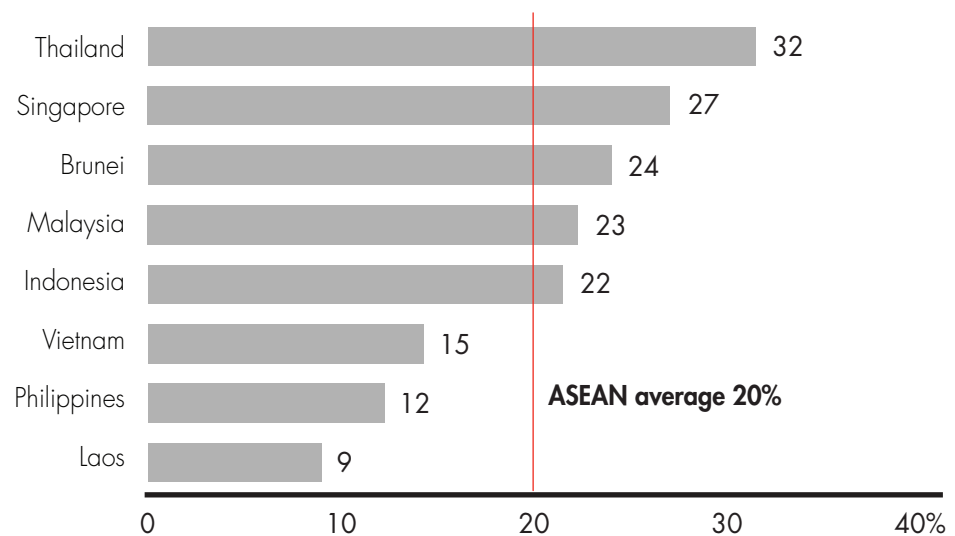
Notes: Manufacturing productivity is defined as value added per employee
Sources: Euromonitor, Bain analysis

Barriers to digital integration

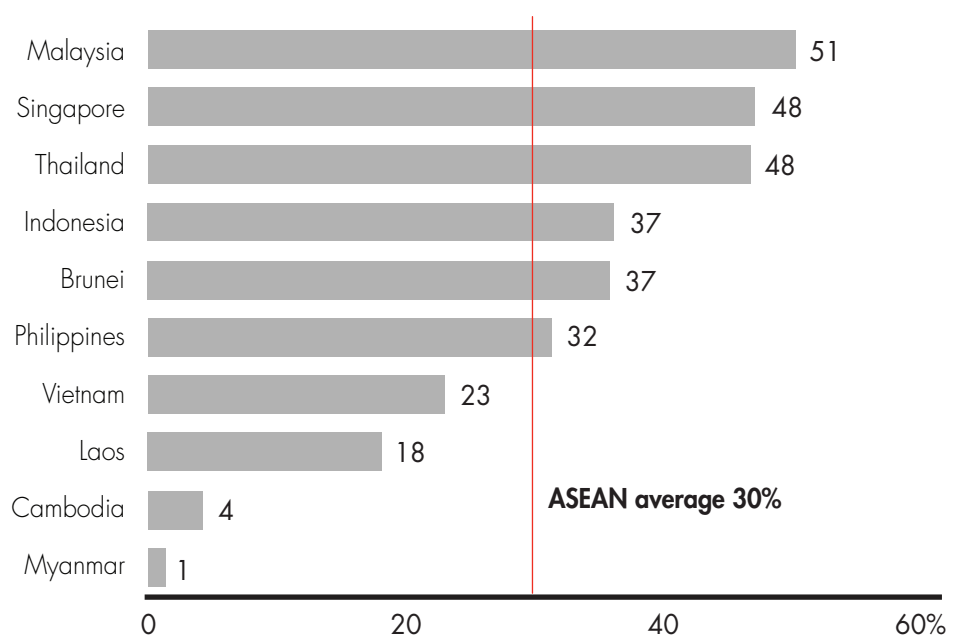
Today, ASEAN manufacturing SMEs are in the early stages of digital technology adoption, with only 20% using automated production lines and 20% using ERP or MES (see top chart of Figure 6). Whilst 30% of surveyed SMEs are aware of Industry 4.0 tools, only 10% use basic versions such as data visualisation, and even fewer use more advanced Industry 4.0 technologies such as 3D printing, robotics and cobots (collaborative robots).

Figure 6: Adoption and awareness of digital tools among manufacturing SMEs varies in ASEAN member states

Adoption rate of automated production lines



Awareness rate of Industry 4.0 tools



Notes: Industry 4.0 tools in the survey include RFID, cobots, 3D printing, data integration tools and data visualisation tools
Sources: ASEAN Digital Integration SME Survey; manufacturing SMEs (n=645); Bain analysis

For manufacturing SMEs, the main barriers to adopting more advanced digital technologies are:

- Awareness of applicable digital tools.
- Affordability of technology, often due to small scale of SMEs and cheaper labour alternatives.
- Uncertainty about or lack of understanding of digital technology.

ASEAN manufacturing SMEs that overcome these barriers can reap significant benefits in digital integration. For example, they can implement digital technology within their operations to increase volume or reduce costs and to more closely integrate with suppliers and customers along the global value chain.

What digital integration can produce

SME profile: People Bee Hoon, Singapore

People Bee Hoon is a Singaporean manufacturer that has produced rice vermicelli for over 70 years. Automation has played an important role in the company's global growth. For example, in the past three years, automation enabled the company to expand its production capacity and hence enabled exports to Japan, the US and the Middle East. The company is now piloting Industry 4.0 solutions such as Big Data analytics to further boost manufacturing efficiency and product quality.



Improving productivity in operations

Today, a number of digital technologies can boost SME operational productivity, including automated production lines, ERP and MES, advanced data analytics and visualisation, as well as Industry 4.0 advances such as RFID, 3D printing, robots and cobots.

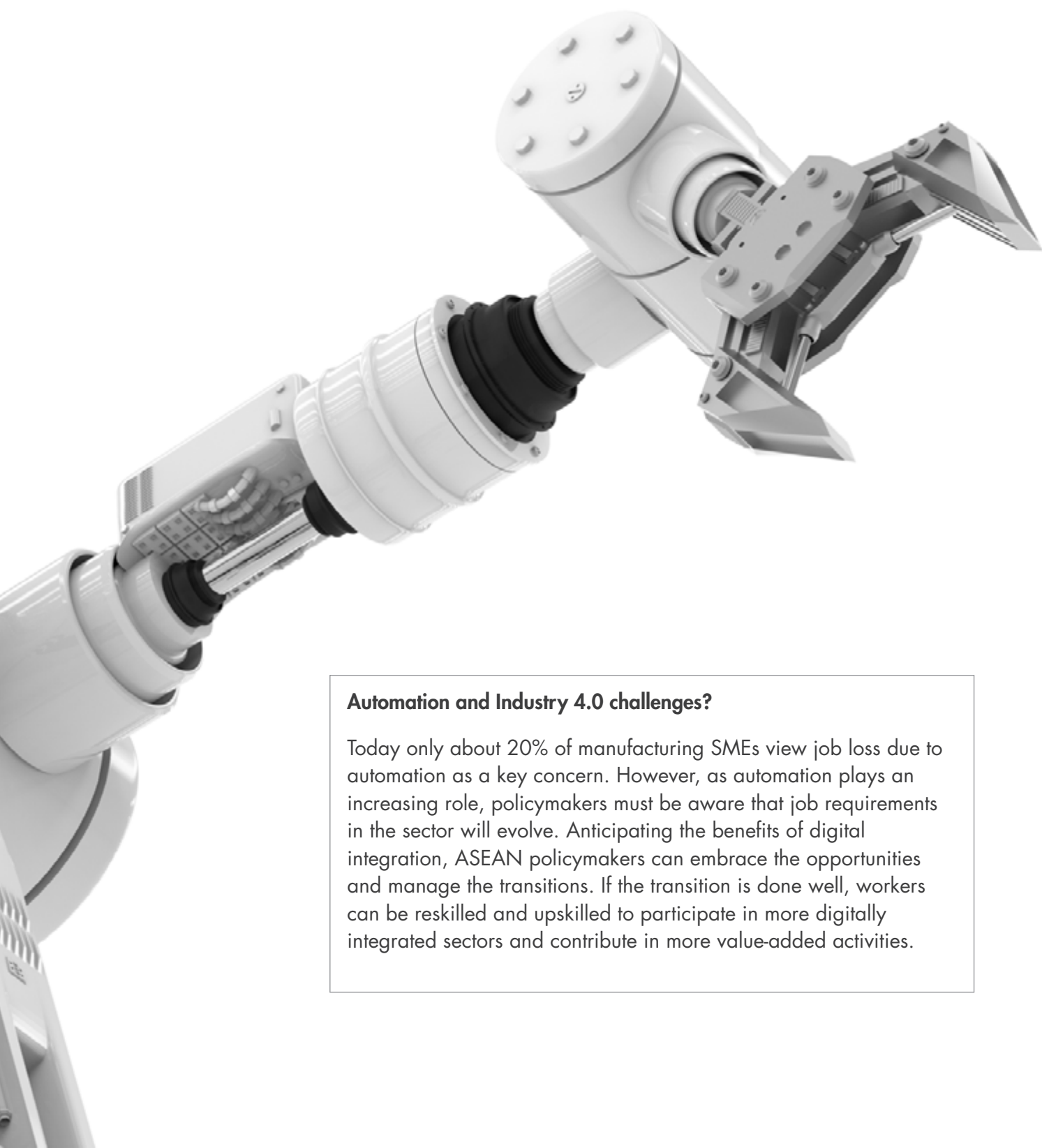
In our survey of ASEAN manufacturing SMEs, increased productivity and cost reductions are cited most frequently as the top benefits to be gained by using more advanced tools such as ERP or MES and automated production lines.

5%-20%

average cost reduction when manufacturing SMEs use an ERP system

Accessing a wider market of customers and suppliers

Across ASEAN, digital marketing tools are often used as a first step for business-to-consumer (B2C) manufacturing SMEs to reach more customers. Whilst currently nascent across ASEAN, business-to-business (B2B) e-commerce platforms can enable local SMEs to participate in markets beyond their immediate physical reach. ThomasNet in the US and Alibaba in China demonstrate the potential for such platforms. SMEs can use B2B e-commerce platforms to sell to customers in other countries whilst accessing a wider range of suppliers offering higher-quality or lower-cost goods.



Automation and Industry 4.0 challenges?

Today only about 20% of manufacturing SMEs view job loss due to automation as a key concern. However, as automation plays an increasing role, policymakers must be aware that job requirements in the sector will evolve. Anticipating the benefits of digital integration, ASEAN policymakers can embrace the opportunities and manage the transitions. If the transition is done well, workers can be reskilled and upskilled to participate in more digitally integrated sectors and contribute in more value-added activities.

Agriculture



The future of agriculture

In ASEAN's digitally integrated agriculture sector, farmers will use smartphone apps to access market information. They'll rely on sensors and smart irrigation to automate operations, reduce waste and enhance yield. They'll take advantage of marketplace platforms to directly sell to higher-value regional or global markets and procure high-quality and low-cost inputs. Moreover, digital financial services will allow farmers to take out loans to scale operations and transact more efficiently. More seamless logistics will provide farmers with improved speed to market. Ultimately, farmers will improve their livelihoods whilst better meeting consumer needs.

SME profile: Vietponics, Vietnam

Mr. Nguyen is a vegetable farmer in Lam Dong, Vietnam. Mr. Nguyen relies on smart farming technology by writing his own proprietary IoT software to control his farming system and build predictive models. The technology helped him improve yield more than 30% and reduce water and fertiliser use whilst giving him more control over his farming process.



Today he is helping other farmers in Vietnam to adopt smart farming technology by forming a farmers' co-operative.

"My vision is to contribute to the advancement of farming practices in Vietnam using technology.

I have started a farm co-operative in my region so that I can support other farmers to adopt automation in their farms."

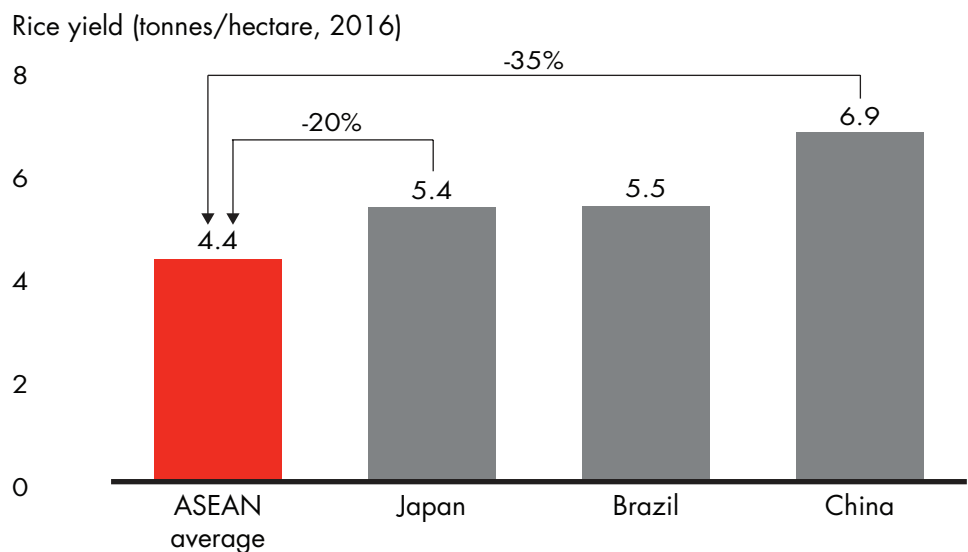
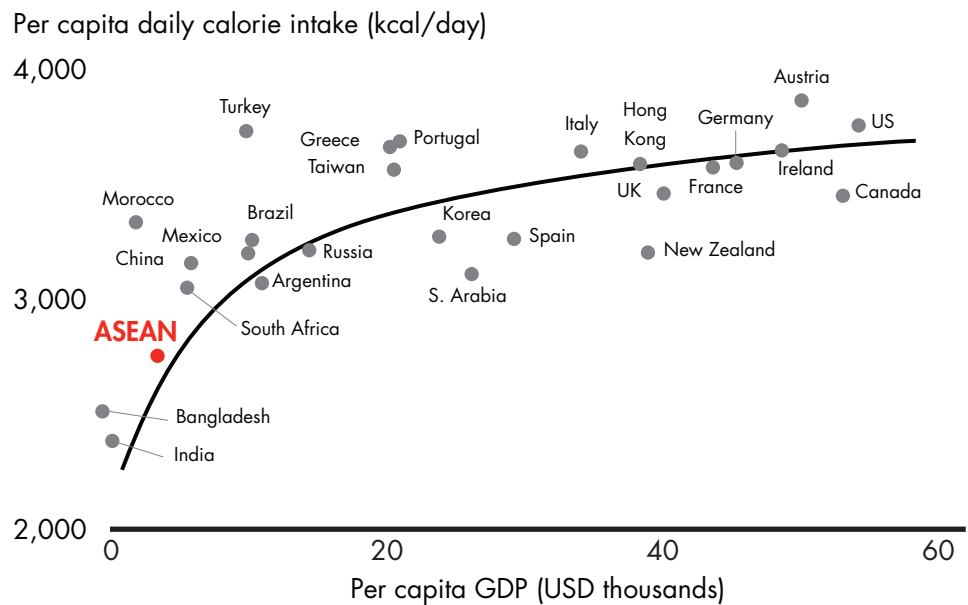
Nguyen Duc Huy, Founder

The productivity imperative

There is more pressure than ever for the agriculture sector to become more productive.

On the demand side, the ASEAN population is projected to grow to around 700 million by 2025, and rising GDP per capita is projected to increase calorie consumption (see Figure 7, top). On the supply side, 4 out of 10 ASEAN countries are in the bottom quartile in terms of arable land per capita (see Figure 7, bottom), and ASEAN's arable land per capita is expected to decline by 9% by 2025. In addition, in key crops such as rice, ASEAN farmers produce 20% to 35% lower yields than their counterparts in comparable countries such as Japan, Brazil and China.

Figure 7: Demand will increase as GDP per capita rises whilst supply in ASEAN is challenged by low yield rates



Sources: Food and Agriculture Organization (FAO) 2013; International Monetary Fund; Euromonitor; Bain analysis

Barriers to digital integration

Today, the ASEAN agriculture sector is not yet digitally integrated either locally or regionally. Fewer than 10% of agriculture SMEs use basic farming apps that provide weather information, crop market price information and modern crop management techniques.

The most commonly cited barriers to adopting basic forms of farming digital technology, such as farming mobile apps, are:

- Affordability of technology due to farmers' small scale and limited funding.
- Weak Internet connection, particularly in rural locations.
- Awareness of applicable digital tools.

SMEs that overcome these barriers can reap significant benefits from digital integration by improving farming operations and gaining greater access to markets and financial services.

What digital integration can yield

ASEAN has more than 80 million smallholder farmers, which make up about 80% of the total number of agriculture entities. These farmers face daunting challenges, such as a lack of access to financing and market information, but digital integration can solve many of these problems.



Increasing farm productivity

A number of different digital tools can help farmers improve their operation, ranging from basic smartphone farming applications to precision agriculture and predictive analytics, smart irrigation, sensors and drones.

Even with the most basic smartphone applications, farmers can now access more relevant information—such as weather forecasts, market price information for crops and crop management techniques—to help them better manage their production.

Though the adoption is low today, agriculture SMEs that use farming apps on average see 5% to 15% improvement in crop yield.

SME profile: eFishery, Indonesia

eFishery is an Indonesian IoT automated feeding system. It uses smart sensors to determine the fish's appetite and allows farmers to use their smartphone to control and monitor feeding. The technology prevents overfeeding in fish farming. Today the eFishery solution is deployed in more than 1,000 fish farms in Indonesia. Digital SMEs like eFishery enable fish farming micro, small and medium enterprises (MSMEs) to reduce costs by more than 25% and improve income.



SME profile: AgromelQ, Brunei

Founded in 2016, AgromelQ is a Brunei-based agriculture business intelligence and data analytics platform for farmers. With AgromelQ's web and mobile platforms, farmers can input their farm data and access best farming practices, improving their decision making to achieve higher farm productivity and profitability.



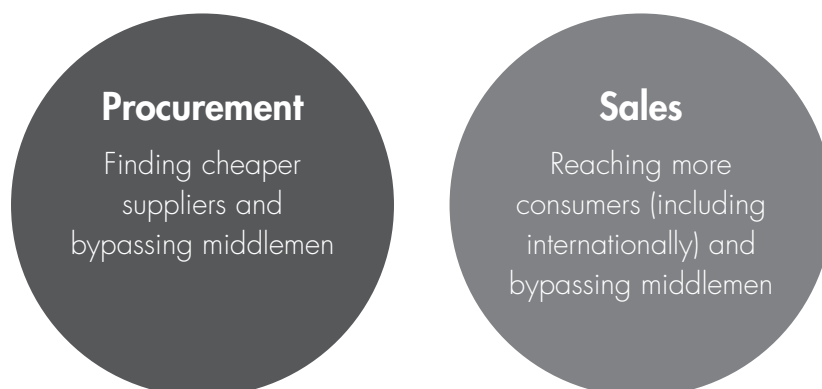
Accessing a wider market of customers and suppliers

Smallholder farmers rely heavily on intermediaries to source inputs and sell their products. They often face higher costs and have limited access to high-quality inputs. They are further disadvantaged by the lack of visibility into prices and demand for their products.

Although at a very early stage in ASEAN, online marketplaces for farmers could help address some of these existing challenges by providing farmers with:

- Greater access to a wide selection of lower-cost and higher-quality inputs, without needing to go through intermediaries.
- More direct access to end consumers, reducing the many layers of intermediaries that put pressure on farmers' prices.
- Easier access to market demand information to help farmers identify higher-value markets and higher-value derivatives of their products, both domestic and overseas.

Agriculture SMEs cite the top two benefits of e-commerce:



Obtaining more financing

Financing has been a key challenge for ASEAN smallholder farmers, given a lack of business and financial credentials, volatile cash flow cycles and the absence of banking infrastructure in rural areas. Digital finance creates significant opportunities for farmers to benefit from alternative sources of financing. Start-ups in other regions, such as FarmDrive in Kenya, have begun to finance farmers through alternative credit scoring, including using apps to record a farmer's revenues and expenses, and using satellite data to obtain and predict production information.

Retail

The future of retail

Like elsewhere in the world, retailing in ASEAN is rapidly changing, becoming an omnichannel mix of offline and online and, increasingly, cross-border trade in addition to domestic sales. Whether it's physical shopping malls, convenience stores, online business-to-business-to-consumer (B2B2C) e-commerce platforms or their own websites, the channels are growing and shifting rapidly, and the rise of digital opens huge opportunities for local SMEs to reach the global stage.

ASEAN retailers will be digitally connected throughout their supply chain—with customers, suppliers, logistics providers and financial services providers—delivering a ubiquitous and seamless experience to all.

SME profile: Clarte, Thailand

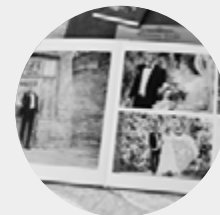
Clarte, a Thai home appliance retailer, started selling online in 2012 when the company observed the global trend shifting from offline to online retail and wanted to pursue an omnichannel strategy to maximise growth.

By using online retail and digital marketing, Clarte's online sales are now 20% of total sales. The retailer's goal is to increase online sales to 50% in the next five years. Clarte's omnichannel strategy has also contributed to a 20% increase in offline sales due to improved product visibility on its own website and e-commerce platforms.



SME profile: Photobook Worldwide, Malaysia

Established in 2005, Photobook Worldwide is a Malaysian digital retailer of personalised photo products. Digital technology has enabled Photobook to scale its business. From a production base in Malaysia, it now ships products to customers in more than 100 countries.



"More streamlined logistics options and customs laws will be a strong boost to SMEs like us to sell our products in ASEAN."

Wee Jonn Leow, CEO

Turbocharging the e-commerce growth engine

ASEAN's B2C and B2B2C e-commerce sectors grew at around 25% annually for the past five years, reaching an estimated US\$10 billion in 2017. Compared with the US and China, ASEAN's e-commerce sector is only beginning to launch. However, there is significant room for growth. For example, e-commerce represents only 2% of the total ASEAN retail sales in contrast to approximately 12% in the US and 20% in China (see Figure 8).

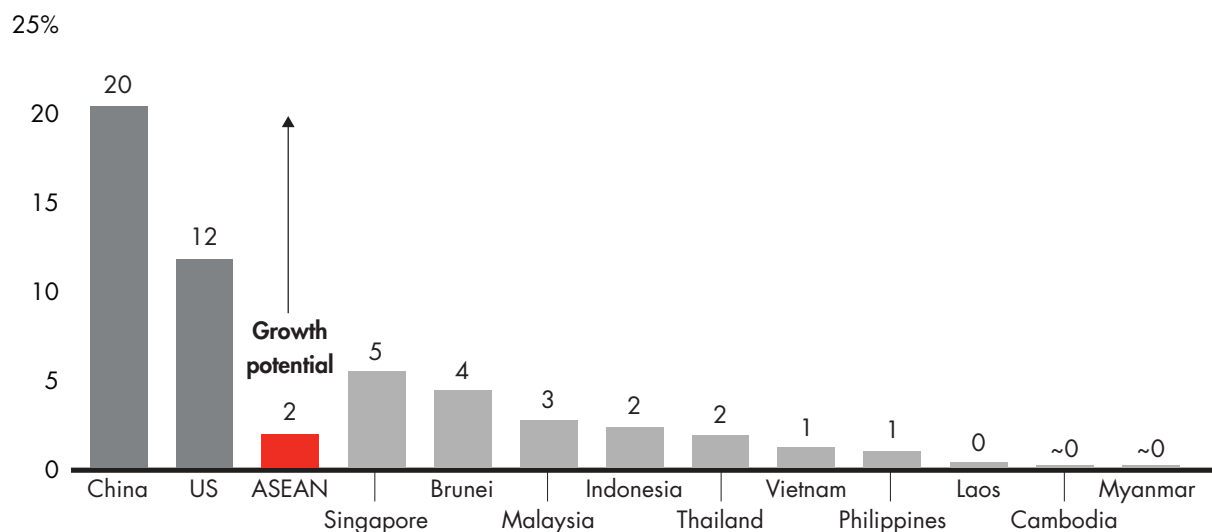
The strong tide of macroeconomic demand in ASEAN will fuel this growth. More than 50% of ASEAN's population is under 30 years old, and ASEAN's real GDP per capita has grown at 3.8% in the past five years, compared with the global average of 2.3%. Meanwhile, the proportion of Internet users has increased 2.8 times from 2012 to 2017.

Around the world, e-commerce has drastically changed the rules of retailing. Whilst many feared it would mean disaster for physical store sales, the retail sector in both developed and developing markets has enjoyed positive offline retail growth, even with a rising share of online retail. Offline retail in real terms has achieved a 1.1% CAGR from 2012 to 2017, with a 2.5% CAGR in key developing markets. In ASEAN, roughly 80% of SMEs see e-commerce as a major opportunity; despite threats such as increased competition, e-commerce connects them with the wider regional and global economies.

~80%
of SMEs see e-commerce as an opportunity for their business.

Figure 8: ASEAN e-commerce has significant room for growth

B2C and B2B2C e-commerce sales as percentage of total retail sales, 2017



Note: Excludes consumer-to-consumer (C2C) platforms, social media selling, and sales of travel, events and holiday packages
Sources: Euromonitor; eMarketer; Forrester; Frost & Sullivan; Bain analysis

Barriers to digital integration

Despite significant traction, retail SMEs still face barriers that limit them from further online growth in both domestic and cross-border sales (see Figure 9).

The most commonly cited barriers to online sales growth are:

1. Uncertainty about or lack of understanding of digital technology.
2. Employees lacking the skills to effectively market and sell online.
3. Weak Internet connection.

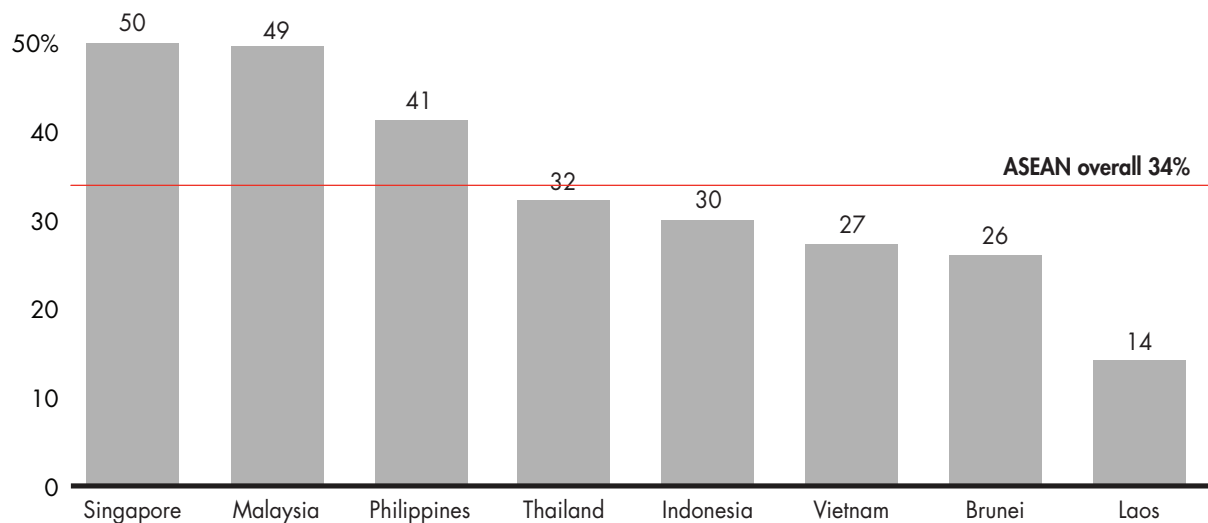
The most commonly cited barriers to using online retail for further growth in cross-border sales are:

1. Ineffective logistics networks due to poor logistics services and infrastructure.
2. Complexities of cross-border trade given the many non-tariff barriers in ASEAN.
3. Lack of convenient and low-cost payment options.

Some ASEAN retailers have overcome these obstacles to reap huge benefits from digital integration—opening up their markets beyond their physical reach today.

Figure 9: The adoption rate of online retail varies across ASEAN member states

Adoption rate of online retail among retail SMEs



Notes: Cambodia and Myanmar had a low response rate and are excluded from this chart; adoption is defined as having more than 20% sales from online retail (web store, social media store, e-commerce platforms)
Sources: ASEAN Digital Integration SME Survey; retail SMEs (n=937); Bain analysis

SME profile: BorneoEthnic, Indonesia

BorneoEthnic is a locally crafted rattan bags retail business based in Kalimantan, Indonesia. Pujo Nugroho, the owner, uses B2B2C platforms, which afford him the ease and lower cost of selling his bags online. They also enable him to sell his bags across Indonesia (including Sumatra and Papua), reaching a wider customer base outside of Kalimantan.



What digital integration has in store for retailing

Whilst there are many digital tools for retail SMEs, ranging from digital marketing tools to point-of-sale systems to customer analytics, we focus on e-commerce, as it has the biggest impact on accelerating digital integration across ASEAN.

SME profile: Matoa, Indonesia

Matoa is an Indonesian watch brand made from recycled wood. Using online retail and digital marketing, Matoa overcame the high cost of storefront investment. The company now exports its locally crafted watches to customers in Europe, Japan, the US and the rest of Southeast Asia.



Matoa has created 60 jobs locally and provided 35 rural families in Ciwidey, West Java, with stable income from wood processing.

“My big vision for Matoa is to continue growing so that we can provide more job opportunities to people locally.”

Lucky D. Aria, CEO/Founder

Accessing a wider market of customers with lower cost of entry

SMEs can rely on different e-commerce models—ranging from their own websites B2C to e-commerce platforms (B2B2C) to social media—in pursuit of a wider market of customers. E-commerce can empower rural sellers as much as urban sellers, bringing opportunities for growth to these sellers at an unprecedented pace. For example, in Indonesia, ~20% of SMEs selling on e-commerce platforms are based in six Tier 1 cities outside Greater Jakarta, and ~20% are based in smaller cities and rural areas.

B2B2C and social media e-commerce require lower investment costs, reducing the barriers to entry for SMEs. In particular, B2B2C e-commerce provides support for online selling, including a ready customer base and integrated payments and logistics infrastructure.

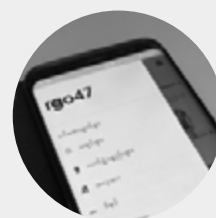
~15%
average sales increase for surveyed retail SMEs who use e-commerce

40%
of retail SMEs cite the low cost of setting up an online store as being among the key benefits.

SME profile: rgo47, Myanmar

rgo47 is a leading fashion e-commerce retailer in Myanmar, founded in 2014. rgo47 has expanded rapidly along with the growth of the Internet and social media penetration in Myanmar.

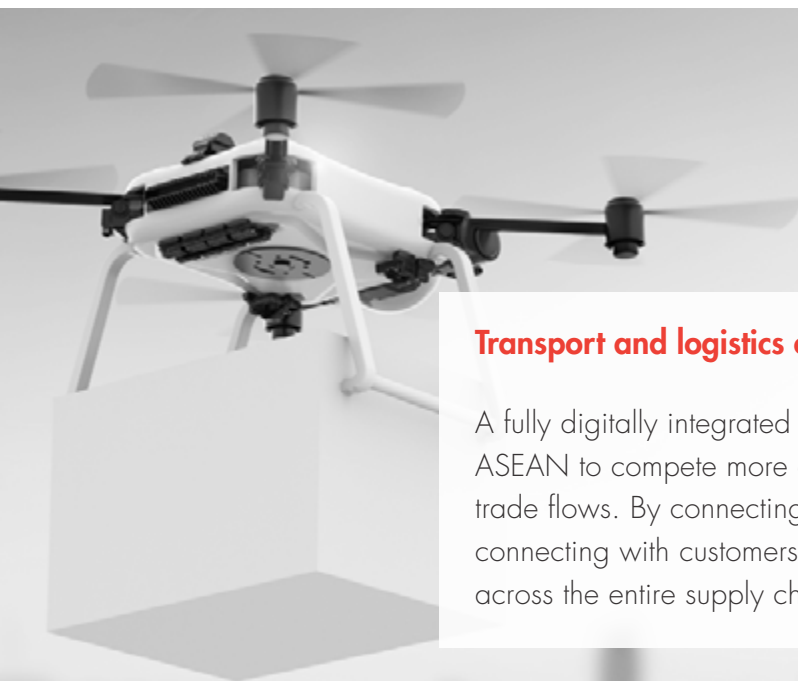
By using digital technology—including social media, rgo47's mobile app and free instant messaging services—rgo47 is able to reach customers across Myanmar.



Accessing a wider market of suppliers

Whilst nascent today across ASEAN, B2B e-commerce platforms allow retail SMEs to bypass wholesalers to source online from a larger selection of suppliers and products, providing lower sourcing costs and higher-quality products.

Transport and logistics



Transport and logistics of the future

A fully digitally integrated transport and logistics sector will enable ASEAN to compete more effectively in the global value chain, boosting trade flows. By connecting across all sizes and modes of logistics and connecting with customers and suppliers, digital integration within and across the entire supply chain will facilitate the seamless flow of goods.

SME profile: Xend Business Solutions, Philippines

Established in 2004, Xend Business Solutions was a first mover in e-commerce logistics in the Philippines. Over the years, Xend has used technology to improve its customer experience from do-it-yourself online booking, to the Xend mobile app, to messenger chatbots. Such innovations have shaved booking and shipment processing time to a couple of seconds.



Today, Xend has a network of 350,000 registered shippers and handles more than 15,000 parcels daily across the Philippines.

“With easing of trade barriers, more efficient cross-border logistics is possible. We hope to expand our services across ASEAN, supporting entrepreneurs in each market.”

Bjorn Pardo, CEO and Founder

Enabling trade flows

The transport and logistics sector is a key enabler of ASEAN economic development. Growing this sector requires ASEAN member states to bring together industry participants, including airlines, ports, rail services and transport ministries, to facilitate seamless trade flows.

ASEAN member states currently rank from 5th to 152nd among 160 countries in terms of logistics performance, according to the World Bank's 2016 Logistics Performance Index. While there have been significant efforts and improvements to road infrastructure in the cities, there is still large potential for improvement to rural road access in several member states. Furthermore, logistics costs are high. As a percentage of GDP, they range from 13% to 24% in ASEAN member states (except for Singapore, where logistics costs are 9% of GDP). This compares with 8% in the US and 10% in Europe. A more efficient and productive transport and logistics sector, supported by infrastructure development, is essential for creating a more competitive ASEAN economy.

At the same time, logistics remains a key enabler of e-commerce retailing and will benefit tremendously with the rapid rise of online sales. Accustomed to serving the B2B sector, logistics providers must now adapt to the different needs of e-commerce customers. They will also be required to incorporate more digital technology to address customer demands for such capabilities as real-time visibility.



Barriers to digital integration

ASEAN logistics SMEs are in the early stages of digital technology adoption (see Figure 10). Only 35% of surveyed logistics SMEs are aware of advanced tools like ERP systems, and only ~25% use an ERP system in their operations today.

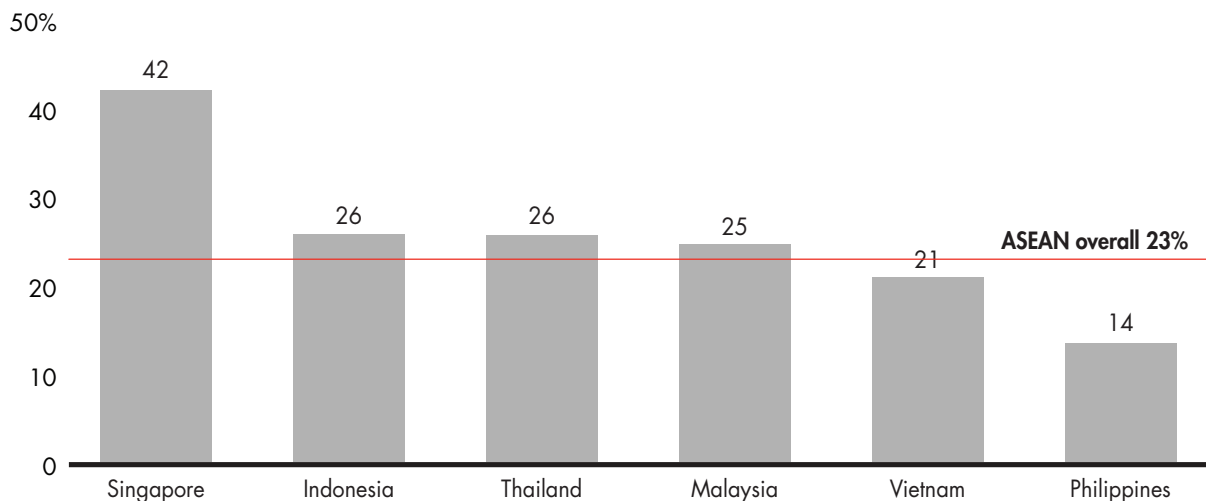
The three most commonly cited barriers preventing logistics SMEs from adopting more advanced digital technologies are:

1. Uncertainty about or lack of understanding of digital technology.
2. Affordability of technology such as high upfront investments required for systems.
3. After-sales service options—systems typically require an extended implementation timeline and ongoing support to ensure they are fit-for-purpose and updated.

Overcoming these barriers can yield significant benefits. Logistics SMEs use digital integration to maximise their assets and digitally integrate with their customers. In turn, this will enable logistics SMEs to capture the growth of the sector (including the booming business generated by e-commerce) both domestically and across the region.

Figure 10: Logistics SMEs are in the early stages of adopting advanced digital tools

Adoption rate of advanced digital tools among logistics SMEs



Notes: Brunei, Cambodia, Laos and Myanmar had a low response rate and are therefore excluded from this chart; adoption is defined as using at least three advanced digital tools; examples of advanced digital tools include ERP, HR software, accounting software, CRM and inventory management systems
Sources: ASEAN Digital Integration SME Survey; logistics SMEs (n=469); Bain analysis

What digital integration can deliver

Improving productivity in operations

Logistics SMEs can rely on digital tools in their operations to increase productivity, lower error rates and optimise resources. SMEs deploy those tools across the value chain in transportation, warehousing, freight forwarding and parcel deliveries. Industry 3.0 tools designed to improve operational efficiency include GPS tracking, route optimisation software, transportation management systems (TMS), warehouse management systems (WMS), CRM systems and digital marketing for business development.

There are also Industry 4.0 tools that can help logistics SMEs achieve higher productivity and operational accuracy. Among the solutions: automated sorting and robotics to improve warehouse efficiency, advanced forecasting to optimise inventory levels across locations and information flows across TMS and WMS, and digital matching platforms for freight capacity and logistics assets to increase overall asset utilisation.

Logistics SMEs that use digital tools improve productivity 10% to 20% on average.

Improving the customer experience

With a digitally integrated supply chain, logistics SMEs can foster closer business collaborations by integrating with their customers' supply chain systems. Logistics SMEs can also use generated data to deliver a better customer experience with customised solutions.

SME profile: WLNA, Singapore

Established in 1999, WLNA is a leading cold chain logistics SME based in Singapore. As customers demand higher visibility into their supply chains, WLNA has responded by implementing new technologies, including voice- and augmented-reality picking in its warehouse, and a route and load optimisation system for its truck fleet. These and other advances have helped WLNA boost productivity by 20% on average whilst also better serving its customers.



Spotlight on private transportation: Rise of ride hailing

In the private transport sector, one key trend in ASEAN is the growth of ride-hailing platforms such as regional players Grab and GoJek. Today, more than 6 million ride-hailing trips are taken in ASEAN daily, compared with an almost non-existent market in 2012. There is still significant growth potential, as ride hailing represents only 2% of urban commutes in ASEAN, compared with more mature urban centres like New York, where 4% of commuters use ride-hailing apps.

In addition to creating new work opportunities for more than 3 million micro-entrepreneur drivers across ASEAN, ride-hailing applications like Grab and GoJek have also enabled other micro-entrepreneurs to come online through other services, such as food delivery.

Ride hailing: Friend or foe?

The convenience of ride-hailing platforms has been a key enabler of the growth in the private transportation industry. For example, in Singapore, overall ridership for all private transportation—including taxis—has increased 30% in the past five years.

Anticipating the benefits of digital integration, ASEAN policymakers can embrace the opportunities and manage the transitions. If done well, taxi drivers can be upskilled to participate in a more digitally enabled private transportation industry.

SME Profile: Mr. Thang, Vietnam

Mr. Thang, 34, has been a driver with Grab Vietnam for more than two years. Before driving for GrabCar, he worked as a traditional taxi driver. Since making the move, his monthly income has increased by 100%, and he now has more flexibility to manage his sideline pawnshop business.



ICT

The future of ICT

A fully digitally integrated ICT sector will be a strong contributor to economic growth, innovation and productivity in ASEAN. It also can create an ICT global export powerhouse in which ASEAN ICT companies and talent are some of the best in the world.

SME profile: Pathmazing, Cambodia

Established in 2009, Pathmazing is a software solutions provider in Phnom Penh, Cambodia, with an 80-member development team. Its clients include multinationals such as Coca-Cola and eBay. One challenge founder Steven Path faced in the early years was the shortage of world-class developers in Cambodia. To build capability, Pathmazing invested in its own academy to train software developers.

“We want to show the world that Cambodia can be a powerhouse in the ICT industry and we are capable of building disruptive apps that provide everyday solutions.”

Steven Path, CEO



Foundation for digital integration

The ICT sector plays a key role in facilitating digitally enabled trade in goods and services, which in turn fuels economic growth. Advancement in the ICT sector has made it possible to conduct domestic and cross-border trade at a faster pace than ever before.

The ICT sector in ASEAN has grown 9% annually in the past five years and now contributes more than US\$113 billion in ASEAN GDP. In the 2017 United Nations ICT Index, which measures development in ICT across countries, ASEAN member states have all improved, especially with Myanmar and Laos, which moved up five spots from 2016.

In the future, the ICT sector will continue to grow, supported by the existing infrastructure and the initiatives under the ASEAN ICT Masterplan 2020. Further, entrepreneurial SMEs will keep up the momentum, building on the infrastructure already in place. These SMEs will respond to increased demands in areas such as software and app development, digital marketing, cloud services and information security—domestically first and regionally thereafter—as ASEAN moves towards full digital integration.

SME profile: Bizgital, Laos

Founded in 2016, Bizgital is a digital marketing pioneer in Laos. With the growth of Internet penetration and social media in Laos, many domestic and international businesses needed to reach customers through digital marketing. This demand has propelled Bizgital's exponential growth.



In less than two years, Bizgital has expanded to serve more than 40 domestic and international clients (including Samsung and Coca-Cola) and grown to more than 20 employees.

A
framework
for digital
integration



What local business leaders say

Today, 75% of the SMEs in the five key sectors we focused on see digital integration as an opportunity for growth, but only 16% of SMEs are truly digitally integrated.

Our survey and interviews provided insights into how digital integration can help SMEs and local businesses grow, and what they see as the biggest barriers to digital integration. Based on our research, five major barriers emerged.

“ We see ASEAN integration as a good initiative; we want to go beyond Myanmar and export our products, to create more jobs and opportunities in Myanmar. ”

Win Nander Thyke, Founder
rgo47, Myanmar

“ We are excited by the potential of ASEAN as a core growth market. Digital integration will make it more accessible. ”

Wee Jonn Leow, CEO
Photobook Worldwide, Malaysia

1. Accessing the ubiquitous Internet and affordable digital tools

Broadband coverage has improved in recent years across ASEAN, but rural areas remain an issue because 65% of rural SMEs need stronger Internet connections. Furthermore, half of all SMEs said the affordability of advanced digital tools is a challenge.

“ With stronger Internet access in rural areas, we can use more digital technology to improve farm productivity and farmers’ livelihoods. ”

Simon Bakker, CEO
Kennemer Foods, Philippines

2. Transacting seamlessly overseas

Approximately 25% of SMEs cited limited cross-border payment options as a key barrier to selling online to other countries.

“ Digital payment options can help us to reduce the prevalence of cash on delivery and reduce time and costs in domestic and regional e-commerce transactions. ”

Win Nander Thyke, Founder
rgo47, Myanmar

3. Engaging in cross-border trade

Among SMEs that sell online, roughly half see complex cross-border trade processes or poor logistics infrastructure as the top barrier to selling online to other countries. Many digital businesses see data localisation regulations as a barrier to seamless digital trade.

“ Easier export processes and more guidance will support more micro-entrepreneurs like myself to export our products to a wider market across ASEAN. ”

Scheree Herrera, Founder
Scherz Indigenous Creations, Philippines

4. Using technology confidently

45% of SMEs cited uncertainty about or a lack of understanding of digital technology as a top barrier to digital integration. In addition, a shortage of workforce digital skills was frequently cited as a key barrier.

“ B2B2C e-commerce platforms are convenient and easy to use for sellers. Through the tools provided by the online platform, I am able to find buyers across Indonesia... and hopefully across ASEAN in the future. ”

Pujo Nugroho, Owner
BorneoEthnic, Indonesia

5. Navigating the business ecosystem in the digital age

Among the digital entrepreneurs and digitally integrated SMEs we interviewed, 40% cite barriers related to navigating the business ecosystem—from complying with digital regulations to the requirements of starting a business (which can take as long as 99 days across ASEAN member states).

“ Access to finance is always challenging for entrepreneurs. More start-up incentives, improved access to finance and a stronger entrepreneur ecosystem would help more new digital businesses to be established faster. ”

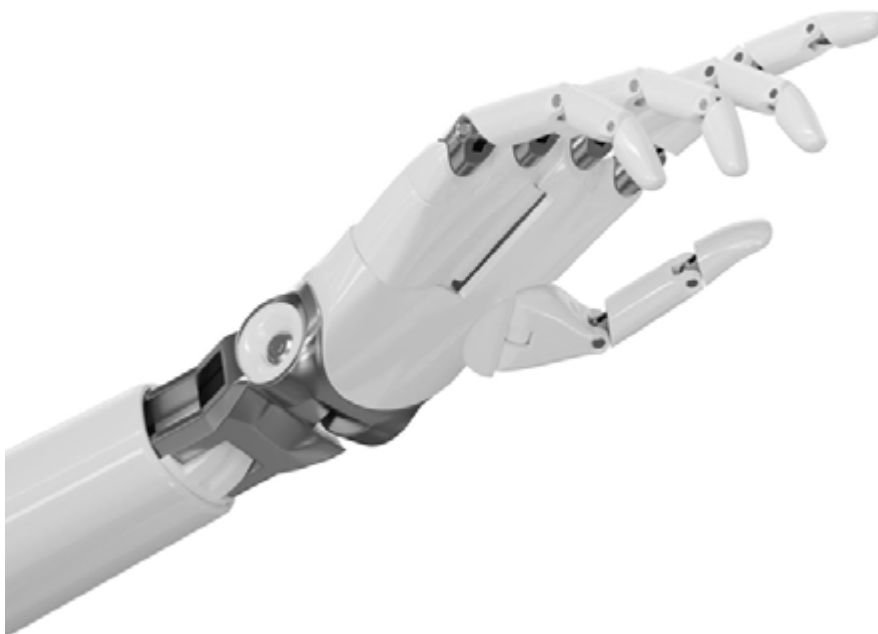
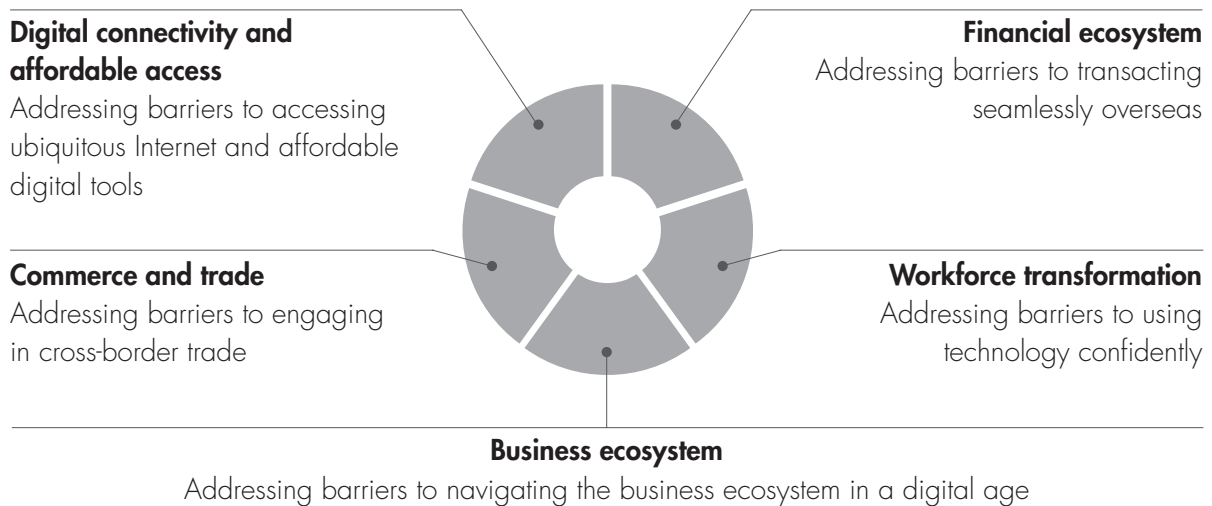
Justin Stewart, CEO
ithinkasia, Cambodia

Where ASEAN policymakers can focus: a framework for digital integration

It is important for ASEAN to have a consolidated and coordinated approach towards digital integration. This report introduces a Digital Integration Framework (see Figure 11) to help the region achieve this outcome. This Framework has two key objectives:

- Provide ASEAN member states with an overview of the current state of digital integration at the regional and member state level, indicating the degree of readiness for full digital integration.
- Enable ASEAN member states to prioritise existing policy actions that will deliver the full potential of digital integration.

Figure 11: ASEAN Digital Integration Framework



This framework addresses the five barriers identified through our research:

- **Digital connectivity and affordable access**
 - Enhance domestic and cross-border infrastructure for reliable Internet coverage and access.
 - Improve affordability of access to the Internet and digital tools.
- **Financial ecosystem**
 - Improve nationwide and region-wide payments adoption and connectivity.
 - Extend financial inclusion through access to digital financial services.
 - Streamline and harmonise regulations across ASEAN.
- **Commerce and trade**
 - Enable seamless regional digital trade environment.
 - Build domestically and regionally connected logistics infrastructure.
 - Streamline and harmonise regulations across ASEAN.
- **Workforce transformation**
 - Support population to achieve digital literacy.
 - Develop skilled personnel to facilitate domestic and regional digital growth.
- **Business ecosystem**
 - Encourage domestic and international investments.
 - Build ecosystem to support innovation and entrepreneurship.
 - Remove regulatory burden on SMEs; harmonise regulations.

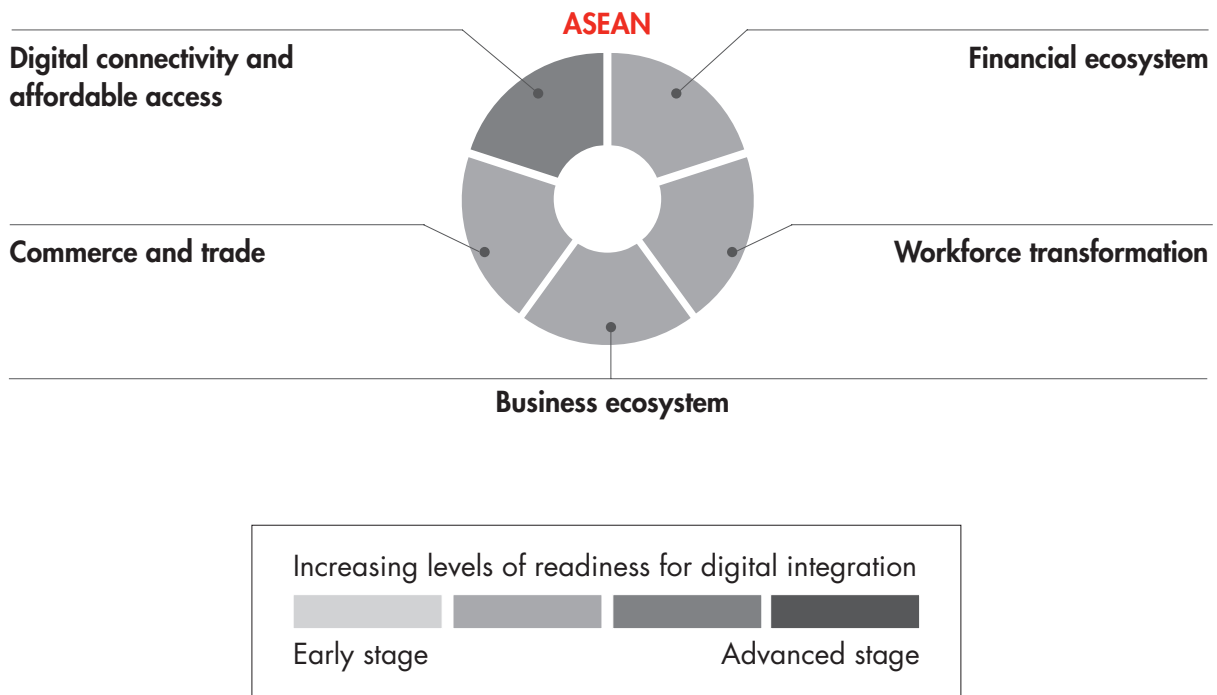


ASEAN'S
digital
integration
progress



To understand the current status of digital integration across all 10 ASEAN member states, we examined 65 policy actions and the outcome metrics (see Appendix, Figure 13) that indicate the readiness level across the five policy areas defined in the Digital Integration Framework (see Figure 12).

Figure 12: Current status of ASEAN Digital Integration Framework progress



We learned that ASEAN is making good progress across many areas of the Digital Integration Framework. One particular area to highlight is the major advance in digital connectivity across all member states, which sets the foundation for digital integration across the region. ASEAN now needs to turn its attention to other aspects of the framework.

Common themes of progress and improvement areas were identified across all ASEAN member states:

- 1. Digital Connectivity and Affordable Access:** Large investments by the private and public sector have vastly increased Internet access (3G or 4G coverage) to more than 90% of the ASEAN population. Bandwidth constraints and rural coverage gaps still exist but are being addressed as governments seek to improve and extend digital inclusion.
- 2. Financial ecosystem:** As a result of the early introduction of digital financial services across the region, digital payments are roughly 3% of consumer expenditures in ASEAN. This contrasts with about 30% in China, which is on the forefront of digital payments. Whilst many member states have taken measures to develop the digital financial ecosystem, most are still in the process of adopting common global standards and best practices that increase inclusion of both businesses and individuals.

- 3. Commerce and trade:** Member states have made significant progress towards realising the ASEAN Free Trade Area. Through the CEPT Scheme, tariff rates have decreased from 13% in 1993 to 0.2% in 2015. The number of non-tariff barriers, however, has risen from around 1,600 in 2000 to roughly 6,000 in 2015, a situation that needs to be addressed. On logistics infrastructure, ASEAN member states developed the MPAC 2025 even before the formation of AEC 2025. These plans remain critical for digital integration, but implementation has been challenging.

Furthermore, data localisation concerns remain when considering digital trade. Whilst the ASEAN Framework for Personal Data Protection has been adopted, more could be done to support cross-border digital trade.

- 4. Workforce Transformation:** ASEAN member states recognise the importance of digital education and are ramping up actions to provide digital curriculum in primary and secondary schools, as well as advanced ICT skills training. The most important area of transformation required—digital upskilling programmes for the existing workforce—is still at small or pilot scale for most ASEAN member states.
- 5. Business Ecosystem:** Member states have become more receptive to investments. However, with the exception of a few member states, SMEs still face barriers to start and liquidate businesses due to complicated processes, long wait times, regulatory uncertainties and, at times, prohibitive costs. New policies still do not consider the administrative burden on SMEs.

Digital connectivity and affordable access

Digital connectivity and affordable access serve as the foundation for digital integration across ASEAN by enabling individuals and businesses to connect to the Internet and adopt digital technology affordably. ASEAN member states have made significant progress catching up and should be congratulated on the many successes that have given the region a solid digital foundation on which to build on.

Perhaps the most notable of many achievements: The region now has more than 90% Internet access (3G or 4G coverage), with more than half of the population on broadband connections and using smartphones.

Singapore leads the region with world-class broadband coverage and speeds as well as favourable policies to incentivise the private sector to invest in key infrastructure. Myanmar and Vietnam have also made big advances in 4G coverage in recent years.

“The exponential Internet growth has certainly helped e-commerce businesses like rgo47 to take off rapidly in Myanmar.”

Win Nander Thyke, Founder
rgo47, Myanmar

Myanmar's leapfrog in broadband coverage

Myanmar has seen much progress since 2013, when the country enacted a set of transformative reforms. In 2013, the government put in place an independent ICT regulator and ended the state operator's monopoly by issuing long license tenures with low upfront costs to Telenor and Ooredoo, supported by transparent and non-discriminatory spectrum allocation rules. Consumers have benefited from these moves—two-thirds of townships are now covered with 4G, Internet users increased by 9 million between 2016 and 2017, and the cost of SIM cards fell from US\$150 in 2013 to less than US\$1 today.



Vietnam's commitment to digital infrastructure

The government of Vietnam has played a leading role in expanding digital connectivity with state-owned operator VNPT and private-sector partnerships in the past decade. Investments included the national backbone network, the North-South optical fibre cable system and international infrastructure connecting directly to more than 240 countries. The government has also committed to reinvest in broadband infrastructure, using 70% of funds obtained from spectrum auctions. 4G coverage, launched in 2016, increased to 95% in 2018.



ASEAN can build on the successes achieved to date and look to make further improvements:

- With the exception of Singapore, average mobile broadband speeds in most ASEAN member states are still below the global average of about 20 Mbps, according to January 2018 data from Speedtest.net.
- International bandwidth capacity is below the global average in most ASEAN member states.
- Broadband access in some rural areas remains low—it is still economically challenging for mobile network operators to expand to many rural areas.
- Cost of entry-level broadband access is still relatively high in the Philippines, Myanmar, Cambodia and Laos, above the 2% monthly GNI threshold of affordability defined by the UN Broadband Commission for Sustainable Development.

Malaysia's push for digital connectivity in rural areas

Rural broadband coverage and digital inclusion have expanded rapidly in Malaysia under the National Broadband Initiative. The country allocated RM250M for fibre backhaul projects in rural areas such as Sabah, Sarawak and parts of Peninsula Malaysia. Mobile network operators used extensive network and spectrum sharing, as well as investment tax incentives on last-mile broadband equipment roll-out to previously uneconomical areas. To accelerate adoption, the government provided tax rebates for broadband, distributed 100,000 netbooks with broadband and opened Internet access in government offices, educational institutions and Internet centres. Broadband coverage in Sarawak increased from 14% at the launch to 78% in 2016. Internet centres now provide 23% of coverage and 1% of broadband adoption in rural areas.



Financial ecosystem

Spotlight on India: Rapid roll-out of the interoperable UPI payment system

The Unified Payments Interface (UPI) is a mobile real-time interbank payment system in India launched by the government in 2016 to promote cashless digital payments and financial inclusion. It uses mobile numbers, biometric-based Aadhaar digital ID and a PIN to verify each payment, at no charge. Its interoperability has enabled many banks and payment services (including Google Tez, Paytm, PhonePe, BHIM and WhatsApp) to participate in the ecosystem via API. In March 2018, there were 180 million UPI transactions worth roughly US\$3.7 billion. Over the past year, monthly transaction volume grew by about 30% and value grew 20%. Transactions are primarily still peer to peer, so improving the merchant value proposition will be critical to accelerating adoption.



“The rise of digital payments will reduce friction in e-commerce, helping more SMEs and consumers to transact online. This in turn will push forward greater financial inclusion across ASEAN.”

Chris Feng, CEO
Shopee

“The rise in smartphone and digital connectivity has set the foundation for growth in digital wallets in the last few years. We hope this will continue to increase financial inclusion in Vietnam.”

Tuong Nguyen, COO
MoMo, Vietnam

Digital payments increase the flow of digital and digitally enabled goods and services, facilitating cross-border trade and serving as a gateway to other digital financial services. More than a quarter of SMEs cited the lack of digital payment options as a key barrier to selling online to other countries. Digital payments also provide the potential to accelerate financial inclusion to underserved populations across ASEAN. Currently, only 27% of the region's population is banked, compared with 79% in China and 94% in the US in 2014.

To enable higher adoption, the financial ecosystem must allow for development of innovative services (e.g., payment system interoperability, open APIs in financial institutions, sandbox programmes) whilst addressing obstacles to user adoption such as developing digital IDs, streamlined know-your-customer (KYC) processes and less restrictive cash-in and cash-out rules.

All ASEAN member states have adopted some form of digital payments at various stages of maturity. For example, Indonesia, Singapore, Malaysia, Thailand and Vietnam developed national plans for the adoption of digital payments, whilst Singapore and Thailand have taken steps towards national and bilateral interoperability.

Rapid adoption of Thailand's interoperable digital payments system

Thailand launched the PromptPay payments framework in 2017 as part of the National E-Payments Master Plan and within the first year registered 32 million users (almost half the population). It is compatible with International Organization for Standardization (ISO) 20022 standards and has implemented a QR platform that is interoperable among banks and mobile wallets in accordance with international standards. Thailand's system will soon be linked to Singapore's PayNow system for seamless cross-border transfers. Factors that increase adoption include being the official channel for government payments, lower transaction fees and using mobile numbers and user IDs to perform transactions.



“Local and regional interoperability is critical for the sector to grow the payment ecosystem in ASEAN.”

Mohd Khairil Abdullah, CEO
Axiata Digital Services Sdn Bhd, Malaysia

There are several opportunities to improve ASEAN's digital payment rate, which accounts for only about 3% of consumer expenditures in the region, compared with China at 30% and the UK at 10%:

- Global interoperability frameworks are not yet universally adopted across ASEAN. Several member states (Indonesia, Philippines and Vietnam) have implemented National Payment Gateways but are not yet operating on global standards such as ISO 20022.
- Open APIs in financial institutions are starting to be implemented. Singapore, Malaysia and Thailand have or are planning open API programmes that will allow other institutions and fintech companies to innovate using existing services, data and customer bases.
- Whilst fintech sandbox programmes exist in Singapore, Indonesia, Malaysia, Thailand and Brunei, other member states still have strict regulations for fintech companies, and safeguards and standards have not yet been specified.
- Not all national ID systems across ASEAN are capable of providing real-time identity verification that can be integrated with digital services.

- Across some ASEAN member states, KYC procedures for user onboarding and transactions can be prohibitive, and stringent cash-in and cash-out regulations restrict the coverage of agent networks.

Role of open API in financial services innovation in Singapore

The Monetary Authority of Singapore (MAS) moved to simplify regulatory compliance and accelerate innovation in the financial sector with the financial services Industry Transformation Map (ITM). One of ITM's key initiatives is encouraging use of open APIs that allow third parties to develop new financial products and services using bank data. As a result, in November 2017, DBS Bank launched the world's largest banking API developer platform, from which more than 50 companies, including start-ups, have developed new applications. As of March 2018, four banks and NETS have open APIs available for developers, according to the MAS API Register.



Commerce and trade

Both digital and non-digital trade in goods and services will increase along with digital integration. However, among SMEs that sell online today, half cite complex cross-border trade processes and logistics infrastructure as key barriers to selling online to other countries. Furthermore, many digital businesses see data localisation regulations as a barrier to seamless digital trade. Therefore, policies that shape the physical and digital trade of goods and services are important for successful digital integration across ASEAN and should be carefully considered.

As a region, ASEAN has witnessed large improvements in trade policy over the past decade.

Under the ASEAN Free Trade Agreement Framework, average tariffs dropped from 13% in 1993 to 0.2% in 2015.

The cost and time requirements for customs clearance are on par or better than Asia's average. All member states have also committed to participate in the ASEAN Single Window.

Meanwhile, ASEAN member states have developed logistics infrastructure and trade facilitation plans, with Malaysia and Singapore leading with comprehensive programmes to build capacity, increase productivity and develop workforce skills to meet the logistics demands of a digitally integrated economy. Other member states have also focused on private-public-partnership (PPP) initiatives, as in the case for Malaysia, Thailand, Philippines and Vietnam. For example, the Philippines created PPP Center, whose mandate is to facilitate, coordinate and monitor PPP projects, as well as advocate for necessary policy reforms.

“With streamlined trade codes and increased ease of doing business in ASEAN, there would be more opportunities for WLNA to expand in the region.”

Kathegasan Bala, COO
WLNA, Singapore

Turning to digital trade in services, Singapore, Thailand, the Philippines, Myanmar, Cambodia and Laos have few cross-border data flow restrictions. Singapore has chosen to implement international best practices in data security whilst facilitating the free flow of data by joining the APEC Cross-Border Privacy Rules System, where members collaborate on upholding data protection standards.

Whilst the region has embarked on numerous initiatives, areas for improvement and caution remain:

- Although tariffs have decreased, non-tariff barriers such as technical impediments to trade and sanitary and phytosanitary measures have risen from roughly 1,600 in 2000 to approximately 6,000 in 2015. In addition, the lack of transparency of these non-tariff barriers in some cases has added to costs, delays and greater uncertainty for businesses.
- According to the World Economic Forum (WEF), the average quality of overall infrastructure increased from 4.1 to 4.2 (on a scale of 7) between 2007 and 2017 where data is available. In comparison, the same metric increased 0.9 points to 4.5 for China during the same period. Rural delivery costs are still prohibitively high for viable e-commerce.
- Transport facilitation agreements such as the ASEAN Framework Agreement on Facilitation of Goods in Transit (AFAFGIT), ASEAN Framework Agreement on the Facilitation of Inter-State Transport (AFAFIST) and ASEAN Framework Agreement on Multimodal Transport (AFAMT) were signed even before the creation of AEC 2025 and MPAC 2025. However, ratification and implementation are still pending in some member states.
- ASEAN member states have adopted the ASEAN Framework for Personal Data Protection, but more could be done to support cross-border digital trade. A few member states have enacted cross-border data transfer restrictions as a measure of data security.

Cross border data transfer restrictions may reduce access to innovative services across borders and increase technology costs by 30% to 60% for SMEs, according to the Leviathan Security Group.

A number of studies also have highlighted the scale and importance of cross-border data flows. For instance, a Brookings report indicates that in 2014 the free flow of data contributed an estimated US\$2.8 trillion to the global economy, a figure that could reach US\$11 trillion by 2025.

“Data localisation requirements across ASEAN are very restrictive for us and raise the question, ‘Do we want to play in the market or not?’ For SMEs, these would be big considerations when thinking about which markets they can look to grow their business.”

Jun Hasegawa, CEO
Omise, Thailand



ASEAN Single Window: Increasing customs-clearing efficiency

The ASEAN Single Window (ASW) is a regional initiative that provides the IT architecture and legal framework to expedite the cargo clearance process, reducing customs costs and time through standardised electronic documentation. Since ASW's implementation in 2006, member states have started to see benefits. For example, Vietnam expects to reduce customs clearance times by 80%. Member states will first need to establish a National Single Window before being able to integrate with the ASW. Indonesia, Thailand, Malaysia, Singapore and Vietnam commenced live operation of the ASW, and the remaining ASEAN member states are expected to participate.

Malaysia's comprehensive Logistics and Trade Facilitation Master Plan

The 2015 Logistics and Trade Facilitation Master Plan was created to strengthen the institutional and regulatory framework, address infrastructure bottlenecks, increase the efficiency of trade facilitation mechanisms, enhance technology and develop human capital. The Malaysia Digital Free Trade Zone (DFTZ) executes on several trade facilitation initiatives, including ensuring efficient cargo clearance and access to Malaysian public-sector systems through an integrated e-services platform and providing advanced logistics facilities. More than 1,500 Malaysian SMEs were selected, onboarded and trained to participate in the DFTZ at launch.



Workforce transformation

With the increasing adoption of digital technology, there is an ever greater need to create a talent pipeline that is not just digitally literate but also equipped with advanced ICT skills to compete regionally and globally. ASEAN member states need to start by building the necessary foundations, beginning with primary and secondary education and continuing through advanced ICT education and upskilling programmes for the current workforce. Singapore is a leading example of equipping its population for this change with comprehensive digital education programmes at all levels.

“Through trainings and seminars, I have learned how to use various digital marketing tools to sell my handcrafted bags online.”

Scheree Herrera, Founder
Scherz Indigenous Creations, Philippines

Singapore's comprehensive SkillsFuture programme

In 2016, SkillsFuture Singapore was formed to coordinate across the Ministry of Manpower and the Ministry of Education to ensure that students and working adults have access to high-quality, industry-relevant training. Programmes are linked to labour market trends and outlined in Industry Transformation Maps. Programmes include vocational internships, “SkillsFuture Credit” subsidies for training courses, and professional conversion incentives to help Professionals, Managers, Executives, and Technicians (PMETs) switch to new sectors. In 2017, about 300,000 people used the SkillsFuture Credit on courses (ICT being the most popular). Roughly 120,000 people have used the midcareer enhanced subsidies, and thousands have attended SkillsFuture advice workshops.



ASEAN member states can improve their efforts to develop digital literacy and advanced ICT skills. Current challenges in this area include:

- Outside of Singapore and Malaysia, most member states are in early stages of implementing scale digital upskilling programmes for existing workforces, particularly in industries that will be transformed with digital integration, such as manufacturing.
- Digital education programmes (including ICT infrastructure roll-out, curriculum development and educator training) for primary and secondary schools are limited or focused on select schools in urban areas.
- ICT personnel across ASEAN make up less than 0.5% of the population (compared with 2% in some advanced ICT economies). Whilst most member states provide general scholarships to students, most lack science, technology, engineering and mathematics (STEM)-specific education incentives.

Cambodia, Laos and Philippines partnered with Microsoft to enhance digital education

Member states are working with Microsoft to transform their digital education systems.



Laos' Ministry of Posts and Telecommunications has collaborated with Microsoft to provide thousands of Laotian students with access to training courses via Microsoft's latest cloud technology.



The Philippines' Department of Education has also engaged with Microsoft to provide digital tools for teachers who teach STEM subjects in secondary schools.



Cambodia's Ministry of Education, Youth and Sport has collaborated with Microsoft to build teachers' capacity for innovation, improve the digital curriculum and promote a smart learning environment.

Vietnam partners with the private sector to roll out advanced digital education

Since 2010, Vietnam has partnered with the United States Agency for International Development (USAID), Arizona State University, Intel Corporation and several other entities for a series of initiatives to reform the curriculum of technical universities and vocational colleges, improve teaching methods, modernise strategic planning capacities at educational institutions, attain educational credentials and accreditation, and boost private sector collaboration. More than 2,000 faculty members have been trained, and university programmes have achieved Accreditation Board for Engineering and Technology (ABET) accreditations. Vietnam has also heavily encouraged multinational technology firms with tax incentives, convenient customs conditions and credit to operate in Vietnam. Several of these firms, including Samsung, LG, Cisco and Jabil, have provided training to local staff.



Business ecosystem

Finally, SMEs need a supportive business ecosystem to thrive in; an ecosystem that will attract entrepreneurs to develop innovative products and services is critical for the acceleration of digital integration.

Policies such as lifting foreign direct investment (FDI) limits, capital controls and streamlining the processes required to start and liquidate businesses would encourage investments and entrepreneurial business activities. Other policies such as tax cuts, subsidies, grants, loans and incubation programmes could provide ongoing support to businesses.

Singapore leads in the ease of doing business, followed by Malaysia and Thailand, whilst Brunei and Indonesia have recently made improvements. For example, Singapore, Malaysia, Thailand, the Philippines, Vietnam, Brunei and Indonesia now provide financial incentives for entrepreneurs as well as non-financial support, including incubators and digital hubs. Many member states have favourable FDI policies, including Singapore, Malaysia, the Philippines, Cambodia, Laos and Brunei, and foreign capital controls are generally favourable across most member states.

Malaysia invested heavily in supporting the SME and digital ecosystem

Malaysia has launched numerous programmes to support the SME and digital ecosystem, including SME Corporation, SME Bank, Malaysian Global Innovation & Creativity Centre (MaGIC) and Malaysia Digital Economy Corporation (MDEC). Services include capacity-building agencies such as the SME University and accelerators, market access services, financing options, technology, marketing advice and export assistance. Malaysia has also allocated RM 6.7 billion in the 2017 budget to support SME development, of which RM 350 million is allocated to promote SME exports.



Across ASEAN, there is still room for improvement on the business ecosystem:

- Business registration processes in some member states are still lengthy (up to 99 days), licensing and registration processes lack transparency, and IP laws are still non-existent or ineffective in some member states. Only three member states are ranked among the top 50 on the World Bank's Ease of Doing Business Index.
- Most ASEAN member states are considering taxation on digital goods and services. If not implemented correctly, those taxes may impose a heavy operational burden for SMEs, affecting their ability to be competitive in the long term.
- FDI limits and foreign capital controls are still significant in some member states. Several member states still restrict foreign ownership in many sectors, and profit repatriation is still subject to government approvals.
- Most member states are starting to provide financial incentives and support mechanisms for entrepreneurs to grow—but many entrepreneurs are still not aware of or taking full advantage of them.

“The start-up initiatives by DARE have been helpful for us to scale our business and look for partnerships overseas to grow AgromelQ.”

Vanessa Teo, Founder
AgromelQ

Brunei's coordinated efforts to develop the entrepreneurship ecosystem

In 2016, Brunei designated a new statutory body, Darussalam Enterprise (DARE), a collaboration among 16 local and foreign government and non-government agencies to support local enterprises. The programme features enterprise programmes (Startup Bootcamp), access to financing (Microcredit Financing Scheme) as well as a one-stop business support centre.



Indonesia's push to improve the ease of doing business

Indonesia was among the world's top 10 most improved countries in the World Bank's Ease of Doing Business Index, moving up 15 places, from 106th to 91st, between 2016 and 2017. The country has enacted numerous business reforms, including launching a single form to register and obtain a company certificate and trading license, an online tax-filing system and a new credit bureau. In addition, Indonesia abolished the minimum capital requirement for SMEs. As a result, the time required to start a business has dropped from 47 days to 22 days, and the cost of starting a business almost halved between 2015 and 2017.



Six priorities
for the next
12 to 18
months



Significant work is already underway that will contribute to full digital integration across the region. Initiatives are outlined in the AEC 2025 Blueprint, ASEAN ICT Master Plan 2020, MPAC 2025, ASEAN Framework for Personal Data Protection, and the ASEAN Strategic Action Plan for SME Development 2025.

ASEAN member states have progressed in all aspects of the Digital Integration Framework. One particular area to highlight is the major advance in digital connectivity across all member states, which sets the foundation for digital integration across the region.

Whilst many coordinated initiatives are underway, we see six areas to prioritise over the next 12 to 18 months which will have a significant effect on digital integration in the region. The opportunity is huge: We estimate that removing the barriers to digital integration across ASEAN could deliver US\$0.8 trillion–\$1.1 trillion of GDP value across ASEAN by 2025.

1

Facilitate seamless trade

With the increase in digital-enabled trade of goods, digital integration requires reliable physical infrastructure and favourable trade policies to facilitate seamless trade flows across ASEAN. Among SMEs that sell online, roughly half see complex cross-border trade processes and poor logistics infrastructure as the top barriers to selling online to other countries.

Across ASEAN, non-tariff barriers have increased from about 1,600 in 2000 to roughly 6,000 in 2015. ASEAN member states should continue to eliminate non-tariff barriers in line with priorities articulated in MPAC 2025 under Regulatory Excellence and use the ASFTI to identify roadblocks to seamless trade flows across ASEAN.

According to WEF, the average quality of overall infrastructure increased from 4.1 to 4.2 (on a scale of 7) between 2007 and 2017. However, other countries have sped ahead over this period, with a 0.9-point increase to 4.5 for China and a 1.5-point increase for India. ASEAN member states must accelerate progress on seamless logistics within and across ASEAN to facilitate digital-enabled trade. This includes implementing the MPAC 2025 Seamless Logistics initiatives as well as ratifying and implementing such transportation agreements as the AFAFGIT under MPAC 2010.

2

Protect data whilst supporting digital trade and innovation

According to Ericsson, mobile data traffic in South East Asia and Oceania is expected to grow 11 times from 2017 to 2023. It will be the responsibility of governments and industry to ensure that data is protected and secured as the volume increases. At the same time, governments need to strike a balance between ensuring privacy protection and the risk of stifling the growth of budding digital SMEs. Among the digital entrepreneurs and businesses we interviewed, a commonly cited barrier was navigating digital regulations. They

expressed concern about how data localisation regulations are a key barrier to seamless digital trade and increase the hurdles for them to operate.

Policymakers can learn from other member states. Singapore's Personal Data Protection Act (PDPA) comprises various rules governing the collection, use, disclosure and care of personal data, whilst its participation in the APEC Cross-Border Privacy Rules (CBPR) System allows the nation to facilitate cross-border transfer of data. The CBPR System currently has six participating countries that uphold data protection standards to ensure the data is exchanged and used in a responsible way.

ASEAN has already adopted a Framework for Personal Data Protection, whose participants have committed to the principles of data protection whilst facilitating data flows across ASEAN member states. As a next step, we recommend that member states harmonise their domestic policies with the principles outlined in the ASEAN Framework for Personal Data Protection and international frameworks such as the APEC CBPR to ensure they do not stifle budding SMEs' progress in digital integration.

3

Enable seamless digital payments

Digital payments are a key enabler to facilitate seamless cross-border digital trade. However, across ASEAN, digital payment remains an ongoing challenge for individuals and businesses alike. In fact, SMEs cite the lack of cross-border payment options as a key barrier to engaging in online cross-border sales. In addition to facilitating digital trade, digital payments serve as a gateway to other digital financial services. As such, they offer the potential to extend financial inclusion to underserved populations across ASEAN.

Policymakers need to do more to stimulate the financial ecosystem to develop digital payment solutions, and to encourage individuals and businesses to adopt these solutions. Moreover, with the growing digital-enabled trade across ASEAN, member states must now turn their focus to adopting common frameworks for digital payments in order to accelerate digital integration.

In line with the goals under AEC 2025 Strategic Action Plans for Financial Integration, ASEAN member states should implement interoperable frameworks that use common global standards, messages and rules, such as ISO 20022; work with financial institutions to develop inclusive open API standards and roadmaps; and develop or build on existing national digital ID systems to encourage adoption of digital financial services by enabling real-time and secure verification of user identities.

4

Broaden our digital talent base

More than 40% of surveyed SMEs cited lack of skills as a key barrier in using digital tools such as e-commerce. Yet, at the same time, 75% of SMEs indicate that digital integration presents an important strategic opportunity for them, reflecting a desire to embrace digital as an enabler for growth. It is critical for

ASEAN governments to prioritise upskilling of the existing workforce to enable them to benefit from and accelerate the progress of digital integration.

There are already plans in place—ASEAN ICT Masterplan 2020 under Human Capital Development, or AEC Blueprint 2025 under Information and Communications Technology—and ASEAN member states have made some progress. Yet many upskill programmes are at an early stage or only focus on urban populations. There are notable exceptions: The SkillsFuture programme in Singapore dedicates 25% of courses to ICT skills, and the Human Resources Development Fund in Malaysia has launched initiatives to prepare the workforce for Industrial Revolution 4.0.

In order to accelerate results, ASEAN member states should partner with the private sector in designing the most relevant digital skills roadmaps—building off the work that has been done in Singapore and Malaysia—and accelerate the roll-out of these programmes for prioritised sectors.

5

Foster entrepreneurship

In order to accelerate digital integration, we must help budding digital SMEs flourish. Among the digital entrepreneurs and digitally integrated SMEs we interviewed, many reported barriers related to navigating the business ecosystem—from the ease of starting a business to navigating digital regulations.

ASEAN should continue to simplify existing hurdles to setting up and doing business for its SMEs. As highlighted in the ASEAN Strategic Action Plan for SME Development 2025, we recommend ASEAN accelerate and ensure completion of the following action by 2018: “Establish a sound system and streamline permit and registration to enable less costly and faster business formation.”

In addition, ASEAN should ensure new policies related to digital integration pass the “SME burden test” (i.e., “Will this new policy deter SMEs from participating due to the significant burdens imposed on them?”). In particular, we propose that policymakers keep this in mind as they consider digital economy taxes. The administrative burden of digital economy taxes would likely deter many from participating in digital trade and stifle digital inclusion for SMEs. Until the digital economy is mature with significant participation, policymakers should consider alternatives to taxation.

6

Coordinate actions

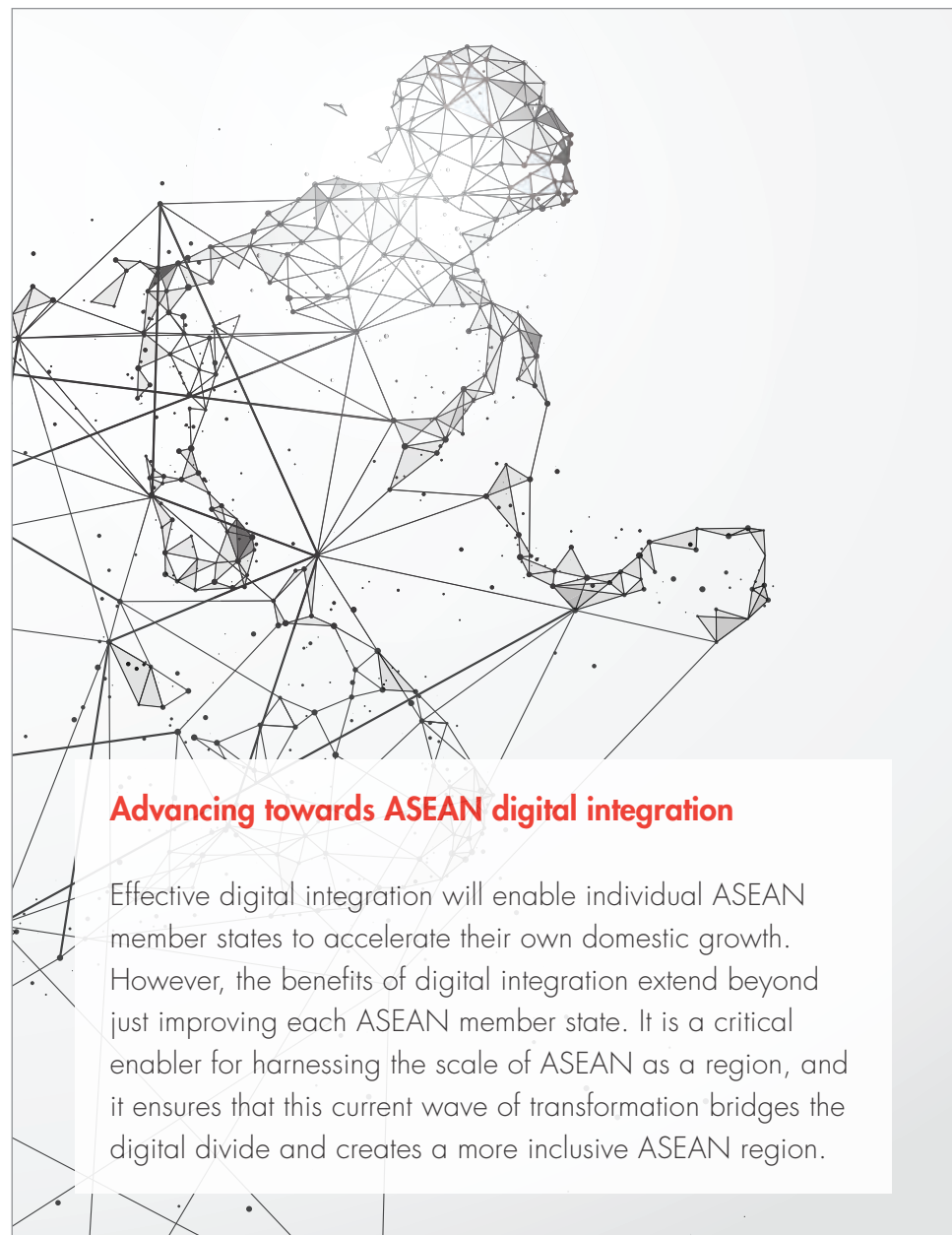
Today, there are multiple ASEAN bodies providing oversight across the many areas of the Digital Integration Framework—from sectoral ministerial bodies to the various coordinating committees—each delivering to different frameworks, with different objectives, and working towards different timelines.

ASEAN should designate one body to manage across all the different areas of

the Digital Integration Framework. This will help accelerate digital integration through effective prioritisation, coordination and tracking across different objectives and timelines. Given the overlap with existing mandates, our recommendation is for the role of ASEAN Coordinating Committee on E-Commerce (ACCEC) to include oversight of the implementation of this Digital Integration Framework.

The role of ASEAN chair(s)

As the chairs for ASEAN in 2018 and 2019 respectively, Singapore and Thailand can play a role in helping to accelerate the pace of digital integration. By prioritising the implementation in these critical areas and sharing best practices among member states, ASEAN can advance towards digital integration for the benefit of all.



Appendix

- Report methodology
- Digital Integration Framework elements
- References
- Glossary
- Key contacts
- Related reports

Report methodology

The objective of our report is to provide a clear set of priorities for ASEAN to focus on delivering in the next 12 to 18 months. In arriving at the recommendations, our approach has relied on extensive research to understand the facts from the ground up.

1. First, we surveyed SMEs in all 10 member states across key sectors to ensure we obtained a bottom-up understanding of the benefits and barriers of digital integration from the lens of the SMEs (see detailed methodology below). We supplemented these surveys with interviews with SMEs as well as local and regional businesses.
2. Second, based on the key barriers, we developed the Digital Integration Framework, which looks to address each barrier.
3. Third, we developed a set of 65 policy actions and outcome indicators underlying the Digital Integration Framework (see detailed methodology below). We analysed the current state of digital integration readiness for each member state based on publicly available data sources. We further supplemented these with interviews with subject matter experts in the public and private sectors.
4. Finally, based on that analysis of digital integration readiness, we developed the priorities for ASEAN to focus on for the next 12 to 18 months.

Survey methodology

The ASEAN Digital Integration SME Survey was conducted across all 10 ASEAN member states. The survey's purpose was to understand the level of awareness and usage of digital technology tools, and barriers, benefits and perception of threats that SMEs have on the adoption of digital technology. Conducted during March and April 2018, the survey polled 2,342 respondent SMEs in the agriculture, manufacturing, retail, transport and logistics sectors in ASEAN.

All 10 ASEAN member states were well represented in the survey, with no member state consisting of over 20% of the survey population. It was also a representative set of respondent SMEs across key sectors, with every sector having at least 300 responses. The study has enabled us to assess each sector's and member state's awareness and adoption of digital technology, and its perception of benefits and barriers to adoption.

Digital integration progress methodology

Digital integration progress for each ASEAN member state was measured by examining 65 elements across five policy areas and 10 sub-areas that include government policies and quantitative outcome indicators (see Figure 13). The former was included in the analysis to account for instances where governments have taken proactive measures on these policy areas, but outcome indicators don't yet reflect the results.

Each of the 65 elements (see Figure 13) was then assessed on a 4-point scale, with a low score of 1 reflecting early stages of digital integration readiness where no (or insufficient) policies and outcomes are in place, and a high score of 4 reflecting the most advanced stages of digital integration readiness, where policies and actions reflect global best practices and are ready to integrate with the region. The assessment of these outcome indicators and government policies in each sub-area were then averaged with equal weights to arrive at a final evaluation of the policy area.

Data sources used primarily consist of publicly available data from international organisations, supported by national sources and journal publications. We then supplemented the data and analysis with interviews with more than 20 experts from both the public and private sectors.

Figure 13: Digital Integration Framework elements

	Sub-areas	Objective	Elements	
Digital connectivity and affordable access	Domestic and International Connectivity	Enable ICT infrastructure for reliable Internet coverage and access and cross-border data transfers and access	<ul style="list-style-type: none"> Telco operator regulations and incentives Spectrum allocation policy Wholesale market investment Undersea cable investment incentives 	<ul style="list-style-type: none"> IXP investment incentives Internet access coverage (3G, 4G)—GSMA Broadband speed—Speedtest Global Index International bandwidth per user—World Bank
	Consumer and Business Adoption	Enable ecosystem to ensure affordable access to Internet and digital tools	<ul style="list-style-type: none"> Digital adoption incentives for citizens and SMEs Government programmes to support Internet access Smartphone costs—IDC PC/laptop costs—IDC Broadband costs—A4AI 	<ul style="list-style-type: none"> Broadband connections (3G, 4G, Fixed)—GSMA and ITU Smartphone penetration—E-Marketer Computer penetration—ITU Enterprise software penetration—ASEAN Digital Integration SME survey SMEs' use of website—World Bank
Financial ecosystem	Digital Payments	Enable nationwide and region-wide payments adoption and connectivity	<ul style="list-style-type: none"> Interoperability framework Open API framework Cash-in/cash-out Government cashless society programmes 	<ul style="list-style-type: none"> Average transaction costs % of population who use digital payments—Bain Analysis Digital payments as % of consumer expenditure—Bain Analysis
	Digital Financial Services	Enable nationwide and region-wide financial inclusion	<ul style="list-style-type: none"> Fintech sandbox programmes Digital ID KYC procedures 	<ul style="list-style-type: none"> Alternative credit scoring services Banked population (depositors per 1,000 adults)—IMF
Commerce and trade	Ease of Regional Digital Trade	Enable seamless regional digital trade environment across goods and services	<ul style="list-style-type: none"> Non-tariff barriers—UNCTAD Intra-ASEAN average tariffs—World Bank Data protection and cross-border data flow policies Consumer protection Digital economy policies 	<ul style="list-style-type: none"> Average customs cost Import volumes as % of GDP—World Bank Export volumes as % of GDP—World Bank SMEs share of total exports—Asian Development Bank Institute % shoppers online—We Are Social % retail spend online—E-Marketer
	Logistics Infrastructure	Build domestically and regionally connected logistics infrastructure	<ul style="list-style-type: none"> Logistics and trade facilitation plans Infrastructure master plans Private sector infrastructure participation incentives Public and private road/rail/port infrastructure spending 	<ul style="list-style-type: none"> Quality of port, rail, road and air transport infrastructure—WEF Timeliness of logistics—World Bank Logistics competence—World Bank
Workforce transformation	Digital Literacy	Enable population and workforce to achieve working-level digital literacy	<ul style="list-style-type: none"> Digital curriculum in primary and secondary education Workforce digital upskilling programmes or incentives 	<ul style="list-style-type: none"> Internet penetration—World Internet Stats Internet usage time—We Are Social Level of digital skills among population—WEF
	Advanced Digital Workforce	Develop advanced digitally skilled personnel to enable domestic and regional digital growth	<ul style="list-style-type: none"> STEM education incentives ICT personnel per capita—ILO 	<ul style="list-style-type: none"> STEM graduates as % of graduates—UNESCO
Business ecosystem	Investment Environment	Encourage investment domestically and internationally	<ul style="list-style-type: none"> FDI limits Foreign capital controls 	<ul style="list-style-type: none"> PE/VC funding amount—AVCJ FDI in-flows—ASEAN Secretariat
	Entrepreneurship Environment	Build ecosystem for innovation and entrepreneurship	<ul style="list-style-type: none"> Financial support for entrepreneurship Non-financial support for entrepreneurship 	<ul style="list-style-type: none"> Ease of doing business index—World Bank Number of new businesses registered—World Bank Attitudes towards entrepreneurship—GEI

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Glossary

Business Ecosystem: A business ecosystem is the network of organisations—including suppliers, distributors, customers, competitors, government agencies, etc.—involved in the delivery of a specific product or service through both competition and cooperation.

Digital Economy: A collective term that includes digital infrastructure sub-sectors (such as telecommunications, hardware and software), Internet and platform sub-sectors (such as e-commerce and sharing platforms), and the proportion of traditionally offline sectors and sub-sectors enhanced by digitalisation (such as manufacturing adoption of Industry 4.0).

Digital ID (electronic-ID): An electronic identification solution of citizens or organisations, for example, to access services provided by government authorities, banks or other companies.

Digital Integration: Digital integration is harnessing the digital economy to power and accelerate intra-regional trade and growth.

Digital regulations: Digital regulations refers to digital economy regulations such as data protection and digital economy taxation.

Financial Ecosystem: A financial ecosystem is the network of organisations—including suppliers, banks, customers, competitors, government agencies, etc.—involved in the delivery of financial services through both competition and cooperation.

Industry 4.0 (Also Industry 4.0 tools and Industrial Revolution 4.0): Industry 4.0 refers to technology that enables connectivity and automation using hardware and software such as sensors/RFID/loT, artificial intelligence, autonomous robotics and distributed ledger technology.

Interoperability: When payment systems are interoperable, they allow two or more proprietary platforms to interact seamlessly. Interoperability can promote competition, reduce costs, enable economies of scale and make payment services more convenient and accessible.

Know Your Customer (KYC): KYC is the process of a business identifying and verifying the identity of its clients, commonly done in compliance with banking and anti-money laundering regulations.

Non-tariff barriers: Non-tariff barriers are generally defined as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade.

Sandbox programmes: A sandbox programme is typically conducted by regulatory authorities for financial institutions and fintech players to experiment with innovative financial products or services in the production environment but within a well-defined space and duration.

Small and medium enterprises (SMEs): Small and medium enterprises are non-subsidiary, independent firms that employ fewer than a given number of employees or generate lower revenue than a given amount. This definition varies according to the respective SME agencies across ASEAN. The most common average is 200 employees and US\$5 million in revenue.

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